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Bridging the Gap

Academic Preparation and Postsecondary Success of First-Generation Students

Executive Summary

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Executive Summary

This report examines the high school preparation and postsecondary persistence of first-generation students—those students whose parents had no education beyond high school—and compares them with students whose parents went to college. Previous research has demonstrated that first-generation students exhibit different college enrollment and persistence behaviors than their counterparts whose parents have more education. Such studies found that first-generation students were less likely than their peers to complete advanced mathematics classes in high school. Even among those qualified for college, first-generation students were less likely to enroll in 4-year institutions (Horn and Nuñez 2000). Independent of other relevant demographic, enrollment, and college involvement factors, first-generation status was also found to be negatively associated with students’ persistence and attainment (Nuñez and Cuccaro-Alamin 1998).

What has not been well understood, however, is the extent to which the academic preparation of first-generation students in high school affects their persistence and attainment in postsecondary education. The purpose of this report is to examine whether first-generation students who were otherwise equally prepared academically were comparable to students whose parents went to college in terms of their grade-point averages (GPAs), number of remedial courses in postsecondary education, and rates of persistence (that is, whether they were retained at their first institution, had stayed on a persistence track toward the

bachelor’s degree,¹ or had attained a degree). This analysis focuses on a subset of 1995–96 beginning postsecondary students who started their postsecondary education in 4-year institutions.

High School Coursetaking

The academic rigor of students’ high school curriculum² was strongly associated with their postsecondary GPA, the amount of remedial coursework they took, and with their rates of persistence and attainment. As overall high school academic rigor increased, so did students’ GPA. Students who did not exceed the requirements of the core New Basics curriculum had a lower GPA than did those who exceeded them (2.5 points versus 3.1 points). The rigor of students’ high school curriculum was also related to the number of remedial courses they took during their first year of postsecondary education. As the rigor of the secondary curriculum increased, the proportion of students who took one or more remedial courses decreased from 21 percent to 3 percent.

¹Students’ status with respect to the “persistence track to a bachelor’s degree” is defined by three values: stayed on the persistence track (i.e., stayed in the same 4-year institution or made a lateral transfer to a different 4-year institution), left the persistence track (“stopped out” for more than 4 months or made an immediate or delayed downward transfer), or left postsecondary education (was neither still enrolled at the initial institution nor had transferred to another postsecondary institution).

²“Academic rigor” is defined by four variables that describe the overall difficulty of students’ high school coursework: core New Basics or below, beyond New Basics I (somewhat exceeded core New Basics), beyond New Basics II (substantially exceeded core New Basics), and rigorous (maximally exceeded core New Basics).

High school academic preparation was also related to students' likelihood of remaining enrolled in postsecondary education. In general, the more rigorous their high school curriculum, the more likely students were to persist (or to attain a degree) at the initial postsecondary institution in which they enrolled. While 62 percent of students who did not exceed the core New Basics requirements were still enrolled or had attained a degree in spring 1998, 84 percent of students who exceeded the requirements did so. Likewise, the more rigorous the students' high school curriculum, the higher their likelihood of staying on the persistence track to a bachelor's degree: 87 percent of students who took rigorous academic coursework in high school stayed on the persistence track, compared with 62 percent of students who did not take such coursework. Finally, students whose curriculum was rigorous were more likely to still be enrolled and working for a degree than students who did not exceed the core New Basics requirements (93 percent versus 75 percent).

Effect of First-Generation Status

This study found a relationship between parents' education level and the likelihood that students would undertake a more rigorous high school curriculum and, consequently, enroll, perform well, and persist in 4-year postsecondary institutions. Overall, first-generation status was shown to have a negative association with students' academic preparation and persistence.

Preparation for Postsecondary Education

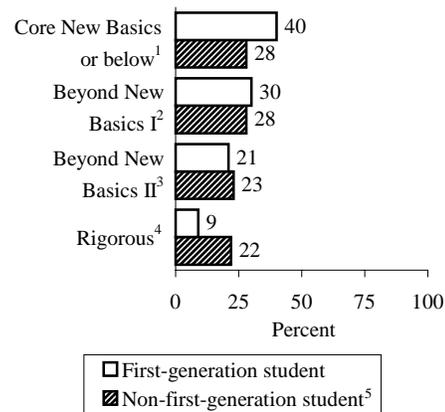
Compared with students whose parents were college graduates,³ first-generation students were less likely to have taken calculus in high school (20 percent versus 34 percent). A full 40 percent

³Whenever the term "college graduates" is used, it means that at least one parent had attained a bachelor's degree.

of first-generation students did not exceed the core New Basics curriculum (figure A). Furthermore, while about one-fifth of students whose parents had a bachelor's degree took rigorous courses in high school, just 9 percent of first-generation students did so.

First-generation students were also less likely to take college entrance examinations, and when they did, they were more likely than their peers to

Figure A—Percentage distribution of 1995–96 beginning postsecondary students according to academic rigor of secondary school curriculum, by first-generation status



¹Core New Basics curriculum includes 4 years of English, 3 years of mathematics, 3 years of science and social studies.

²Beyond New Basics I includes core New Basics and at least two of three science courses (biology, chemistry, or physics), algebra I and geometry, plus 1 year of foreign language.

³Beyond New Basics II includes core New Basics, advanced science (biology, chemistry, and physics) and advanced math (including algebra I, geometry, algebra II), plus 2 years of foreign language.

⁴Rigorous includes core New Basics, advanced science (biology, chemistry, and physics), 4 years of math (including algebra I, geometry, algebra II, precalculus), plus 3 years of foreign language and one honors/Advanced Placement course or Advanced Placement test score.

⁵Non-first-generation students are those whose parents had any college experience.

NOTE: Details may not sum to 100 due to rounding. Includes public and private, not-for-profit 4-year institutions. Students in private, for-profit 4-year institutions are excluded from this analysis because the sample size was too small (less than 1 percent).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 Beginning Postsecondary Students Longitudinal Study, First Follow-up (BPS:96/98).

have lower scores. Whereas 15 percent of students whose parents were college graduates scored 790 points or lower on the SAT or ACT (i.e., the lowest quartile), almost 40 percent of first-generation students scored in this quartile. On the SAT II, first-generation students were more likely than their counterparts whose parents were college graduates to score below 550 points and less likely to score 650 points or more. Finally, a lower proportion of first-generation students reported taking any Advanced Placement (AP) tests than did both students whose parents had attended college and those whose parents had graduated (8 percent versus 14 percent and 22 percent, respectively).

Postsecondary Enrollment and Performance

In this study, students' patterns of postsecondary enrollment and academic performance confirmed previous research showing differential behaviors between first-generation students and their peers whose parents were college educated. Of the students who attended 4-year institutions, first-generation students were much more likely to attend public comprehensive institutions instead of research universities than those with at least one parent who had a bachelor's degree (41 percent versus 26 percent). More than one-quarter (27 percent) of first-generation students attended part time, and these students were much more likely to work full time compared to students whose parents had a college degree. By the end of the 1997–98 academic year, a larger proportion of first-generation students (25 percent) had chosen business/management as their major field of study, compared with their non-first-generation counterparts (17 percent).

In general, first-generation students had lower first-year GPAs than students whose parents had a college degree (2.6 versus 2.8), and were more

likely to have taken at least one remedial course during their first year of postsecondary education (21 percent versus 10 percent). This difference persisted even after controlling for the rigor of students' high school coursework and college entrance examination scores. Among students who substantially exceeded the core New Basics in high school, first-generation students were more likely to have taken at least one remedial course during their first year of postsecondary education than students whose parents had a college degree (15 percent versus 6 percent). Moreover, among students whose college entrance examination scores were in the lowest quartile, 38 percent of first-generation students had taken at least one remedial course during their first year, compared with 29 percent of students whose parents had a college degree.

However, among students who took rigorous high school courses or scored in the top quartile on their college entrance examinations, first-generation students had first-year college GPAs and remedial coursetaking patterns that were not significantly different from their non-first-generation peers. For example, among students who took rigorous coursework in high school, 95 percent of first-generation students reported taking no remedial courses during their first year, compared to 96 percent of students whose parents completed some college and 97 percent of students whose parents had earned a bachelor's degree. In addition, first-generation students' average first-year GPA was 3.0, which was no different from the average GPA (3.1) of their non-first-generation counterparts with similar academic preparation.

Postsecondary Persistence and Attainment

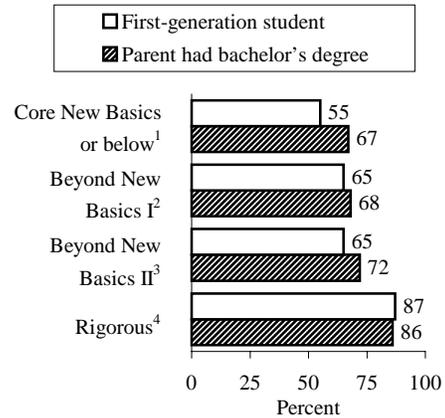
With respect to postsecondary persistence and attainment, four outcomes were examined: the

number of enrollment spells,⁴ retention at the initial 4-year institution, persistence track to a bachelor's degree, and attainment or last academic year of enrollment through 1998.

First-generation students were less likely to be enrolled continuously or to attain a degree at their initial postsecondary institution than students whose parents had completed college (60 percent versus 73 percent). They were also more likely to have stopped out⁵ or left their first institution of enrollment than their peers whose parents had a college degree (19 percent versus 8 percent). These differences disappeared, however, among students who took rigorous high school courses. In this case, first-generation students were as likely as students whose parents had a college degree to be continuously enrolled or to have attained a degree in June 1998 (87 percent versus 86 percent) (figure B).

The study results also show that students who remained at the initial 4-year institution or made a lateral transfer to a new 4-year institution were considered to have stayed on the persistence track to a bachelor's degree. Overall, first-generation students were less likely than students whose parents had completed a 4-year degree to stay on the persistence track (58 percent versus 77 percent). Not only were first-generation students more likely than their peers whose parents finished college to leave the persistence track through a

Figure B—Percentage of 1995–96 beginning postsecondary students who were still enrolled (or had attained bachelor's degree) at initial institution according to academic rigor of secondary school curriculum, by first-generation status: June 1998



¹Core New Basics curriculum includes 4 years of English, 3 years of mathematics, 3 years of science and social studies.

²Beyond New Basics I includes core New Basics and at least two of three science courses (biology, chemistry, or physics), algebra I and geometry, plus 1 year of foreign language.

³Beyond New Basics II includes core New Basics, advanced science (biology, chemistry, and physics) and advanced math (including algebra I, geometry, algebra II), plus 2 years of foreign language.

⁴Rigorous includes core New Basics, advanced science (biology, chemistry, and physics), 4 years of math (including algebra I, geometry, algebra II, precalculus), plus 3 years of foreign language and one honors/Advanced Placement course or Advanced Placement test score.

NOTE: Includes public and private, not-for-profit 4-year institutions. Students in private, for-profit 4-year institutions are excluded from this analysis because the sample size was too small (less than 1 percent).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 Beginning Postsecondary Students Longitudinal Study, First Follow-up (BPS:96/98).

stopout or downward transfer (22 percent versus 14 percent), they also were more than twice as likely to leave their first institution without returning (21 percent versus 9 percent). Moreover, even among students who took rigorous coursework in high school, first-generation students were almost twice as likely as students whose parents had completed college to leave the persistence track through a stopout or downward transfer (14 percent versus 8 percent).

⁴An “enrollment spell” is defined as a period of enrollment without a break of more than 4 months. The number of enrollment spells counts the periods of continuous enrollment (at any institution), each separated by more than 4 months of nonenrollment, through June 1998.

⁵An enrollment spell may end either with a stopout or leaving without return. A “stopout” is defined as a break in enrollment of more than 4 months and a return to postsecondary education. Leaving without return is no enrollment for a period of more than 4 months and no return to postsecondary education as of spring 1998.

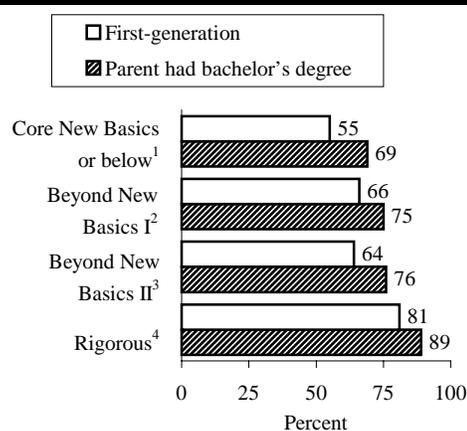
Though the negative relationship between first-generation status and persistence was strong and consistent, the picture was more positive when looking at those who left postsecondary education without returning, while controlling for the rigor of students' secondary school curriculum and their scores on college entrance examinations. Among those students who took a rigorous high school curriculum, first-generation students and students whose parents completed college had similar rates of postsecondary departure without return (5 percent and 3 percent). And though first-generation students who did not exceed the core New Basics in high school were less likely to stay on the persistence track to a bachelor's degree compared to their counterparts (55 percent versus 69 percent), the likelihood of staying on the persistence track for students who took rigorous coursework did not differ meaningfully for first-generation students and students whose parents had a bachelor's degree (81 and 89 percent, respectively) (figure C).

Finally, this study examined overall rates of persistence and attainment in spring 1998, 3 years after initial enrollment. Students whose parents had a bachelor's degree were more likely than their first-generation peers to have attained a degree or to still be enrolled 3 years after entering a 4-year institution (88 percent versus 73 percent). This difference was particularly evident for first-generation students who did not take a rigorous curriculum in high school: they were much less likely than students whose parents completed college to be enrolled 3 years after entering a 4-year institution (65 percent versus 85 percent).

Conclusion

The findings from this analysis indicate that students who were well prepared for postsecondary education were very likely to persist in 4-year institutions. Students who took rigorous course-

Figure C—Percentage of 1995–96 beginning postsecondary students who stayed on persistence track to bachelor's degree according to academic rigor of secondary school curriculum, by first-generation status: June 1998



¹Core New Basics curriculum includes 4 years of English, 3 years of mathematics, 3 years of science and social studies.

²Beyond New Basics I includes core New Basics and at least two of three science courses (biology, chemistry, or physics), algebra I and geometry, plus 1 year of foreign language.

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⁴Rigorous includes core New Basics, advanced science (biology, chemistry, and physics), 4 years of math (including algebra I, geometry, algebra II, precalculus), plus 3 years of foreign language and one honors/Advanced Placement course or Advanced Placement test score.

NOTE: A student who stays on the persistence track either remains at the initial 4-year institution in which they enrolled or makes a lateral transfer to a new 4-year institution with no break in enrollment. Includes public and private, not-for-profit 4-year institutions. Students in private, for-profit 4-year institutions are excluded from this analysis because the sample size was too small (less than 1 percent).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 Beginning Postsecondary Students Longitudinal Study, First Follow-up (BPS:96/98).

work in high school accounted for more than 80 percent of those students who either stayed on the persistence track to a bachelor's degree or were retained at their initial institution. At the same time, parents' levels of education were found to be associated with rates of students' retention and persistence in college, even when controlling for measures of academic preparedness (such as rigor

of secondary curriculum and college entrance examination scores).

These findings hold true even when other related variables are held constant. That is, even after controlling for variables such as academic preparation and postsecondary achievement, parents' education continued to be a significant factor in determining whether students persisted, were enrolled at their initial institution 3 years after entering, or stayed on the persistence track. Students whose parents attained a bachelor's degree were more likely than first-generation students to remain enrolled at their initial 4-year institution. Likewise, after controlling for related variables, students whose parents attained a bachelor's de-

gree or higher were more likely to stay on the persistence track to a bachelor's degree than first-generation students.

At the same time, after holding all other variables constant, students who took rigorous coursework in high school significantly increased their chances of staying on the persistence track to a bachelor's degree. Taken together, these results suggest that, while first-generation status is an important predictor of success in postsecondary education, rigorous preparation in high school substantially narrows the gap in postsecondary outcomes between first-generation students and their peers whose parents graduated from college.