NCES
National Center for Education Statistics

PEDAR

The Road Less Traveled?

Students Who Enroll in Multiple Institutions

Postsecondary Education Descriptive Analysis Report

U.S. Department of Education
Institute of Education Sciences
NCES 2005–157

THIS PAGE INTENTIONALLY LEFT BLANK

National Center for Education Statistics

U.S. Department of Education
Institute of Education Sciences
NCES 2005–157

The Road Less Traveled?

Students Who Enroll in Multiple Institutions

Postsecondary Education Descriptive Analysis Report

May 2005

Katharin Peter
Emily Forrest Cataldi
MPR Associates, Inc.

C. Dennis Carroll
Project Officer
National Center for Education Statistics

U.S. Department of Education
Margaret Spellings
Secretary

Institute of Education Sciences
Grover J. Whitehurst
Director

National Center for Education Statistics
Grover J. Whitehurst
Acting Commissioner

The National Center for Education Statistics (NCES) is the primary federal entity for collecting, analyzing, and reporting data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report full and complete statistics on the condition of education in the United States; conduct and publish reports and specialized analyses of the meaning and significance of such statistics; assist state and local education agencies in improving their statistical systems; and review and report on education activities in foreign countries.

NCES activities are designed to address high-priority education data needs; provide consistent, reliable, complete, and accurate indicators of education status and trends; and report timely, useful, and high-quality data to the U.S. Department of Education, the Congress, the states, other education policymakers, practitioners, data users, and the general public. Unless specifically noted, all information contained herein is in the public domain.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other NCES product or report, we would like to hear from you. Please direct your comments to

National Center for Education Statistics
Institute of Education Sciences
U.S. Department of Education
1990 K Street NW
Washington, DC 20006–5651

May 2005

The NCES World Wide Web Home Page is http://nces.ed.gov.
The NCES World Wide Web Electronic Catalog is http://nces.ed.gov/pubsearch.

Suggested Citation

Peter, K., and Forrest Cataldi, E. (2005). *The Road Less Traveled? Students Who Enroll in Multiple Institutions* (NCES 2005–157). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

For ordering information on this report, write

U.S. Department of Education
ED Pubs
P.O. Box 1398
Jessup, MD 20794–1398

or call toll free 1–877–4ED–PUBS; or order online at http://www.edpubs.org.

Content Contact

Aurora D'Amico
(202) 502–7334
aurora.d'amico@ed.gov

Executive Summary

Introduction

As of 2001, 40 percent of students who enrolled in postsecondary education for the first time in 1995–96 had attended more than one institution (table A). Over the course of the undergraduate education of 1999–2000 college graduates (first-time bachelor's degree recipients), a majority (59 percent) had attended more than one institution (figure 3). Even among 1999–2000 bachelor's degree recipients who began in 4-year institutions, about 47 percent had attended another institution at some point with or without transferring (table 8-A). Much of the research on students who attend multiple institutions has focused on those who make a permanent transition from one institution to another (Bradburn and Hurst 2001; McCormick 1997). For the most part, previous literature has not reported on the other ways in which students enroll in multiple institutions, including co-enrollment (i.e., attending more than one institution simultaneously, also called "overlapping enrollment" or "dual enrollment") and attending another institution without transferring from the first institution. The purpose of this study is to provide an overview of the extent to which undergraduates attend multiple institutions as well as the relationship between multiple institution attendance and persistence, attainment, and time to degree. Students who attended multiple institutions are the population of interest here. Subsets of this population will also be examined—specifically, those who:

Table A. Percentage distribution (by columns) of 1995–96 beginning postsecondary students by the type of the first institution attended, according to multiple institution attendance patterns

		Type of first institution		
Attendance patterns	Total[1]	Public 2-year	Public 4-year	Private not-for-profit 4-year
Total	100.0	100.0	100.0	100.0
Number of institutions attended				
One	59.7	52.8	61.2	62.8
More than one	40.4	47.2	38.9	37.2
Two	30.1	35.4	28.7	27.0
Three	8.6	10.2	8.3	8.0
Four or more	1.7	1.7	1.9	2.2
Co-enrolled				
Never co-enrolled	89.2	88.6	87.6	86.9
Sometimes co-enrolled	10.9	11.4	12.4	13.1
Transfer status				
Never transferred	67.9	58.5	73.0	76.3
Transferred	32.1	41.5	27.0	23.7
Once	25.9	34.3	21.0	17.4
Twice	5.7	7.0	5.3	5.3
Three times	0.5	0.2	0.6	1.0

[1] Total includes students who began at types of institutions not shown here.

NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01); and Berkner, L., He, S., and Forrest Cataldi, E. (2002). *Descriptive Summary of 1995–96 Beginning Postsecondary Students: Six Years Later* (NCES 2003–151).

- Attended two or more institutions at one time (co-enrolled),
- Transferred between institutions, or

- Began at a 4-year institution and attended a 2-year institution at some point.

This report focuses on both 1995–96 beginning postsecondary students and 1999–2000 bachelor's degree recipients and is organized by survey and beginning institution type.

This analysis uses data from the 1996/01 Beginning Postsecondary Students Longitudinal Study (BPS:96/01) and the 2000/01 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01). BPS:96/01 is a longitudinal survey of students who first began their postsecondary education in 1995–96. The last follow-up survey was conducted in 2001, 6 years after students began their postsecondary education, by which time some students were no longer enrolled in postsecondary education, some had completed degrees or certificates, and some remained enrolled. B&B:2000/01 provides data on students who received a bachelor's degree in the 1999–2000 academic year, regardless of when they began their postsecondary education. Both studies used in this report are based on a representative sample of postsecondary education institutions in the United States and Puerto Rico and the students within those institutions. This analysis examines differences in student enrollment patterns using standard t-tests to determine statistical significance, and a two-way Analysis of Variance (ANOVA) to detect differential changes by testing for interaction effects. Statistical significances for both tests are reported at $p<0.05$. Standard error tables are available online at http://nces.ed.gov/das/library/reports.asp.

Beginning Postsecondary Students

As of 2001, 40 percent of 1995–96 beginning postsecondary students had attended more than one institution, including 32 percent who had transferred from one institution to another and 11 percent who had co-enrolled (table A).[1] Among beginning postsecondary students who had attended more than one institution, about one-quarter had attended more than two institutions (table 1).

Not surprisingly, students' attendance patterns differed according to the level and control of institution they first attended. Students who began in 2-year institutions were more likely than students who began in 4-year institutions to attend more than one institution or to transfer (table A and table 2). For example, 47 percent of students who began in public 2-year institutions had attended more than one institution as of 2001, compared with 39 and 37 percent of students who began in public 4-year and private not-for-profit 4-year institutions, respectively. No difference, however, could be detected between students who began in 2-year and in 4-year institutions in their likelihood of ever co-enrolling. Among students who began in 4-year institutions, those in public institutions were more likely than their private not-for-profit counterparts to transfer or ever attend public 2-year institutions. Twenty-seven percent of those who started in public 4-year institutions had transferred and one-fifth had enrolled in public 2-year institutions, compared with 24 and 14 percent, respectively, of students who began in private not-for-profit 4-year institutions. No difference was detected between students in public and in private not-for-profit 4-year institutions in the number of institutions they attended or their likelihood of co-enrolling.

In general, among 1995–96 beginning postsecondary students, more traditional students,

[1] In this section, a student was considered to have transferred if that student left one institution and enrolled in another institution for at least 4 months and a student was considered to have co-enrolled if that student overlapped enrollment at more than one institution for at least 1 month.

such as younger students and those who attended full time, were more likely to attend multiple institutions than their older or part-time counterparts (tables 3-A and 3-B; tables 4-A and 4-B). Likewise, dependent students and those who did not delay their postsecondary enrollment were more likely to attend multiple institutions than their counterparts who were independent or who delayed their enrollment. For example, among students who began at 4-year institutions, 39 percent of dependent students had attended more than one institution as of 2001, compared with 27 percent of independent students. Conversely, students with more than one characteristic that placed them at risk of not completing postsecondary education were less likely than their counterparts with one or no such characteristics to attend multiple institutions.[2] However, these characteristics are also associated with students' likelihood of persisting in their postsecondary programs. The longer students persist, the more opportunity they have to attend more than one institution. Thus, to some extent, the association between these risk factors and multiple institution attendance may be due to the length of time students are enrolled.

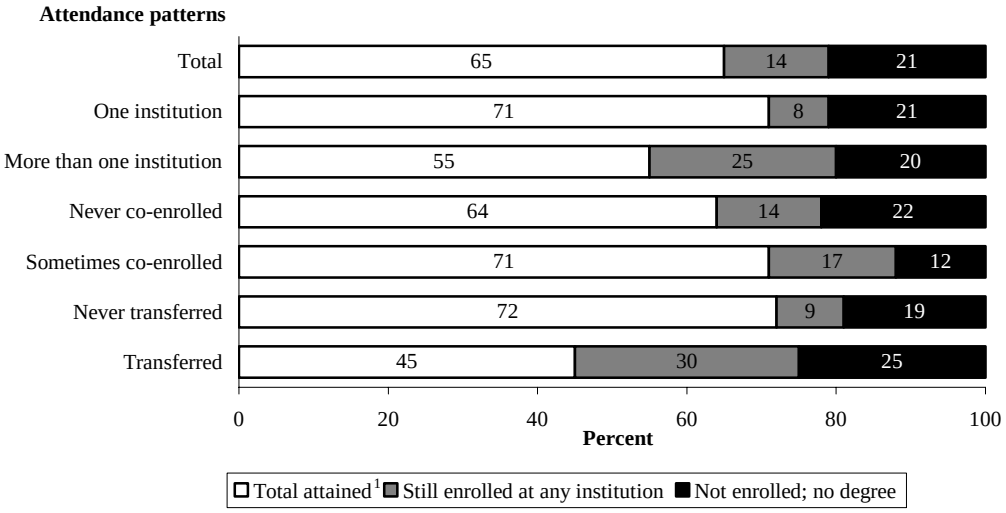
The association between dependency status and multiple institution attendance was particularly apparent among students in public 2-year institutions, also known as community colleges. That is, in public 2-year institutions, dependent students were more likely than independent students to attend more than one institution (58 vs. 27 percent; table 3-A). This may be due, in part, to the fact that dependent students were more likely to transfer to 4-year institutions to earn a bachelor's degree than their independent peers.[3] Similarly, independent students participate in programs leading to vocational certificates more often than dependent students (Horn, Peter, and Rooney 2002). Because these programs tend to be of short duration (i.e., 1 year or less), students may have less opportunity or reason to transfer. In addition, independent students are more likely to attend part time, which is also associated with lower rates of multiple institution attendance. Independent students are also more likely to have families, careers, and other responsibilities that may influence their ability to move from school to school. In contrast, dependent students are more likely to enroll in community colleges with the intention of transferring to a 4-year institution and attaining a bachelor's degree.

For 1995–96 postsecondary students beginning at 4-year institutions, multiple institution attendance was negatively related to degree attainment within 6 years. It appears, however, that for some students, multiple institution attendance may have only delayed attainment. For example, among students who began in 4-year institutions, those who attended more than one institution were less likely than students who attended only one institution to have attained any degree (55 vs. 71 percent); however, students attending more than one institution were more likely than those who attended one institution to still be enrolled in 2001 (25 vs. 8 percent) (figure A; table 4-C). About one-fifth of both groups were not enrolled and had not earned a degree. These results suggest that students who attended more than one institution may have needed more time to finish and that, given enough time, they may ultimately attain a degree. On the other hand, multiple institution attendance involving co-

[2] Persistence risk factors include delaying enrollment, having no high school diploma, enrolling part time, being financially independent, having dependents other than a spouse, being a single parent, and working full time while enrolled. For more information, see Horn and Premo (1995).

[3] BPS:96/01 Data Analysis System. Not shown in tables.

Figure A. Percentage distribution of 1995–96 beginning postsecondary students in 4-year institutions according to 6-year persistence and attainment status, by multiple institution attendance patterns



[1]Includes students who attained a bachelor's degree, associate's degree, or certificate.
NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

enrollment appeared to be positively related to persistence and attainment.

Relationship of Specific Variables to Persistence, Attainment, and Time to Degree

In order to take into account the interrelationship of factors associated with multiple institution attendance, a multivariate analysis was conducted. The analysis examined the relationship between multiple institution attendance patterns and 6-year persistence and attainment among beginning postsecondary students (table 5). The analysis included students who began their postsecondary studies in 1995–96 at 4-year institutions with a bachelor's degree goal and measured their likelihood of attaining a bachelor's degree or being enrolled in 4-year institutions 6 years later. It took into account beginning institution sector (i.e., public or private not-for-profit), types of multiple institution attendance, and several other variables associated with both multiple institution attendance and persistence, including income, GPA, and number of risk factors. After taking the covariation of these variables into account, the results still indicated that 6-year persistence was positively associated with co-enrolling and negatively associated with transferring and enrolling in public 2-year institutions.

Bachelor's Degree Recipients

While the previous section focused on first-time beginners in postsecondary education, this section looks at students who attained bachelor's degrees in 1999–2000 regardless of when they

began postsecondary education. The BPS survey included students who began postsecondary education in 1995–96 and, therefore, includes students who did not attain a degree as well as those who attained certificates, associate's degrees, and bachelor's degrees. B&B, however, looks retrospectively at those students who attained bachelor's degrees in 1999–2000, regardless of their path to that degree or the time required to attain it. Therefore, these two cohorts are not directly comparable. This section will focus on bachelor's degree recipients.

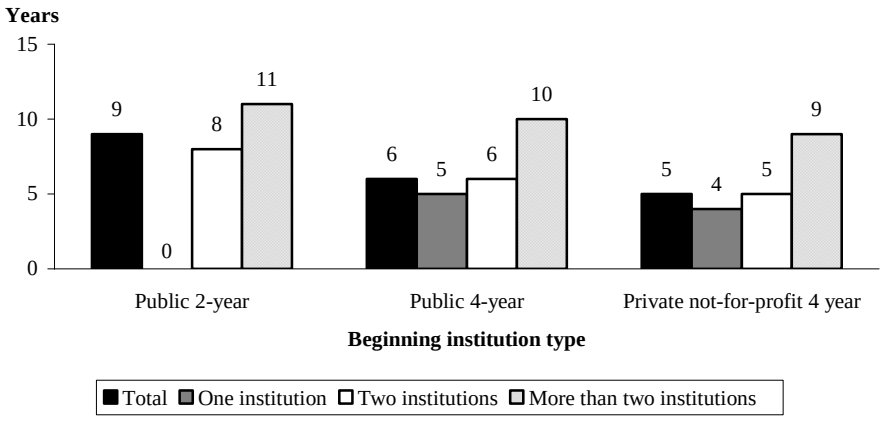
An examination of the multiple institution attendance patterns of 1999–2000 bachelor's degree recipients revealed that a majority (59 percent) attended more than one institution during their undergraduate education, including 35 percent who transferred and 9 percent who co-enrolled at some point (figure 4).[4] Among those who started at 4-year institutions, 37 percent had also attended 2-year institutions (table 8-A).

Among bachelor's degree recipients, independent students, older students, and students with more persistence risk factors were more mobile during their postsecondary studies than dependent students, younger students, and students with fewer persistence risk factors (tables 7-A and 8-A). Although these findings appear to contradict the BPS findings, the populations are not comparable: unlike beginning postsecondary students—whose risk factors are identified when they first enroll—in the B&B study, most of college graduates' risk factors are determined when they acquire their bachelor's degree. Thus, over the course of their enrollment, college graduates may become independent and develop additional persistence risk factors such as becoming a parent. Furthermore, students who take longer to attain a degree have more opportunities to attend multiple institutions and may not be captured in the BPS study which only encompasses 6 years. Also, participants in the B&B study have all obtained a bachelor's degree—thus having overcome whatever persistence risk factors they may have at the time of the survey. When looking at specific persistence risk factors which measure characteristics of graduates when they began their postsecondary education, among college graduates who began at 4-year institutions, those who delayed entry into postsecondary education and those who worked full time during their first year enrolled were more likely than their counterparts who did not delay entry or work full time to attend multiple institutions (table 8-A).

Consistent with the results found for beginning postsecondary students in BPS:96/01 in which multiple institution attendance was associated with slowed progress toward degree or certificate attainment, data from B&B:2000/01 indicated that attending more than one institution was associated with slowed progress toward the bachelor's degree (figure B). This may be related to the difficulty of transferring credits, different requirements at various institutions, or gaps in enrollment, or mitigating factors such as a move, job change, or change in family status. Other reasons or a combination of reasons may also influence progress toward the bachelor's degree for students who attend multiple institutions. Among 1999–2000 bachelor's degree recipients who began in 4-year institutions, as the number of institutions attended increased, so did the average time to completion (tables 8-B and 8-C). Co-enrolling and transferring among bachelor's degree recipients

[4] In this section, a student was considered to have transferred if that student indicated that he or she had attended more than one postsecondary institution before completing a bachelor's degree and did so in order to transfer between schools, and a student was considered to have co-enrolled if that student enrolled at two or more institutions for more than 1 month within the academic year.

Figure B. Average time to degree for 1999–2000 first-time bachelor's degree recipients according to multiple institution attendance patterns, by beginning institution type



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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

who began in 4-year institutions also resulted in their taking more time to complete a degree. However, differences by sector for these types of attendance patterns were observed.

In the B&B:2000/01 survey, college graduates were asked to report their main purpose for attending multiple institutions (table 6). As expected, those who began in public 2-year colleges were more likely than those who began in 4-year institutions to report transfer as their main purpose. That is, 63 percent of those who began in public 2-year colleges listed transfer as their main purpose for attending multiple institutions. However, about one-half of students who began in 4-year institutions (both public and private not-for-profit) also reported transfer as their main purpose. In addition, about one-third of bachelor's degree recipients who began in 4-year institutions said they enrolled in more than one institution to take additional classes.

Conclusions

Attending more than one postsecondary institution during the course of undergraduate enrollment is a common practice. Among students who enrolled in postsecondary education for the first time in 1995–96, 40 percent had attended more than one institution as of 2001, while among 2001 college graduates, nearly 60 percent had done so. As would be expected, students who began their postsecondary education in a community college were more likely to transfer than those who began in 4-year institutions, because community college students typically must transfer to earn a bachelor's degree. Nevertheless, about one-quarter of those students who started in 4-year institutions had transferred as of 2001, and for them, transfer was associated with lower persistence rates. Among 1999–2000 bachelor's degree recipients, attending more than one institution (or more than two institutions for those who began in community colleges),

transferring, and co-enrolling were each associated with longer average time to completion of their bachelor's degrees.

When taking risk status and other related variables into account, multivariate analyses of beginning postsecondary students who began their postsecondary education in a 4-year institution with a bachelor's degree goal indicated a negative association between transfer and persistence. That is, among these students, those who had transferred were less likely than those who had not transferred to attain a degree or be enrolled in 4-year institutions 6 years after first enrolling in postsecondary education. As with transfer, beginning postsecondary students who began their postsecondary studies in a 4-year institution and who attended a community college at some time during their enrollment were less likely to persist for 6 years or to graduate than their counterparts who had not attended a community college. In contrast, beginning students who had ever co-enrolled were more likely to persist or attain a bachelor's degree than those who had not.

Foreword

This report profiles students who attended multiple institutions—specifically, those who co-enrolled (attended more than one institution simultaneously), transferred, or attended 2-year institutions. This report looks at the extent to which undergraduates attend multiple institutions as well as the relationship between students' rates of multiple institution attendance and their persistence, attainment, and time to degree.

This analysis uses data from the 1996/01 Beginning Postsecondary Students Longitudinal Study (BPS:96/01) and the 2000/01 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01). The BPS:96/01 is a longitudinal survey of undergraduates who first began their postsecondary education in 1995–96. The last follow-up survey was conducted in 2001, 6 years after the students began their postsecondary education, by which time some students had left postsecondary education, some had completed degrees or certificates, and some remained enrolled. B&B:2000/01 provides data on students who received a bachelor's degree in the 1999–2000 academic year, regardless of when they began their postsecondary education. The estimates presented in the report were produced using the NCES Data Analysis System (DAS), a software application that allows users to specify and generate tables for the BPS and B&B surveys. The DAS produces the design-adjusted standard errors necessary for testing the statistical significance of differences in the estimates. For more information on the DAS, consult appendix B of this report.

Acknowledgments

The authors wish to acknowledge the contribution of many individuals to the production of this report. At MPR Associates, Andrea Livingston, Wes Nations, Barbara Kridl, and Annabelle Yang edited, proofed, and formatted the report. Ellen Bradburn and Laura Horn contributed to the development of the report and provided considerable feedback on earlier drafts.

At NCES, Dennis Carroll guided the planning and development of the report at all stages of review, Paula Knepper provided a technical and methodological review, and Bruce Taylor provided a comprehensive review. In addition, Jacqueline King (American Council on Education), Michael Cohen (Bureau of Transportation Statistics), Dongbin Kim (National Association of Independent Colleges and Universities), Alex McCormick (The Carnegie Foundation for the Advancement of Teaching), and Leslie Scott (Education Statistics Services Institute) reviewed early drafts and provided thoughtful comments.

Lisa Bridges (Institute of Education Sciences) guided the final report through IES review by two outside peer reviewers. We are grateful to all these reviewers whose comments strengthened the report.

THIS PAGE INTENTIONALLY LEFT BLANK

Table of Contents

List of Tables

Table **Page**

Table **Page**

Appendix B

List of Figures

THIS PAGE INTENTIONALLY LEFT BLANK

Introduction

Among all undergraduates enrolled in postsecondary education in 1999–2000, 6 percent attended more than one institution during the academic year.[1] Over the course of their undergraduate education, however, a majority (59 percent) of 1999–2000 college graduates (first-time bachelor's degree recipients) had attended more than one institution.[2]

The frequency of multiple institution attendance may be on the rise. Adelman (1999) and McCormick (2003) both documented an increase in students' rates of attendance in multiple institutions over the last two decades, and the Association of American Colleges and Universities (2002) cited changing enrollment patterns, including multiple institution attendance, as a particular challenge facing institutions in the 21st century.

The types of multiple institution attendance may be changing as well. Although past studies on patterns of attendance in multiple institutions have often focused on transfer and, in particular, on students who enroll in public 2-year institutions with the intent to transfer to 4-year institutions and earn a bachelor's degree (Bradburn and Hurst 2001; Lee and Frank 1990; Palmer, Ludwig, and Stapleton 1994), anecdotal evidence suggests that students in 4-year institutions often take courses at nearby community colleges and other institutions as well (Gose 1995). Among 1999–2000 bachelor's degree recipients who began in 4-year institutions, about 47 percent had attended another institution with or without transferring.[3] This report examines the phenomenon of multiple institution attendance including three specific types of multiple attendance: transfer, co-enrollment, and attending a 2-year institution.

There are a number of reasons why students might attend multiple institutions. In an article on "double dippers" (i.e., students who enroll in multiple institutions simultaneously), Gose (1995) presents several possible explanations: to take advantage of a more convenient schedule, smaller class sizes, and programs not offered at the student's home institution (e.g., remedial education, technical training, and job skills); to cut college costs by taking general education courses at a less expensive institution; or to take courses that students think will be easier at a different institution. Another study by de los Santos and Wright (1990) suggested that students

[1] 2000 National Postsecondary Student Aid Study (NPSAS:2000), Data Analysis System.
[2] B&B:2000/01, Data Analysis System (shown in figure 3).
[3] B&B:2000/01, Data Analysis System (shown in table 8-A).

who begin in 4-year institutions might attend other institutions so that they can fulfill their academic requirements and reduce the price of attending college. In a study of transfer behavior among postsecondary students, McCormick (1997) found that among students who began in 4-year institutions, dissatisfaction with intellectual growth, teacher ability, institutional prestige, and social life, as well as the availability of and satisfaction with various student services were related to students' likelihood of transferring. Further, McCormick (2003) found that among students who entered 4-year institutions with a bachelor's degree goal, the probability of attending multiple institutions was higher for students with low first-year grades than other students, which indicates that academic difficulties may also motivate students to attend multiple institutions.

One type of multiple institution attendance is associated with delayed degree completion: in McCormick's earlier study, students who began in 4-year institutions and transferred to another 4-year institution were less likely to have completed a bachelor's degree within 5 years than students who did not transfer. According to another study (Berkner, He, and Forrest Cataldi 2002), even when surveyed 6 years after entering college, roughly half (45–51 percent) of students who began in 4-year institutions in 1995–96 with a bachelor's degree goal and transferred to another 4-year institution had attained a bachelor's degree, compared with 72 percent of their counterparts who did not transfer. McCormick (2003) also noted differences in persistence and attainment outcomes by the type of multiple institution attendance. According to the findings of his study, 4-year beginning students who attended more than one institution but did not transfer were more likely to have attained a bachelor's degree within 5 years than their peers who attended only one institution.

As mentioned previously, the study of students who attend multiple postsecondary institutions is not new. In his landmark study, Tinto (1987) examines the reasons students leave postsecondary education noting the income gap between those with and without a college degree. Multiple institution attendance may have economic consequences as well. Light and Strayer (2004) suggest that for two specific subgroups (4-year transfer students who ultimately attain bachelor's degrees and 2-year students who do not attain a degree) transferring was associated with higher eventual wages. The authors theorize that by transferring, these students enrolled in an institution that was a better match and got higher-paying jobs as a result.

As mentioned previously, much of the research on students who attend multiple institutions has focused on those who make a permanent transition from one institution to another (Bradburn and Hurst 2001; Light and Strayer 2004; McCormick 1997). For the most part, previous literature has not reported on the other ways in which students enroll in multiple institutions, including overlapping enrollment (also called "co-enrollment" or "dual enrollment") and attending another

institution without transferring from the first one. Because recent longitudinal studies conducted by NCES included questions about ways that students attend multiple institutions without transferring, this report examines this trend from a national perspective.

Using the most recent data available, this report focuses on both 1995–96 beginning postsecondary students and 1999–2000 bachelor's degree recipients whose enrollment paths involved attending at least two institutions and aims to provide more detailed information on college attendance patterns than has been available from previous studies. By examining the enrollment histories of these students, their demographic characteristics, and their reasons for enrolling in other institutions, this report will provide an overview of the students who took this route as undergraduates, and will detail their educational outcomes by focusing on the persistence among beginning postsecondary students, attainment of both groups, and time to degree among college graduates.

Research Questions

The purpose of this study is to provide a comprehensive analysis of students with various multiple institution attendance patterns including student characteristics, persistence and attainment, and time to degree. The major questions addressed in the report include the following:

- How common were various types of multiple institution attendance among different types of undergraduates?
- What were the various types of multiple institution attendance among these undergraduates?
- How was attendance at multiple institutions related to the persistence and attainment of beginning postsecondary students?
- How was attendance at multiple institutions related to the time to degree of bachelor's degree recipients?
- Among bachelor's degree recipients, what were students' reported purposes and reasons for attending more than one institution?

THIS PAGE INTENTIONALLY LEFT BLANK

Data and Variable Definitions

This analysis uses data from two surveys: the 1996/01 Beginning Postsecondary Students Longitudinal Study (BPS:96/01) and the 2000/01 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01). The BPS:96/01 is a survey of a cohort of students who first began their postsecondary education in 1995–96 and were followed up in 1998 and 2001. Survey participants were sampled from the 1995–96 National Postsecondary Student Aid Study (NPSAS:96), a nationally representative sample of all students enrolled in postsecondary institutions in 1995–1996. B&B:2000/01 is a longitudinal survey of the NPSAS:2000 students who received a bachelor's degree in the 1999–2000 academic year and were followed up 1 year later in 2001. In this analysis, the sample was limited to students for whom the 1999–2000 degree was the first bachelor's degree.[4] For survey response rates, see appendix B.

The report is organized into two sections according to survey. The BPS:96/01 and B&B:2000/01 data are used to examine the enrollment patterns of students over the course of their undergraduate study. These two surveys are well suited to this task because together they capture the enrollment history of those who first began their postsecondary education in 1995–96 (BPS:96/01) and of those who successfully completed a bachelor's degree in 2000 (B&B:2000/01). The BPS enrollment period covers 6 years of undergraduate enrollment for all 1995–96 beginners, while that for B&B retrospectively covers graduates' entire undergraduate enrollment, regardless of how long it took them to attain a bachelor's degree. Both datasets include information about students' attendance patterns, attempts to transfer credits, and reasons for attending multiple institutions. This analysis examines differences in student enrollment patterns using standard t-tests to determine statistical significance, and a two-way Analysis of Variance (ANOVA) to detect differential changes by testing for interaction effects. Statistical significances for both tests are reported at $p<0.05$. Standard error tables are available online at http://nces.ed.gov/das/library/reports.asp.

[4] Approximately 2.4 percent of B&B survey respondents were excluded from this report because the bachelor's degree they attained in 1999–2000 was not their first bachelor's degree.

Key Variables

Multiple Institution Attendance

Students who attended multiple institutions are the focus of this report. In both the BPS:96/01 and B&B:2000/01 surveys, students who reported attending more than one institution were identified, and the number of institutions they attended was counted. Although the data in both BPS:96/01 and B&B:2000/01 provide the total number of institutions that students attended, measures of multiple institution attendance—including co-enrollment, transfer, and attendance in 2-year institutions—that are analyzed in this report are based on dichotomous variables which reflect whether the student *ever* participated in that type of enrollment. While some students co-enroll, transfer, and attend 2-year institutions repeatedly, information about such repeated attendance is largely unavailable. Focusing on the first transfer and whether the student ever co-enrolled or attended 2-year institutions maximizes the sample size for the variables in this study and permits a more detailed analysis. Students who attended multiple institutions under any circumstances, whether or not they were considered to have transferred, co-enrolled, or ever attended a 2-year institution, were included in the count of students who attended multiple institutions. The definitions of various types of multiple institution attendance in each survey are shown in figure 1.

Co-Enrollment

In BPS:96/01, a student was considered to have overlapped enrollment if that student was co-enrolled in two or more institutions for at least 1 month. In B&B:2000/01, co-enrollment was identified only if it occurred within the academic year (September–April) and lasted for more than 1 month. Due to the more restrictive definition of co-enrollment in B&B:2000/01 and, specifically, the exclusion of the summer months, this report may underreport the incidence of co-enrollment among college graduates.

Transfer

Data for BPS:96/01 were derived using a number of sources including self-reports (interview questions), the National Student Loan Data System (NSLDS), ACT database, and SAT records from ETS, Central Processing System data, and data from institutions. In BPS:96/01 the definition of transfer was based on the time elapsed at the second institution. In other words, a student was considered to have transferred if that student left one institution and enrolled in another institution for at least 4 months. The 4-month cut-off point was chosen to exclude students who attended another institution for the summer, but then returned to their

Figure 1. Analysis population and key variable definitions according to dataset

	BPS:96/01	B&B:2000/01
Sample population	Students who began their postsecondary education in 1995–96. Survey participants were sampled from the 1995–96 National Postsecondary Student Aid Study (NPSAS) and were followed up in 1998 and 2001.	Students who received their bachelor's degree in the 1999–2000 academic year. Survey participants were sampled from NPSAS:2000. For this analysis, the sample was limited to students for whom the 1999–2000 bachelor's degree was their first.
Multiple institution attendance	Number of institutions attended between initial enrollment in 1995–96 and June 2001.	Number of institutions the student attended during undergraduate career.
Co-enrollment	Ever attended two or more institutions simultaneously for at least 1 month.	Ever attended two or more institutions simultaneously for more than 1 month during the academic year (September through April).
Transfer	Left one institution to enroll in another and remained at the destination institution for at least 4 months. If a student returned to the original institution that student was not considered to have transferred.	Attended more than one institution and reported that they did so in order to transfer.
Ever attended a 2-year institution	Ever attended public 2-year institutions.	Ever attended 2-year institutions, whether public or private.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000); 1996/01Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01); and 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2001/01).

original institution. However, if a student returned to the original institution—even 1 or 2 years later—that student was not considered to have transferred. Defining transfer in this way likely masked some transfers by respondents who attended another institution and then re-enrolled in an institution they attended previously. These students were considered to have attended multiple institutions but were not considered to have transferred. As a result, the incidence of transfer among beginning postsecondary students may be underestimated in this report.

In B&B:2000/01, the information was self-reported. Students who indicated that they had attended more than one postsecondary institution before completing a bachelor's degree were asked why they chose to attend multiple institutions. Specifically, students were given the option

of choosing one of the following reasons: transfer between schools, enroll for additional classes, enroll for an additional degree, transfer and take additional classes, or none of the above. Those who said they had attended multiple institutions in order to transfer between schools were considered to have met the definition of student-identified transfer used in the B&B section of this study.[5] This question addressed all multiple institution attendance, so where students attended more than two institutions it is not possible to determine between which institutions the transfer occurred. Some students who began in 2-year institutions and later attained a bachelor's degree did not identify transfer as their purpose for attending multiple institutions and, therefore, were not considered as having met this definition of transfer. Further, unlike the BPS:96/01 data, B&B:2000/01 does not identify how many times students transferred. Despite these limitations, the data can provide useful information about patterns of multiple institution attendance among bachelor's degree recipients.

Ever Attended a 2-Year Institution

Because of interest in students who began in 4-year institutions and attended a community college, this report looks at whether beginning 4-year students ever attended a 2-year institution. Among other reasons, a beginning 4-year student might attend a community college to save money, take advantage of a more convenient schedule, or try out a different course of study. In BPS:96/01, respondents who had ever attended public 2-year institutions were included in this group. In B&B:2000/01, respondents were asked if they had ever attended a community college or other 2-year institution.

[5] Because of the similarity in the response options, the definition of transfer in this report includes students who said they had attended more than one institution in order to transfer between schools and those who said they had attended more than one institution in order to transfer between schools and take additional courses.

1995–96 Beginning Postsecondary Students: 6 Years Later

Introduction

This section of the report examines multiple institution attendance among a cohort of students who began postsecondary education in 1995–96 using data gathered in the BPS:96/01 survey. The BPS survey includes students who left postsecondary education temporarily or permanently, students who attained various degrees (bachelor's, associate's, and vocational certificates), and students with no degree goal, such as those taking classes for professional development or personal enrichment. Students who attended multiple institutions are the population of interest here. Subsets of this population will also be examined—specifically, those who attended two or more institutions at one time (co-enrolled), transferred between institutions, or began at a 4-year institution and attended a public 2-year institution at some point.

As of 2001, 40 percent of 1995–96 beginning postsecondary students had attended more than one institution over the 6-year period (table 1). Of those students who attended more than one institution, about one-fifth (21 percent) had attended three institutions and 4 percent had attended four or more institutions. About one-third of the beginning postsecondary students had ever transferred (32 percent). In this section, a student was considered to have transferred if that student left one institution and enrolled in another institution for at least 4 months. Among those students who transferred, the majority (80 percent) had transferred just once, 18 percent had transferred twice, and 1 percent had transferred three times. About 1-in-10 beginning postsecondary students had ever co-enrolled. That is, 11 percent of beginning postsecondary students had overlapped enrollment at more than one institution for at least 1 month. Among students who had attended more than one institution, 27 percent had ever co-enrolled, and among students who had transferred, 20 percent had ever co-enrolled.

As would be expected, patterns of multiple institution attendance varied according to where students first enrolled (table 2). For this reason, this report examines these patterns according to first institution level. Students who began in public 2-year institutions were more likely than students who began in 4-year institutions to attend more than one institution and to transfer. Forty-six percent of 1995–96 beginning public 2-year students had attended more than one institution as of 2001 and 40 percent had transferred, while 38 percent of beginning 4-year

Table 1. Percentage distribution (by columns) of 1995–96 beginning postsecondary students with various multiple institution attendance patterns

Attendance patterns	Total	Attended more than one institution		
		Total	Co-enrolled	Transferred
Total	100.0	100.0	100.0	100.0
Number of institutions attended				
One	59.7	†	†	†
More than one[1]	40.4	100.0	100.0	100.0
Two	30.1	74.7	61.0	70.5
Three	8.6	21.2	29.4	24.6
Four or more	1.7	4.2	9.6	4.9
Co-enrolled				
Never co-enrolled	89.2	73.1	†	79.9
Sometimes co-enrolled	10.9	26.9	100.0	20.1
Transfer status				
Never transferred	67.9	20.5	40.5	†
Transferred[2]	32.1	79.5	59.5	100.0
Once	25.9	64.3	43.2	80.8
Twice	5.7	14.1	15.9	17.7
Three times	0.5	1.2	0.4	1.5

† Not applicable.

[1] The percentage of students who attended more than one institution is the sum of the percentages of students who attended two, three, or four or more institutions.

[2] The percentage of students who transferred is the sum of the percentages of students who transferred once, twice, or three times.

NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

students had attended more than one institution and 26 percent had transferred. No difference, however, could be detected between these two groups of students in their likelihood of ever co-enrolling.

Among students who began in 4-year institutions, those in public institutions were more likely than their private not-for-profit counterparts to transfer or ever attend public 2-year institutions. Twenty-seven percent of those who started in public 4-year institutions had transferred and one-fifth had enrolled in public 2-year institutions, compared with 24 and 14 percent, respectively, of students who began in private not-for-profit 4-year institutions.[6] No

[6] The institutions students transfer to are often of interest as well. Berkner, He, and Forrest Cataldi (2002) show that 42 percent each of 4-year beginners in public and private not-for-profit institutions transferred to a public 4-year institution. However,

Table 2. Percentage distribution (by columns) of 1995–96 beginning postsecondary students by the level and type of the first institution attended, according to multiple institution attendance patterns

		Level of first institution			Level and control of first institution			
Attendance patterns	Total[1]	Less-than-2-year	2-year	4-year	Public 2-year	Public 4-year	Private not-for-profit 4-year	Private for-profit less-than-4-year
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of institutions attended								
One	59.7	79.5	54.3	61.8	52.8	61.2	62.8	78.3
More than one	40.4	20.6	45.7	38.2	47.2	38.9	37.2	21.7
Two	30.1	16.5	34.4	27.9	35.4	28.7	27.0	18.2
Three or more	10.2	4.1	11.3	10.2	11.8	10.2	10.3	3.5
Co-enrolled								
Never co-enrolled	89.2	97.5	89.1	87.4	88.6	87.6	86.9	97.1
Sometimes co-enrolled	10.9	2.5	10.9	12.6	11.4	12.4	13.1	2.9
Transfer status								
Never transferred	67.9	84.4	59.8	74.2	58.5	73.0	76.3	82.7
Transferred	32.1	15.6	40.2	25.8	41.5	27.0	23.7	17.3
Number of times transferred								
Once	25.9	13.5	33.3	19.7	34.3	21.0	17.4	15.3
Twice	5.7	1.8	6.7	5.3	7.0	5.3	5.3	1.8
Three times	0.5	0.3	0.2	0.8	0.2	0.6	1.0	0.2
First transfer direction								
Upward	13.0	11.6	23.9	†	25.2	†	†	9.1
Lateral	13.0	4.0	13.3	14.7	13.4	14.8	14.7	6.8
Downward	6.1	†	3.1	11.1	3.0	12.1	9.0	1.4
Enrolled in public 2-year institutions								
No	45.6	89.5	7.5	82.4	†	80.6	85.7	88.6
Yes	54.4	10.5	92.5	17.6	100.0	19.5	14.3	11.4

† Not applicable.

[1] Total includes students who began at types of institutions not shown here.

NOTE: Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/das/library/reports.asp.

SOURCES: U.S. Department of Education, National Center for Education Statistics, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01); and Berkner, L., He, S., and Forrest Cataldi, E. (2002). *Descriptive Summary of 1995–96 Beginning Postsecondary Students: Six Years Later* (NCES 2003–151).

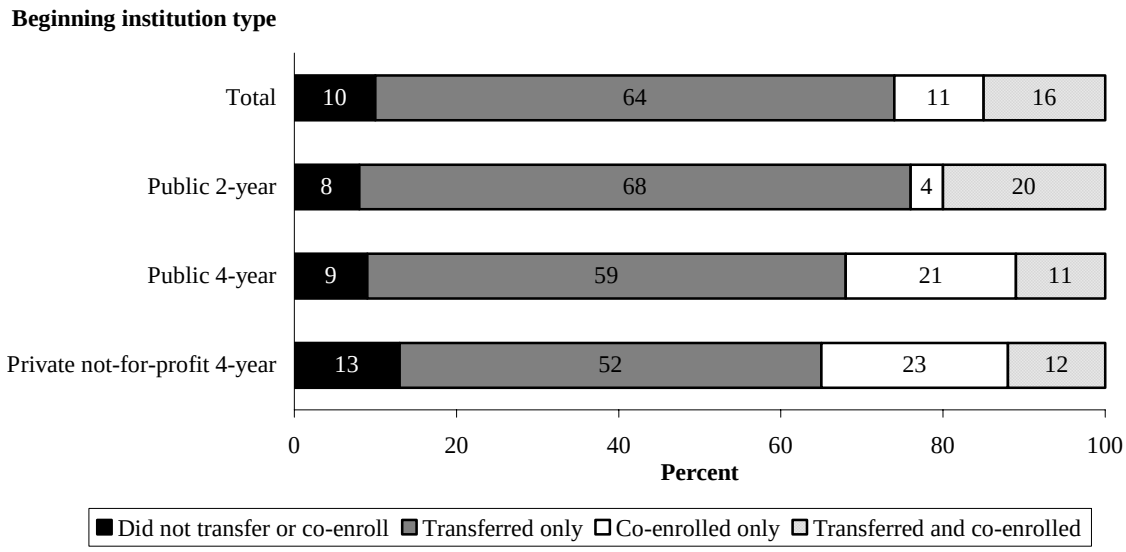
difference could be detected between students who began in public and in private not-for-profit 4-year institutions, however, in the number of institutions they attended and in their likelihood of co-enrolling.

private not-for-profit 4-year beginners were more likely than public 4-year beginners to transfer to a private not-for-profit institution (18 vs. 12 percent, respectively).

Due partly to the short duration of the programs that lead to vocational certificates, among all beginning postsecondary students, those who began in private for-profit less-than-4-year institutions were the least likely to attend more than one institution, co-enroll, or transfer. For example, about one-fifth of these students attended more than one institution (22 percent), compared to between 37 and 47 percent of students in other institution types.

Figure 2 shows a percentage distribution of all beginning postsecondary students who attended more than one institution according to these attendance patterns. Overall, 16 percent both co-enrolled and transferred, while 10 percent did neither. The majority (64 percent) transferred (without ever co-enrolling), and the remaining 11 percent co-enrolled only. Among beginning postsecondary students who started in public 2-year institutions and who attended more than one institution, 68 percent transferred, 4 percent co-enrolled, and an additional 20 percent both transferred and co-enrolled. Students who began in 4-year institutions were less likely than their public 2-year counterparts to combine transferring and co-enrolling (11–12 percent vs. 20 percent). Among students who attended multiple institutions and began at 4-year institutions, 52–59 percent transferred only and 21–23 percent co-enrolled only.

Figure 2. Among 1995–96 beginning postsecondary students who attended more than one institution, percentage distribution according to attendance patterns



NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

Students Who Began in Public 2-Year Institutions

Student Characteristics

Among 1995–96 beginning postsecondary students in public 2-year institutions, 47 percent had attended more than one institution as of 2001, and 42 percent had transferred, regardless of their persistence outcome or length of enrollment (table 3-A). While most of these students had transferred to 4-year institutions (roughly 61 percent), some had transferred laterally to other 2-year institutions (32 percent), and some had transferred downward to less-than-2-year institutions (7 percent).[7] Eleven percent of beginning students in public 2-year institutions had co-enrolled during the course of their enrollment. Male students were more likely than their female peers to attend more than one institution, in particular, to attend three or more institutions. Fifty-one percent of male students who began in public 2-year institutions in 1995–96 had attended more than one institution and 16 percent had attended three or more institutions, compared with 43 and 8 percent, respectively, of female students. Males were also more likely to transfer (47 vs. 36 percent); however, no gender difference could be detected in their likelihood of co-enrolling.

Certain characteristics that placed students at risk of not completing their postsecondary education, including delayed enrollment status, dependency, and age at postsecondary entry, were also related to beginning students' likelihood of attending multiple institutions. As the number of such persistence risk factors increased, the likelihood of attending more than one institution, co-enrolling, or transferring decreased. For example, 68 percent of students with no risk factors and 58 percent of students with one risk factor attended more than one institution, compared with one-third of their peers who had two or more risk factors. However, students with one or no persistence risk factors have a greater likelihood of persisting in their postsecondary programs, and the longer students persist, the more opportunity they have to attend more than one institution. Thus, to some extent, the association between risk factors and multiple institution attendance may be due to the length of time students are enrolled.

Students' age was also inversely related to their likelihood of attending multiple institutions. At least one-half of students 23 years or younger attended more than one institution, while roughly one-quarter of students 24 years or older did so. Similarly, both students who delayed enrollment and independent students were less likely to attend more than one institution, including transferring and co-enrolling, than students who enrolled immediately after high school and dependent students. More than half (58 percent) of dependent students beginning in public

[7] Percentages calculated from table 2. Of 1995–96 beginning postsecondary students who began in public 2-year institutions, 25 percent first transferred upward, 13 percent transferred laterally, and 3 percent transferred downward, for a total of 42 percent transferring.

Table 3-A. Percentage of 1995–96 beginning postsecondary students in public 2-year institutions according to multiple institution attendance patterns, by student characteristics

Student characteristics	Number of institutions attended				Type of multiple enrollment	
	One	More than one				
		Total	Two	Three or more	Co-enrolled	Transferred
	Students who began in public 2-year institutions					
Total	52.8	47.2	35.4	11.8	11.4	41.5
Sex						
Male	48.7	51.3	35.4	15.9	13.4	47.0
Female	56.6	43.4	35.3	8.1	9.5	36.4
Race/ethnicity[1]						
American Indian	‡	‡	‡	‡	‡	‡
Asian/Pacific Islander	37.5	62.5	35.9	26.7	11.5	60.3
Black	58.0	42.0	32.6	9.5	4.1	37.8
White	52.2	47.8	35.6	12.1	12.9	42.2
Other	‡	‡	‡	‡	‡	‡
Hispanic	57.4	42.6	34.3	8.3	8.9	33.4
Age as of 12/31/95						
18 years or younger	40.5	59.5	46.3	13.2	14.0	52.5
19–23 years	47.2	52.8	37.2	15.6	13.7	47.2
24–29 years	76.4	23.6	17.6	6.0	8.0	19.6
30 years or older	79.9	20.2	18.0	2.2	2.5	16.2
Delayed enrollment						
No	39.6	60.5	46.1	14.4	14.4	54.3
Yes	66.5	33.5	24.1	9.4	8.8	28.2
Income and dependency quartiles 1994						
Dependent	41.6	58.4	44.2	14.2	13.6	51.9
Low quartile	46.5	53.5	39.7	13.8	13.4	46.8
Middle quartiles	44.4	55.6	40.1	15.5	13.8	48.3
High quartile	27.2	72.8	61.8	11.0	13.4	68.9
Independent	73.1	26.9	19.5	7.4	7.5	23.0
Low quartile	60.5	39.5	30.7	8.8	9.9	30.8
Middle quartiles	75.9	24.1	15.5	8.6	6.3	22.3
High quartile	76.8	23.2	17.2	6.1	7.2	19.4
Number of risk factors 1995–96[2]						
None	31.5	68.5	51.3	17.2	16.3	63.4
One	41.8	58.2	46.1	12.1	14.9	50.2
Two or more	67.1	32.9	23.8	9.2	7.8	28.1

‡Reporting standards not met. (Too few cases.)

[1] American Indian includes Alaska Native, Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. Race categories exclude Hispanic origin unless specified.

[2] Risk factors include delaying enrollment, not having a high school diploma, enrolling part time, being financially independent (typically students over 24), having dependents other than a spouse, being a single parent, and working full time while enrolled. For more information, see Horn, L.J., and Premo, M.D. (1995). *Profile of Undergraduates in U.S. Postsecondary Education Institutions: 1992–93, With an Essay on Undergraduates at Risk* (NCES 96–237).

NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

2-year institutions attended more than one institution, compared with 27 percent of their independent peers. This pattern may be due in large part to the greater likelihood of dependent students transferring to a 4-year institution and independent students participating in programs leading to vocational certificates (Horn, Peter, and Rooney 2002). Because vocational programs tend to be of short duration (i.e., 1 year or less), these students may have less opportunity or reason to transfer than dependent students. In addition, independent students are more likely to attend part time (Horn and Berktold 1998), which is also associated with lower rates of multiple institution attendance, and often have families, careers, and other responsibilities that can influence their ability to move from school to school.

Among dependent students beginning in public 2-year institutions, family income[8] was associated with attending more than one institution: as income increased, so did the likelihood of attending more than one institution. Seventy-three percent of dependent students in the highest income quartile had attended more than one institution, compared with 53 percent of dependent students in the lowest quartile. In addition, dependent students in the highest income quartile were more likely than those in the middle- and low-income quartiles to transfer (69 percent vs. 47–48 percent). However, for these students, the likelihood of co-enrolling was not associated with income. Higher income levels, however, are also associated with increased persistence (Berkner, He, and Forrest Cataldi 2002), giving students more opportunity to attend more than one institution.

An opposite pattern was observed for independent students: those with higher incomes were less likely to attend more than one institution and transfer. For example, 39 percent of independent students in the lowest income quartile attended more than one institution, while 23 percent of those in the highest quartile did so. Independent students with higher incomes were also more likely than their lower income independent counterparts to attend community colleges part time (63 vs. 18 percent),[9] and part-time attendance is associated with lower rates of multiple institution attendance (table 3-B).

Enrollment Characteristics

Among 1995–96 beginning postsecondary students who first enrolled in public 2-year institutions, those who did not work or who worked part time (less than 35 hours per week) during their first year enrolled were more likely than those who worked full time (35 hours or more) to attend more than one institution or transfer (table 3-B). For example, 49 percent of

[8] Family income was measured separately for independent and dependent students and then grouped into quartiles. Refer to appendix A for the income values these quartiles represent.

[9] BPS:96/01 Data Analysis System. Not shown in tables.

Table 3-B. Percentage of 1995–96 beginning postsecondary students in public 2-year institutions according to multiple institution attendance patterns, by enrollment characteristics

Enrollment characteristics	Number of institutions attended				Type of multiple enrollment	
	One	More than one				
		Total	Two	Three or more	Co-enrolled	Transferred
	Students who began in public 2-year institutions					
Total	52.8	47.2	35.4	11.8	11.4	41.5
Grade point average 1995–96						
Less than 2.25	54.4	45.6	33.0	12.7	8.7	40.6
2.25–3.25	47.2	52.8	40.7	12.1	14.1	46.7
Greater than 3.25	58.1	41.9	31.4	10.5	13.1	38.7
Attendance intensity through 2001						
Always full-time	49.6	50.4	43.2	7.3	4.3	47.9
Always part-time	85.9	14.1	9.8	4.3	3.6	9.7
Mixed	40.2	59.8	42.4	17.4	18.3	51.9
Hours worked per week while enrolled 1995–96						
None	50.7	49.3	39.7	9.5	14.6	42.8
Less than 35 hours	45.1	54.9	42.8	12.1	12.4	49.2
35 hours or more	63.8	36.2	24.3	11.9	7.7	30.9
Received any aid 1995–96						
No	51.3	48.7	36.1	12.5	11.8	42.3
Yes	54.9	45.1	34.2	10.9	10.8	40.4
Degree expected at first institution[1]						
None	55.8	44.2	31.3	12.9	7.2	41.8
Certificate	81.0	19.0	16.2	2.8	4.3	14.7
Associate's degree	56.7	43.4	33.0	10.4	12.0	37.9
Bachelor's degree	30.2	69.8	52.8	17.0	15.8	60.9
Highest degree ever expected in 1995–96						
No degree or certificate	‡	‡	‡	‡	‡	‡
Certificate	82.7	17.3	15.5	1.9	7.5	14.8
Associate's degree	73.3	26.8	22.1	4.7	3.7	26.0
Bachelor's degree	49.2	50.8	39.3	11.5	14.4	43.1
Higher than a bachelor's degree	35.9	64.1	45.8	18.3	15.1	58.7

‡ Reporting standards not met. (Too few cases.)

[1] Bachelor's degree includes students who said they expected to transfer to 4-year institutions.

NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

beginning students in public 2-year institutions who did not work and 55 percent of those who worked part time attended more than one institution, compared with 36 percent of their counterparts who worked full time. Similarly, students who worked full time were less likely than students who worked part time to co-enroll (8 vs. 12 percent).[10]

For students who began in public 2-year institutions, receiving financial aid during their first year enrolled was not related to attending multiple institutions. No differences could be detected in the likelihood that these students would attend more than one institution, co-enroll, or transfer according to receipt of financial aid. Likewise, no difference could be detected between students whose first-year grade point average (GPA) was lower than 2.25 and those who earned higher grades in their rates of attending more than one institution.[11]

Not surprisingly, among students who began in public 2-year institutions who reported a degree expectation at their first institution, as degree expectation increased, so did the likelihood of attending more than one institution. Nineteen percent of students who expected to earn a certificate at their first institution, 43 percent who expected to earn an associate's degree, and 70 percent who expected to earn a bachelor's or transfer to 4-year institutions attended more than one institution.

Persistence and Attainment

Because students who begin in public 2-year institutions often have varied degree expectations and those who want to earn a bachelor's degree typically cannot do so without attending another institution, persistence and attainment rates among these students vary according to number of institutions they attend and their degree expectations. Ten percent of 1995–96 students who began in public 2-year institutions had attained a bachelor's degree by 2001, one-quarter had attained an associate's degree or certificate, 17 percent were still enrolled (either at a 4-year or less-than-4-year institution), and 47 percent had neither attained a degree nor were enrolled (table 3-C).

Among students who began in public 2-year institutions, those who attended two institutions were more likely than those who attended three or more institutions to have attained a bachelor's degree (25 vs. 13 percent), and they were also more likely than those who attended three or more institutions to have left without a degree (27 vs. 13 percent). Seventy-three

[10] Among students beginning at public 2-year institutions, due to large standard errors, no difference could be detected between students who did not work and students who worked full time in their likelihood of co-enrolling.

[11] First-year GPA was used as an indicator of academic performance. Entrance examination scores such as SAT or ACT scores are also a good indication of students' likelihood of succeeding in college, however, a majority of those who started in a 2-year institution did not take the exam.

Table 3-C. Percentage distribution of 1995–96 beginning postsecondary students in public 2-year institutions according to the highest degree attained and 6-year persistence and attainment status, by multiple institution attendance patterns and degree expectations

Attendance patterns and degree expectations	Highest degree attained anywhere: Total attained	Bachelor's degree	Associate's degree	Certificate	No degree anywhere: Still enrolled: At 4-year institutions	Still enrolled: At less-than-4-year institutions	Not enrolled
	Students who began in public 2-year institutions						
Total	35.7	10.3	15.7	9.7	8.4	9.1	46.9
Degree expected at first institution[1]							
None	21.2	5.8	10.7	4.6	8.2	10.6	60.0
Certificate	42.3	0.6	7.0	34.7	#	7.3	50.4
Associate's degree	37.8	7.9	22.1	7.9	7.2	9.9	45.1
Bachelor's degree	39.2	22.9	10.5	5.8	14.7	7.5	38.6
Number of institutions attended							
One	22.5	†	12.3	10.2	†	9.5	68.0
More than one	50.4	21.7	19.5	9.1	17.7	8.7	23.3
Two	52.5	24.6	20.0	7.9	11.9	9.1	26.6
Three or more	44.1	13.1	18.2	12.8	35.0	7.5	13.4
Co-enrolled							
Never co-enrolled	33.3	8.4	15.0	9.9	6.6	9.5	50.5
Sometimes co-enrolled	53.8	24.4	21.1	8.3	21.9	5.6	18.7
Transfer status[2]							
Never transferred	23.3	0.4	12.2	10.8	0.7	11.5	64.6
Transferred	53.1	24.2	20.8	8.1	19.2	5.7	22.0
Number of times transferred							
Once	55.4	26.6	20.4	8.4	15.9	5.7	23.1
Twice	43.5	13.2	23.5	6.8	33.4	5.7	17.4
Three times	‡	‡	‡	‡	‡	‡	‡
First transfer direction							
Upward	59.9	38.1	19.5	2.3	24.0	0.7	15.5
Lateral	43.9	3.4	27.1	13.4	13.6	11.7	30.8
Downward	37.3	#	3.3	34.0	4.1	21.5	37.1
Enrollment continuity through 2001							
Continuously enrolled	39.3	14.9	16.6	7.8	4.7	2.9	53.2
Two enrollment spells	30.8	3.8	16.0	11.0	13.5	17.9	37.8
Three or more spells	27.1	#	8.1	19.1	16.6	21.7	34.6

† Not applicable.
# Rounds to zero.
‡ Reporting standards not met. (Too few cases.)
[1] Bachelor's degree includes students who said they expected to transfer to 4-year institutions.
[2] Students had to have moved from the original institution to the destination institution and have remained at the destination for at least 4 months to be identified as a transfer student. In some cases, students who began at public 2-year institutions attended 4-year institutions without having met this definition of transfer.
NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

percent of students who attended two institutions had attained any degree or were enrolled, compared with 87 percent of those who attended three or more institutions.[12] A similar pattern was found for students who transferred: those who transferred only once had higher rates of bachelor's degree attainment than those who transferred twice (27 vs. 13 percent).

Students who began in public 2-year institutions who had co-enrolled had higher rates of bachelor's degree attainments and persistence at 4-year institutions than their counterparts who did not co-enroll. That is, 24 percent of students who began in public 2-year institutions and had co-enrolled attained a bachelor's degree and 22 percent were still enrolled at a 4-year institution as of 2001, compared with 8 percent and 10 percent, respectively, of students who did not co-enroll. While 19 percent of students who had co-enrolled had left with no credential as of 2001, half of students who did not co-enroll had done the same.

Time to Degree

Among students who began their postsecondary education in a community college in 1995–96 with intentions of earning a bachelor's degree, 77 percent had not attained a bachelor's degree within 6 years (62 percent were either not enrolled or were enrolled at a less-than-4-year institution, while 15 percent were enrolled in 4-year institutions) (table 3-D). Twenty-three percent had attained a bachelor's degree within 6 years: 6 percent in 4 years or less and 17 percent in more than 4 years.

For students who began in community colleges with intentions of earning a bachelor's degree, repeated multiple institution attendance (attending three or more institutions) and repeated transferring were negatively related to degree attainment. For example, 38 percent of these students who attend 2 institutions had attained a bachelor's degree within 6 years, while 17 percent of students who attended three or more institutions had done so. This delay in attainment may be related to several possible reasons—such as difficulty in transferring credits, different requirements at various institutions, or mitigating factors such as a move, job change, or family status change. Co-enrollment for these students, on the other hand, was positively related to bachelor's degree attainment and persistence. No difference could be detected between co-enrollment and attaining a bachelor's degree in 4 years. However, students who co-enrolled were more likely to attain within 6 years than their counterparts who never co-enrolled (37 vs. 20

[12] Among students who began at public 2-year institutions who attended two institutions, 52 percent had attained a degree, 12 percent were still enrolled in 4-year institutions, and 9 percent were enrolled in less-than-4-year institutions, for a total of 73 percent who had attained or were still enrolled. Among those who attended three or more institutions, 44 percent had attained, 35 percent were enrolled in 4-year institutions, and 8 percent were enrolled in less-than-4-year institutions, for a total of 87 percent who had attained a degree or were enrolled.

percent). This finding suggests that students who co-enroll may do so in order to finish their degree sooner.

Table 3-D. Percentage of beginning postsecondary students in public 2-year institutions in 1995–96 with a bachelor's degree goal who completed a bachelor's degree according to the number of years to complete the degree, by multiple institution attendance patterns

	No bachelor's degree		Attained a bachelor's degree		
Attendance patterns	Not enrolled in 4-year institutions	Enrolled in 4-year institutions	4 years or less	More than 4 years	6-year total
	Students who began in public 2-year institutions				
Total	62.4	14.7	5.8	17.2	22.9
Number of institutions attended					
One	100.0	†	†	†	†
More than one	46.1	21.1	8.3	24.6	32.9
Two	47.9	14.3	9.9	28.0	37.9
Three or more	40.5	42.3	3.2	14.0	17.2
Co-enrolled					
Never co-enrolled	66.0	13.7	5.5	14.8	20.3
Sometimes co-enrolled	43.0	20.1	7.1	29.8	36.8
Transfer status[1]					
Never transferred	96.4	2.1	#	1.5	1.5
Transferred	40.6	22.8	9.4	27.2	36.7
Number of times transferred					
Once	39.8	20.9	10.8	28.6	39.3
Twice	44.0	31.2	3.7	21.1	24.8
Three times	‡	‡	‡	‡	‡
First transfer direction					
Upward	28.9	24.7	12.3	34.1	46.4
Lateral	72.0	18.5	1.4	8.1	9.5
Downward	‡	‡	‡	‡	‡
Enrollment continuity through 2001					
Continuously enrolled	57.9	10.4	8.5	23.2	31.8
Two enrollment spells	72.3	18.5	1.1	8.1	9.2
Three or more spells	‡	‡	‡	‡	‡

† Not applicable.
# Rounds to zero.
‡ Reporting standards not met. (Too few cases.)
[1] Students had to have moved from the original institution to the destination institution and have remained at the destination for at least 4 months to be identified as a transfer student. In some cases, students who began at public 2-year institutions attended 4-year institutions without having met this definition of transfer.
NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

Students Who Began in 4-Year Institutions

Student Characteristics

Among 1995–96 beginning postsecondary students in 4-year institutions, 38 percent attended more than one institution, including 10 percent who attended three or more institutions (table 4-A). Thirteen percent co-enrolled, one-quarter (26 percent) transferred, and 18 percent had enrolled in public 2-year institutions. Among those who began in 4-year institutions, few differences could be detected by sex, except that men were more likely than women to have ever enrolled in public 2-year institutions (19 vs. 16 percent).

For students with factors that placed them at risk of not completing their postsecondary education, patterns of multiple institution attendance generally resembled those of their peers who began in public 2-year institutions. Students with two or more risk factors were less likely than students with one risk factor to attend more than one institution (34 vs. 42 percent). They were also less likely to co-enroll (8 vs. 15 percent); however, no differences could be detected by number of risk factors in likelihood of transferring or attending a public 2-year institution.

Dependent students who began at 4-year institutions were more likely than their independent counterparts to attend multiple institutions: 39 percent of dependent students attended more than one institution, compared with 27 percent of independent students. Dependent students were also more likely than independent students to co-enroll or transfer. For example, 26 percent of dependent students transferred, compared with 21 percent of independent students. No difference was detected between dependent and independent students in their likelihood of ever enrolling in public 2-year institutions though.

A relationship between income and multiple institution attendance could not be detected either for dependent or independent students who began at 4-year institutions. However, among dependent students, those with high incomes were less likely than their low- and middle-income peers to transfer to other institutions (22 percent vs. 29 and 27 percent, respectively), and they were more likely to co-enroll (15 percent vs. 11 and 13 percent, respectively). For independent students, differences could not be detected by income level in the extent to which they transferred or co-enrolled.

Enrollment Characteristics

Overall, beginning postsecondary students in 4-year institutions who had low GPAs (less than 2.25) were more likely than those with higher GPAs to attend more than one institution (51

Table 4-A. Percentage of 1995–96 beginning postsecondary students in 4-year institutions according to multiple institution attendance patterns, by student characteristics

	Number of institutions attended				Type of multiple enrollment		
		More than one					
Student characteristics	One	Total	Two	Three or more	Co-enrolled	Transferred	Enrolled in public 2-year institutions
	Students who began in 4-year institutions						
Total	61.8	38.2	27.9	10.2	12.6	25.8	17.6
Sex							
Male	62.4	37.6	28.3	9.4	11.8	26.3	19.1
Female	61.4	38.6	27.7	11.0	13.3	25.5	16.4
Race/ethnicity[1]							
American Indian	44.5	55.6	44.7	10.8	21.7	42.4	22.4
Asian/Pacific Islander	65.3	34.8	27.0	7.8	16.0	20.2	16.3
Black	60.5	39.5	26.7	12.8	11.1	30.0	19.6
White	62.4	37.6	27.8	9.8	12.4	25.0	17.0
Other	‡	‡	‡	‡	‡	‡	‡
Hispanic	57.6	42.4	30.4	12.0	13.7	30.2	20.4
Age as of 12/31/95							
18 years or younger	61.0	39.0	28.4	10.6	13.5	25.5	18.3
19–23 years	61.4	38.6	28.7	9.9	11.8	27.5	17.3
24–29 years	75.4	24.6	18.0	6.6	4.5	20.1	9.7
30 years or older	76.0	24.0	15.8	8.2	8.3	17.3	12.0
Delayed enrollment							
No	60.9	39.1	28.5	10.6	13.2	25.9	17.9
Yes	66.3	33.7	25.0	8.7	9.7	25.3	16.1
Income and dependency quartiles 1994							
Dependent	60.9	39.1	28.7	10.5	13.1	26.2	17.9
Low quartile	59.7	40.3	31.3	9.0	11.2	29.2	19.0
Middle quartiles	60.2	39.8	29.3	10.5	12.5	27.4	18.8
High quartile	62.7	37.3	25.9	11.4	15.5	22.4	15.8
Independent	72.8	27.2	19.9	7.2	7.4	20.6	13.9
Low quartile	73.6	26.4	20.0	6.4	9.1	17.7	15.7
Middle quartiles	70.8	29.3	22.3	7.0	7.1	24.1	15.9
High quartile	78.0	22.0	13.8	8.2	5.5	15.8	6.7
Number of risk factors 1995–96[2]							
None	61.9	38.1	28.2	9.9	12.9	24.8	17.0
One	58.4	41.6	29.0	12.6	15.3	29.6	21.0
Two or more	65.9	34.1	25.0	9.1	7.7	27.4	16.8

‡ Reporting standards not met. (Too few cases.)

[1] American Indian includes Alaska Native, Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. Race categories exclude Hispanic origin unless specified.

[2] Risk factors include delaying enrollment, not having a high school diploma, enrolling part time, being financially independent (typically students over 24), having dependents other than a spouse, being a single parent, and working full time while enrolled. For more information, see Horn, L.J., and Premo, M.D. (1995). *Profile of Undergraduates in U.S. Postsecondary Education Institutions: 1992–93, With an Essay on Undergraduates at Risk* (NCES 96–237).

NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

percent vs. 30–36 percent) (table 4-B). They were also more likely to transfer (40 percent vs. 18–23 percent) or ever enroll in public 2-year institutions (30 percent vs. 10–15 percent), but no differences could be detected between GPA and co-enrollment. Part of this GPA association may be due to students in academic trouble at one institution deciding to attend another institution or change their program of study. For the most part, the number of hours students worked per week was not associated with their rates of multiple institution attendance except that students who did not work were more likely to co-enroll than students who worked 35 hours or more (14 vs. 11 percent).

Among students who began at 4-year institutions, those with advanced degree expectations were less likely than those who expected to earn no more than a bachelor's degree to attend more than one institution (38 vs. 44 percent). They were also less likely to transfer (24 vs. 34 percent) or attend public 2-year institutions (17 vs. 23 percent), but no such difference could be found in their likelihood of co-enrolling.

Persistence and Attainment

Among students who began their postsecondary education in 4-year institutions, 58 percent had attained a bachelor's degree by 2001, and 12 percent were still enrolled in 4-year institutions (table 4-C). Twenty-one percent had not attained any degree and were no longer enrolled. Students who attended more than one institution were less likely to have attained a bachelor's degree by 2001 than students who only attended one institution (42 vs. 68 percent). However, students who attended more than one institution were more likely to still be enrolled anywhere as of 2001 than those who attended only one institution (24 vs. 8 percent). Roughly one-fifth of both students who attended one institution and students who attended more than one institution had left without a degree and were no longer enrolled.

Compared with those who did not transfer or attend public 2-year institutions, students who transferred or ever attended public 2-year institutions were less likely to have attained a bachelor's degree and more likely to have left without a degree. For example, 25 percent of students who transferred or attended public 2-year institutions had left without a degree, compared with 20 percent of students who had not transferred or attended a public 2-year institution. Even those students whose first transfer was in a lateral direction had lower rates of bachelor's degree attainment than those who did not transfer (45 vs. 68 percent).

Conversely, co-enrollment was positively related to bachelor's degree attainment among students who began at 4-year institutions. As of 2001, 63 percent of students who co-enrolled had attained a bachelor's degree, compared with 58 percent of students who never co-enrolled.

Furthermore, more than 1-in-5 students who never co-enrolled had left without earning any degree, while 1-in-10 students who co-enrolled had done so.

Table 4-B. Percentage of 1995–96 beginning postsecondary students in 4-year institutions according to multiple institution attendance patterns, by enrollment characteristics

	Number of institutions attended				Type of multiple enrollment		
		More than one					
Enrollment characteristics	One	Total	Two	Three or more	Co-enrolled	Transferred	Enrolled in public 2-year institutions
	Students who began in 4-year institutions						
Total	61.8	38.2	27.9	10.2	12.6	25.8	17.6
Grade point average 1995–96							
Less than 2.25	48.6	51.4	35.5	15.8	11.5	40.2	30.3
2.25–3.25	64.4	35.6	26.0	9.6	13.2	22.9	15.5
Greater than 3.25	69.7	30.3	23.9	6.5	13.1	18.0	9.7
Attendance intensity through 2001							
Always full-time	76.6	23.4	18.7	4.7	3.9	19.2	6.1
Always part-time	83.1	16.9	14.6	2.3	4.7	11.6	8.2
Mixed	32.1	67.9	46.5	21.4	29.8	39.5	40.1
Hours worked per week while enrolled 1995–96							
None	61.3	38.7	28.5	10.2	13.9	24.5	17.7
Less than 35 hours	62.0	38.0	27.6	10.4	12.0	26.3	17.6
35 hours or more	62.5	37.6	28.1	9.4	10.4	28.8	16.9
Received any aid 1995–96							
No	59.6	40.4	28.9	11.5	13.9	26.2	19.5
Yes	62.6	37.4	27.6	9.8	12.2	25.7	16.9
Degree expected at first institution							
None	27.3	72.7	40.2	32.5	14.5	63.9	45.4
Certificate	66.7	33.3	23.2	10.1	10.4	22.3	15.3
Associate's degree	64.9	35.1	28.6	6.5	9.0	28.7	15.7
Bachelor's degree	63.7	36.3	27.3	9.1	12.7	23.5	16.2
Highest degree ever expected in 1995–96							
No degree or certificate	‡	‡	‡	‡	‡	‡	‡
Certificate	‡	‡	‡	‡	‡	‡	‡
Associate's degree	60.2	39.9	31.2	8.7	4.0	34.1	30.1
Bachelor's degree	56.2	43.8	31.4	12.5	11.4	33.8	22.8
Higher than a bachelor's degree	62.3	37.7	27.6	10.0	13.8	24.1	16.8

‡ Reporting standards not met. (Too few cases.)
NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

Table 4-C. Percentage distribution of 1995–96 beginning postsecondary students in 4-year institutions according to the highest degree attained and 6-year persistence and attainment status, by multiple institution attendance patterns and degree expectations

Attendance patterns and degree expectations	Highest degree attained anywhere				No degree anywhere		
					Still enrolled		
	Total attained	Bachelor's degree	Associate's degree	Certificate	At 4-year institutions	At less-than-4-year institutions	Not enrolled
	Students who began in 4-year institutions						
Total	64.9	58.2	4.0	2.7	11.8	2.7	20.8
Degree expected at first institution							
None	37.2	19.9	11.1	6.2	13.7	7.5	41.8
Certificate	37.4	7.5	14.2	15.7	17.4	2.4	42.8
Associate's degree	52.1	20.3	24.5	7.3	6.9	2.0	39.0
Bachelor's degree	67.5	62.7	2.7	2.1	11.9	2.4	18.3
Number of institutions attended							
One	70.7	68.0	1.9	0.9	8.0	†	21.2
More than one	55.3	42.4	7.3	5.6	17.7	6.9	20.0
Two	57.2	46.5	6.0	4.7	14.9	6.2	21.7
Three or more	50.1	31.4	10.9	7.8	25.6	9.0	15.2
Co-enrolled							
Never co-enrolled	63.9	57.6	3.9	2.4	11.3	2.7	22.0
Sometimes co-enrolled	71.3	62.5	4.6	4.2	14.5	2.3	11.9
Enrolled in public 2-year institutions							
No	68.5	63.7	2.6	2.1	11.3	0.4	19.8
Yes	48.0	32.7	10.2	5.1	13.8	13.1	25.2
Transfer status[1]							
Never transferred	71.6	68.4	1.9	1.3	8.7	0.2	19.5
Transferred	45.4	29.2	9.8	6.4	20.5	9.6	24.5
Number of times transferred							
Once	44.8	30.0	8.8	6.0	18.1	9.6	27.5
Twice	47.7	28.6	12.1	7.0	26.6	9.9	15.9
Three times	45.3	13.6	18.5	13.2	40.6	6.2	7.8
First transfer direction							
Upward	†	†	†	†	†	†	†
Lateral	50.3	44.7	4.0	1.6	28.4	2.7	18.7
Downward	38.8	8.5	17.4	13.0	10.2	18.8	32.2
Enrollment continuity through 2001							
Continuously enrolled	74.1	69.7	2.8	1.6	6.7	0.4	18.8
Two enrollment spells	35.2	21.6	7.7	5.8	28.1	8.5	28.2
Three or more spells	23.3	6.6	8.4	8.4	33.8	18.5	24.3

† Not applicable.

[1] Students had to have moved from the original institution to the destination institution and have remained at the destination for at least 4 months to be identified as a transfer student. In some cases, students who began at 4-year institutions attended 2-year institutions without having met this definition of transfer.

NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

Time to Degree

The majority of students (63 percent) who began in 4-year institutions with a bachelor's degree goal had attained one within 6 years (table 4-D). Thirty-six percent had attained a bachelor's degree in 4 years or less, and an additional 26 percent had attained one in more than 4 years. While attending more than one institution was inversely related to attainment rates for students with a bachelor's degree goal (72 percent who attended only one institution had attained a bachelor's degree within 6 years vs. 46 percent of students who attended more than one institution), the same pattern was not detected for co-enrollment. Roughly two-thirds of students had attained a bachelor's degree within 6 years, whether or not they co-enrolled. Transferring, however, was negatively related to such attainment rates for students with a bachelor's degree goal: 72 percent of students with a bachelor's degree goal who never transferred had attained a bachelor's degree within 6 years, while 31 percent of those who transferred had. Among students who transferred, those who transferred once were more likely than those who transferred twice to complete a degree in 4 years or less (11 vs. 6 percent) but were no more likely to complete a degree within 6 years (roughly one-third of both groups).

In summary, attending more than one institution, transferring, or enrolling in public 2-year institutions were negatively related to attainment for beginning postsecondary students in 4-year institutions. Although students who attended more than one institution had lower rates of attainment, once persistence was included no difference could be detected in rates for those who attended only one institution and those who attended more than one. So, for some of these students, multiple institution attendance is associated with delayed attainment and, given more time, they may eventually achieve their degree goal. Furthermore, among students who began at 4-year institutions, co-enrollment appeared to be positively related to their rates of persisting and attaining.

Multivariate Analysis

To take into account the interrelationship of multiple institution attendance and other characteristics that may influence students' likelihood of completing a postsecondary credential, a multivariate analysis was conducted on the BPS data. (See appendix B for a detailed description of the methodology used.) The multivariate method used in this analysis is an approach sometimes referred to as "commonality analysis."[13] Multiple linear regression was used to adjust for the covariation among a list of control variables, which were selected based solely on the descriptive analysis rather than on a theoretical model, and the regression model was not

[13] For more information about commonality analysis, see Kerlinger and Pedhazur, *Multiple Regression in Behavioral Research* (Holt, Rinehart, and Winston Inc., 1973).

Table 4-D. Percentage of beginning postsecondary students in 4-year institutions in 1995–96 with a bachelor's degree goal who completed a bachelor's degree according to the number of years to completion, by multiple institution attendance patterns

Attendance patterns	No bachelor's degree		Attained a bachelor's degree		
	Not enrolled in 4-year institutions	Enrolled in 4-year institutions	4 years or less	More than 4 years	6-year total
	Students who began in 4-year institutions				
Total	25.5	11.9	36.5	26.1	62.7
Number of institutions attended					
One	19.5	8.3	44.3	27.8	72.2
More than one	36.0	18.0	22.9	23.2	46.0
Two	34.6	15.4	26.1	23.9	49.9
Three or more	40.1	25.7	13.2	21.1	34.2
Co-enrolled					
Never co-enrolled	26.3	11.7	36.3	25.8	62.1
Sometimes co-enrolled	20.1	13.1	38.1	28.7	66.8
Enrolled in public 2-year institutions					
No	20.9	11.5	40.1	27.5	67.6
Yes	49.2	13.7	17.8	19.3	37.1
Transfer status					
Never transferred	18.8	8.9	44.7	27.7	72.4
Transferred	47.2	21.5	10.0	21.3	31.2
Number of times transferred					
Once	48.4	19.2	11.3	21.1	32.4
Twice	42.6	27.1	6.2	24.1	30.3
Three times	47.1	45.4	#	7.6	7.6
First transfer direction					
Upward	†	†	†	†	†
Lateral	25.4	28.8	15.6	30.2	45.8
Downward	80.7	10.5	1.3	7.6	8.8
Enrollment continuity through 2001					
Continuously enrolled	19.7	6.8	44.2	29.4	73.6
Two enrollment spells	45.8	30.9	8.0	15.3	23.3
Three or more spells	58.1	34.3	1.1	6.5	7.6

† Not applicable.
# Rounds to zero.
NOTE: Detail may not sum to totals because of rounding. 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, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

reduced. In other words, subsequent models were not run that removed nonsignificant independent variables. The dependent variable was a dichotomous outcome (yes/no) indicating

whether a student had either attained a formal credential or was enrolled in a 4-year institution.[14] Specifically, the analysis examined the relationship between types of multiple institution attendance and student persistence, taking into account the covariation of variables such as demographics, socioeconomic status, persistence risk factors, and academic performance.

The main independent variables were the three types of multiple institution attendance: co-enrollment, enrollment in public 2-year institutions, and transfer status. Based on their association with multiple institution attendance patterns and persistence and attainment rates, demographic and socioeconomic characteristics such as gender, race/ethnicity, income, and number of risk factors were included in the model. Measures of academic success (grade point average in the first year enrolled) and enrollment continuity, which are associated with persistence and attainment, were also included. First institution sector was included in the model as well. The analysis included students who began in 4-year institutions with a bachelor's degree goal and measured their likelihood of attaining a bachelor's degree or being enrolled in 4-year institutions 6 years later.

The results of the multivariate analysis are shown in table 5. The first column shows the unadjusted percentages, which are the percentages of students who had attained a bachelor's degree or were enrolled in 4-year institutions 6 years after initial enrollment in postsecondary education before controlling for the independent variables in the model. The comparison groups are shown in italics, and all statistically significant differences are designated with an asterisk. The second column displays least squares coefficients expressed as percentages. Least squares coefficients that achieve statistical significance (as denoted by an asterisk) represent the observed differences between the analysis group and the comparison group after controlling for the other independent variables in the model. For example, in table 5, the least squares coefficient for those who had co-enrolled is 12.70. Therefore, compared to students who did not co-enroll, about 13 percent more students who had co-enrolled might be expected to have attained a bachelor's degree or be enrolled in a 4-year institution 6 years after initially enrolling in postsecondary education upon controlling for the relationships among the other independent variables.

The results of the multivariate analysis generally supported the results of the tabular analysis. The positive association between co-enrollment and persistence and attainment—which was apparent before controlling for covariation—remained, with students who had co-enrolled more likely to have persisted or attained than those who had not co-enrolled. Similarly, the negative relationship between persistence and attending public 2-year institutions or transferring

[14] Although the DAS simplifies the process of conducting a linear regression analysis, it also limits the range of procedures that can be used. The least squares regression procedure used in this analysis is sometimes sufficient for binary outcomes (such as the outcome studied here). However, when the proportion of the sample participating in the outcome is very low or very high, logit or probit procedures are preferred. See appendix B for more details.

Table 5. Percentage of 1995–96 beginning students in 4-year institutions with a bachelor's degree goal who had attained a bachelor's degree or were enrolled in 4-year institutions 6 years after first enrolling in postsecondary education, and the least squares coefficients and standard errors expressed as percentages

Student and enrollment characteristics[1]	Unadjusted percentages[2]	Least squares coefficient[3]	Standard error[4]
Total	74.5	97.40	1.95
Co-enrolled			
Never co-enrolled	*73.7*	*†*	*†*
Sometimes co-enrolled	79.9*	12.70*	2.21
Enrolled in public 2-year institutions			
No	*79.1*	*†*	*†*
Yes	50.8*	-18.00*	2.21
Transfer status			
Never transferred	*81.2*	*†*	*†*
Transferred	52.8*	-14.20*	1.82
First institution sector			
Public	*71.9*	*†*	*†*
Private not-for-profit	80.2*	1.90	1.43
Sex			
Male	*72.3*	*†*	*†*
Female	76.4*	0.50	1.30
Race/ethnicity[5]			
American Indian	‡	10.70	9.22
Asian/Pacific Islander	81.4	3.10	2.73
Black	61.1*	-4.40*	2.21
White	*77.4*	*†*	*†*
Other	‡	9.00	17.39
Hispanic	64.3*	-5.30*	2.21
Income quartiles			
Low quartile	66.3*	-7.10*	1.95
Middle quartiles	73.3*	-5.00*	1.56
High quartile	*83.1*	*†*	*†*
Number of risk factors 1995–96			
None	*80.5*	*†*	*†*
One	65.1*	-10.30*	1.95
Two or more	42.2*	-31.20*	2.34
Grade point average 1995–96			
Less than 2.25	47.6*	-27.70*	1.95
2.25–3.25	81.0*	-4.30*	1.56
Greater than 3.25	*87.5*	*†*	*†*

See notes at end of table.

Table 5. Percentage of 1995–96 beginning students in 4-year institutions with a bachelor's degree goal who had attained a bachelor's degree or were enrolled in 4-year institutions 6 years after first enrolling in postsecondary education, and the least squares coefficients and standard errors expressed as percentages—Continued

Student and enrollment characteristics[1]	Unadjusted percentages[2]	Least squares coefficient[3]	Standard error[4]
Enrollment continuity through 2001			
Continuously enrolled	*80.3*	*†*	*†*
Not continuously enrolled	51.9*	-6.40*	1.82

† Not applicable.
‡ Reporting standards not met. (Too few cases.)
* $p < 0.05$.
[1] The italicized group in each category is the reference group being compared.
[2] The estimates are from the BPS:96/01 Data Analysis System.
[3] Coefficients can be interpreted as the number of percentage points over or under the comparison group once the covariation of all variables is taken into account (see appendix B). Those that are significant (i.e., that indicate a significant difference from the reference group's mean) are indicated by an asterisk. For example, the coefficient for those who co-enrolled during their undergraduate education is 12.80, which means that about 13 percent more students who co-enrolled would be expected to have earned a bachelor's degree or be enrolled at 4-year institutions compared to students who did not co-enroll.
[4] Standard error of least squares coefficient, adjusted for design effect, multiplied by 100 to reflect percentage (see appendix B).
[5] American Indian includes Alaska Native, Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. Race categories exclude Hispanic origin unless specified.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01).

also remained. Students who attended public 2-year institutions during the course of their enrollment and students who transferred between institutions were less likely than their peers who did not attend public 2-year institutions and did not transfer to have attained or to be enrolled in a 4-year institution 6 years after enrolling in postsecondary education. However, the unadjusted advantage in persistence and attainment of private not-for-profit beginners over public 4-year beginners disappeared once the covariation of student and enrollment characteristics were taken into account.

The positive relationships between numerous other independent variables included in the analysis on persistence and attainment that were evident in the tabular analysis remained as well. Specifically, students with high incomes, no risk factors, high grade point averages, and those who were continuously enrolled as undergraduates remained more likely to have attained bachelor's degrees or be enrolled 6 years after beginning than their peers with incomes in the middle or lower quartiles, one or more risk factor upon initial enrollment, those with grade point averages of 3.25 or less, and those who had more than one enrollment spell.

Summary: Beginning Postsecondary Students

In general, among 1995–96 beginning postsecondary students, more traditional students, such as younger students and those who attended full time were more likely to attend multiple institutions than their older or part-time counterparts. Similarly, those with few factors that placed them at risk of leaving postsecondary education, such as those who did not delay their postsecondary enrollment, were more likely to attend multiple institutions than students with a greater number of persistence risk factors. However, many of these characteristics are also associated with students' likelihood of persisting in their postsecondary programs. The longer students persist, the more opportunity they have to attend more than one institution. Thus, to some extent, the association between these factors and multiple institution attendance may be due to the length of time students are enrolled. On the other hand, among students who began at 4-year institutions with a bachelor's degree goal, even when students' risk status and continuity of enrollment were taken into account in a multivariate analysis, the negative association between either transferring or attending public 2-year institutions and persistence remained, as did the positive association between co-enrolling and persistence.

Beginning postsecondary students in 4-year institutions who attended multiple institutions were less likely than their counterparts to attain a degree within 6 years. Given the association between attending multiple institutions and time to degree, it may be that those who attend more than one institution are simply taking longer to complete their postsecondary education and earn a degree. For example, among students who began at 4-year institutions, those who attended more than one institution were less likely than students who only attended one institution to have attained any degree (55 vs. 71 percent), but were more likely to still be enrolled anywhere in 2001 (25 vs. 8 percent). About one-fifth of both groups had left without a degree.

THIS PAGE INTENTIONALLY LEFT BLANK

1999–2000 Bachelor's Degree Recipients

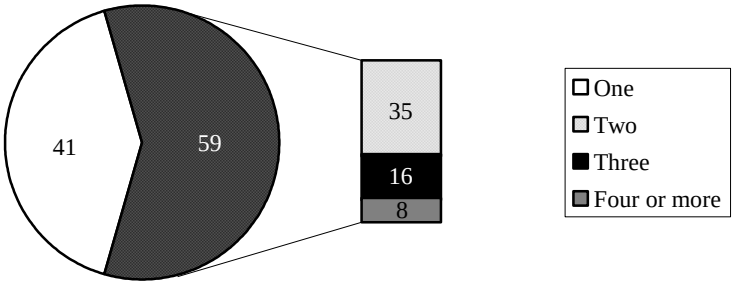
Introduction

This section of the report focuses on bachelor's degree recipients, using data from the 2000/01 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01). Students who attained their degrees in 1999–2000, regardless of when they first enrolled in postsecondary education, were included in the sample for this survey. Therefore, this student population differs substantially from that discussed in the previous section. That is, while the 1996/01 Beginning Postsecondary Students Longitudinal Study (BPS:96/01) followed a cohort of students who began postsecondary education from the 1995–96 through the 2000–2001 academic year, the B&B survey focuses on a cohort of bachelor's degree recipients who graduated in 1999–2000. The BPS survey includes students who left postsecondary education temporarily or permanently, as well as students who attained various degrees or were still enrolled. B&B respondents, on the other hand, have all attained bachelor's degrees. Therefore, the two cohorts are not directly comparable in terms of their patterns of multiple institution attendance.

B&B looks retrospectively at the enrollment histories of students who ultimately attained bachelor's degrees. Their paths to degree attainment vary widely, with some students taking many years and enrolling in several institutions along the way, and some earning their degrees at the institution at which they began their studies just a few years earlier. Students who attended multiple institutions are the population of interest here. Subsets of this population will also be examined—specifically, those who attended two or more institutions at one time (co-enrolled), transferred between institutions, or began at a 4-year institution and attended a 2-year institution at some point.

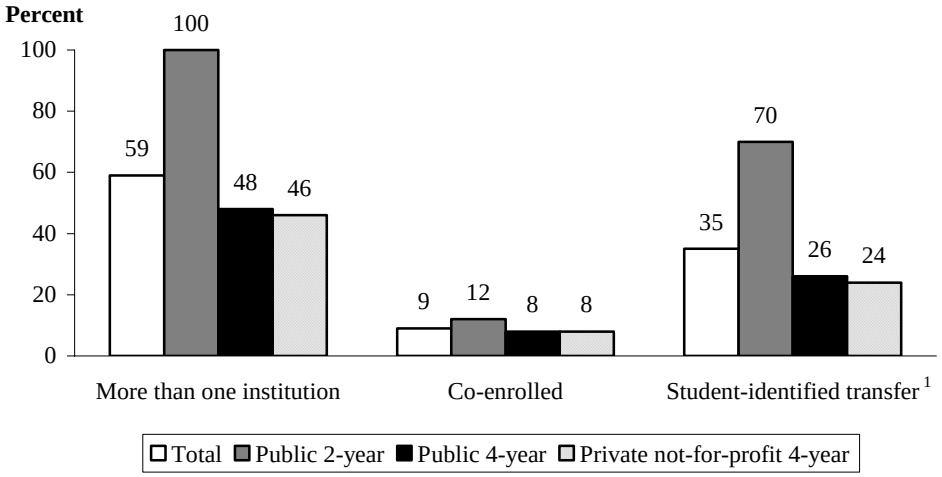
The majority (59 percent) of 1999–2000 first-time bachelor's degree recipients attended more than one institution during the course of their undergraduate enrollment. Thirty-five percent attended two institutions, 16 percent attended three institutions, and 8 percent attended four or more institutions (figure 3). Figure 4 shows the types of multiple institution attendance: 9 percent had co-enrolled and 35 percent had transferred. In this section, co-enrollment was identified only if it occurred within the academic year and lasted for more than 1 month and students are considered to have transferred if they indicated that they had attended more than one

Figure 3. Percentage distribution of 1999–2000 first-time bachelor's degree recipients according to number of institutions attended



NOTE: Detail may not sum to totals because of rounding. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

Figure 4. Percentage of 1999–2000 first-time bachelor's degree recipients according to multiple institution attendance patterns, by beginning institution type



[1]In B&B:2000/01, only students who reported that they attended multiple institutions in order to transfer were identified as transfer students. In some cases, students who began at 2-year institutions attended 4-year institutions without having met this definition of transfer.
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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

postsecondary institution before completing a bachelor's degree and did so in order to transfer between schools.

Among those who graduated from college, the likelihood of attending multiple institutions, co-enrolling, and transferring varied by the type of institution in which they first enrolled. Because public 2-year institutions typically do not offer bachelor's degree programs, 100 percent of students who began in public 2-year institutions and later attained a bachelor's degree attended more than one institution. Of those, 70 percent identified transfer as their main purpose for attending more than one institution, and 12 percent co-enrolled.[15] Forty-eight percent of bachelor's degree recipients who began in public 4-year institutions attended more than one institution and 46 percent who began in private not-for-profit institutions did so. Among those who began at 4-year institutions, 8 percent co-enrolled, and about one-quarter transferred before attaining a bachelor's degree.

Purpose for Attending Multiple Institutions

Bachelor's degree recipients who attended more than one postsecondary institution were asked why they had done so. Specifically, students were given the option of choosing one of the following reasons: transfer between schools, enroll for additional classes, enroll for an additional degree, transfer and take additional classes, or none of the above. The largest proportion reported transferring between schools as their main reason for attending more than one institution (table 6). As would be expected, those who began in public 2-year colleges were most likely to report wanting to transfer as their main purpose for enrolling in multiple institutions (63 percent), with an additional 7 percent reporting that they intended to both transfer and take additional classes. Fourteen percent of graduates who began in public 2-year institutions and attended more than one institution reported that they enrolled to take additional classes, and 7 percent enrolled for an additional degree.

Surprisingly, about one-half of bachelor's degree recipients who began in 4-year institutions and who attended more than one institution also reported that their purpose for attending multiple institutions was to transfer. About one-third of these graduates reported attending multiple institutions in order to take additional classes, and an additional 5–7 percent

[15] In some cases, students who began in public 2-year institutions attended 4-year institutions without transferring. In B&B:2000/01 students who indicated that they had attended more than one postsecondary institution before completing a bachelor's degree were asked why they chose to attend multiple institutions. Those who said they had attended multiple institutions in order to transfer between schools were considered to have met the student-identified definition of transfer used in the B&B section of this study. This question addressed all multiple institution attendance, so where students attended more than two institutions it is not possible to determine between which institutions the transfer occurred. Some students who began in 2-year institutions and later attained a bachelor's degree did not identify transfer as their purpose for attending multiple institutions and, therefore, were not considered as having met this definition of transfer.

Table 6. Percentage distribution of 1999–2000 first-time bachelor's degree recipients who enrolled in more than one institution during their undergraduate education according to purpose, by beginning institution type and number of institutions attended

Number of institutions	Percent who attended more than one institution	Purpose of undergraduate multiple institution attendance				
		Transfer between schools	Enroll for additional classes	Enroll for additional degree	Transfer and take additional classes	None of the above
		Students who began in public 2-year institutions				
Total	100.0	63.5	13.8	6.9	6.7	9.2
Number of institutions attended						
Two	100.0	66.9	10.5	8.7	2.1	11.9
Three	100.0	61.6	17.5	5.2	9.9	5.8
Four or more	100.0	50.1	21.7	1.9	22.5	3.7
		Students who began in public 4-year institutions				
Total	48.3	47.8	34.7	2.2	6.6	8.7
Number of institutions attended						
Two	100.0	42.8	41.4	2.6	2.2	11.1
Three	100.0	55.0	28.1	1.8	8.7	6.4
Four or more	100.0	55.5	17.2	1.6	22.9	2.8
		Students who began in private not-for-profit 4-year institutions				
Total	45.6	48.4	34.8	3.1	5.2	8.5
Number of institutions attended						
Two	100.0	44.1	40.5	3.9	1.3	10.2
Three	100.0	57.7	29.5	0.8	6.9	5.0
Four or more	100.0	48.5	19.3	4.3	19.7	8.1

NOTE: Detail may not sum to totals because of rounding. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

reported that they enrolled to both transfer and take additional classes. This pattern was observed for students who began in both public and private not-for-profit institutions.

Students Who Began in Public 2-Year Institutions

Due to the differences in patterns of multiple institution attendance between 1999–2000 bachelor's degree recipients who began in public 2-year institutions and those who began in 4-year institutions (both public and private not-for-profit), the rest of this section will focus on multiple institution attendance taking into account the type of institution in which students began

their studies. In the next section, the focus will turn to college graduates who began in public 2-year institutions, looking at how their student and enrollment characteristics were related to their various forms of multiple institution attendance.

Student and Enrollment Characteristics

Among college graduates who began in public 2-year institutions, 60 percent attended two institutions, 28 percent attended three institutions, and 11 percent attended four or more institutions (table 7-A). Twelve percent of students had co-enrolled at some point, and more than two-thirds (70 percent) reported transferring as their main reason for attending more than one institution. That is, 30 percent of students who began in public 2-year institutions and later attained a bachelor's degree did not report that their purpose for attending two or more institutions was to transfer between schools and, therefore, were not considered to have transferred in this section of the report.

Among graduates who began in public 2-year institutions, students who were financially dependent in 1999–2000 were less mobile than their independent peers. While 81 percent of dependent students who began in public 2-year institutions attended just two institutions, about one-half of independent students did so. The remaining independent students attended three institutions (33 percent) or four or more institutions (15 percent). Similarly, 82 percent of students with no persistence risk factors attended just two institutions, compared with 68 percent with one persistence risk factor and 54 percent with two or more risk factors. Students with two or more risk factors were more likely to have co-enrolled than students with no risk factors (14 vs. 7 percent).

Few other differences could be detected among graduates by their student and enrollment characteristics, however. Where there appeared to be differences, often there were large standard errors. Furthermore, where differences were detected, they could be related to the length of enrollment. Students have cited various reasons for enrolling in multiple institutions, some of which are academic, such as changing majors or programs or poor academic performance, and some of which are nonacademic, such as a job change, moving out of the area, or a change in family responsibilities (Gose 1995). As the length of time a student remains enrolled increases, so do the chances of a change in circumstances that may influence their likelihood of attending multiple institutions. Similarly, as students remain enrolled for longer periods of time, their chances of having persistence risk factors, such as financial independence and full-time employment, increase. Because most persistence risk factors were measured at the time of bachelor's degree completion in B&B:2000/01 (as opposed to when they began, as in

Table 7-A. Percentage of 1999–2000 first-time bachelor's degree recipients who began in public 2-year institutions who attended multiple institutions, by student and enrollment characteristics

Student and enrollment characteristics	Attended more than one institution				Type of multiple enrollment	
	Total	Two	Three	Four or more	Co-enrolled	Student-identified transfer[1]
	Students who began in public 2-year institutions					
Total	100.0	60.3	28.3	11.5	11.9	70.1
Sex						
Male	100.0	63.0	28.6	8.5	11.6	70.7
Female	100.0	58.2	28.1	13.7	12.2	69.7
Race/ethnicity[2]						
American Indian	100.0	‡	‡	‡	‡	‡
Asian/Pacific Islander	100.0	64.8	23.9	11.3	16.5	69.6
Black	100.0	59.6	25.4	15.0	8.3	66.6
White	100.0	60.0	29.3	10.7	12.5	69.7
Other	100.0	‡	‡	‡	‡	‡
Hispanic	100.0	58.7	29.6	11.8	6.6	74.3
Age when began postsecondary education						
18 years or younger	100.0	58.1	30.0	12.0	11.2	73.1
19–23 years	100.0	66.4	24.2	9.4	11.7	69.2
24–29 years	100.0	54.9	32.1	13.0	13.6	64.8
30 years or older	100.0	44.5	37.3	18.2	15.3	67.0
Delayed enrollment						
No	100.0	60.6	27.9	11.5	12.5	71.5
Yes	100.0	59.9	29.0	11.1	11.4	68.9
Income and dependency quartiles 1999–2000						
Dependent	100.0	81.1	17.0	1.9	7.3	72.0
Low quartile	100.0	79.7	18.7	1.6	10.3	73.0
Middle quartiles	100.0	83.5	14.5	2.0	8.3	75.4
High quartile	100.0	78.1	19.9	2.0	3.7	65.4
Independent	100.0	51.9	32.8	15.3	13.8	69.4
Low quartile	100.0	54.5	34.4	11.2	11.4	75.4
Middle quartiles	100.0	53.8	28.7	17.5	13.3	68.8
High quartile	100.0	43.9	38.9	17.2	18.5	61.1
Number of risk factors 1999–2000[3]						
None	100.0	81.7	16.4	1.9	6.6	72.3
One	100.0	67.7	24.7	7.6	9.9	74.3
Two or more	100.0	53.6	31.8	14.6	13.7	68.4
Cumulative grade point average						
Less than 2.25	100.0	51.4	34.5	14.1	17.7	66.2
2.25–3.25	100.0	62.5	27.3	10.2	10.8	72.1
Greater than 3.25	100.0	58.0	29.6	12.4	12.1	67.8

See notes at end of table.

Table 7-A. Percentage of 1999–2000 first-time bachelor's degree recipients who began in public 2-year institutions who attended multiple institutions, by student and enrollment characteristics—Continued

Student and enrollment characteristics	Attended more than one institution				Type of multiple enrollment	
	Total	Two	Three	Four or more	Co-enrolled	Student-identified transfer[1]
	Students who began in public 2-year institutions					
Hours worked per week while enrolled during first year						
None	100.0	82.7	16.6	0.7	13.6	70.8
Less than 35 hours	100.0	81.7	17.2	1.1	4.4	60.4
35 hours or more	100.0	80.0	14.4	5.7	4.6	63.3

‡ Reporting standards not met. (Too few cases.)

[1] In B&B:2000/01, only students who reported that they attended multiple institutions in order to transfer were identified as transfer students. In some cases, students who began at 2-year institutions attended 4-year institutions without having met this definition of transfer.

[2] American Indian includes Alaska Native, Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. Race categories exclude Hispanic origin unless specified.

[3] Risk factors include delaying enrollment, not having a high school diploma, enrolling part time, being financially independent (typically students over 24), having dependents other than a spouse, being a single parent, and working full time while enrolled. For more information, see Horn, L.J., and Premo, M.D. (1995). *Profile of Undergraduates in U.S. Postsecondary Education Institutions: 1992–93, With an Essay on Undergraduates at Risk* (NCES 96–237).

NOTE: Detail may not sum to totals because of rounding. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

BPS:96/01), the time that elapsed between their initial enrollment and degree attainment is related to the likelihood of having persistence risk factors.

Time to Degree

Students who begin in less-than-4-year institutions and later attain a bachelor's degree must attend a second institution in order to enroll in a bachelor's degree program. However, for these students, repeated multiple institution attendance (e.g., attending more than two institutions) can delay degree completion. Among 1999–2000 college graduates who began in public 2-year institutions, more than half took longer than 6 years to complete a bachelor's degree (table 7-B). The average time between initial enrollment in postsecondary education and bachelor's degree completion was about 9 years. Although all bachelor's degree recipients who began in public 2-year institutions attended at least two institutions, those who attended more than two institutions took more time to complete a bachelor's degree than those who attended just two institutions. For these students, as the number of institutions attended increased, so did the average time to completion. Students who began in public 2-year institutions and attended two

institutions averaged about 8 years between initial enrollment and bachelor's degree attainment, while students who enrolled in three institutions took about 11 years, and those who attended four or more institutions took an average of 14 years to do so.

Table 7-B. Among 1999–2000 first-time bachelor's degree recipients who began in public 2-year institutions, percentage distribution according to time to degree and average time to completion, by multiple institution attendance patterns

	Time between postsecondary entry and bachelor's degree completion				Average time to completion (in years)
Attendance patterns	4 years	5 years	6 years	More than 6 years	
	Students who began in public 2-year institutions				
Total	10.5	19.2	15.2	55.1	9.3
Number of institutions attended					
One	†	†	†	†	†
More than one	10.5	19.2	15.2	55.1	9.3
Two	14.4	24.4	17.7	43.6	7.8
Three	6.1	13.0	14.5	66.4	10.5
Four or more	0.8	7.1	4.4	87.7	13.8
Co-enrolled					
Never co-enrolled	11.3	19.1	16.0	53.6	9.1
Sometimes co-enrolled	5.4	18.3	9.5	66.8	10.0
Student-identified transfer[1]					
No	12.9	15.0	12.8	59.3	10.3
Yes	9.5	21.0	16.4	53.1	8.8
First transfer direction					
Upward	11.6	24.1	17.8	46.5	8.0
Lateral	2.2	10.4	12.4	75.1	11.2
Downward	2.8	6.8	3.6	86.8	11.7
Attempted to transfer credits[2]					
No	17.1	27.7	13.4	41.8	8.4
Yes	10.7	20.2	15.4	53.7	9.0

† Not applicable.

[1] In B&B:2000/01, only students who reported that they attended multiple institutions in order to transfer were identified as transfer students. In some cases, students who began at 2-year institutions attended 4-year institutions without having met this definition of transfer.

[2] Only students who attended multiple institutions in order to transfer, take additional classes, or both were asked whether they attempted to transfer credits.

NOTE: Detail may not sum to totals because of rounding. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

Among bachelor's degree recipients who began in community colleges, those who had never co-enrolled during their undergraduate education were more likely than those who had to attain a degree within 4 years. Whereas 11 percent of students who never co-enrolled graduated within 4 years of initial enrollment, 5 percent of students who had co-enrolled did so. However, no difference could be detected between students who had co-enrolled and those who had not in the overall average time to completion.

Students whose primary reason for attending multiple institutions was to transfer took less time to complete their degree than students who had other reasons for attending multiple institutions (9 vs. 10 years). Among students who attended multiple institutions in order to transfer or take additional classes, no differences could be detected in average time to completion between those who attempted to transfer credits and those who did not. Since all bachelor's degree recipients who began in public 2-year institutions attended more than one institution, it is not clear why transfer intent and attempt to transfer credits were related to time to degree in these ways.

Students Who Began in 4-Year Institutions

Student and Enrollment Characteristics

Among 1999–2000 bachelor's degree recipients who began in public or private not-for-profit 4-year institutions, 47 percent attended more than one institution: 28 percent attended two institutions, 13 percent attended three institutions, and 6 percent attended four or more institutions (table 8-A). One-quarter of these students transferred, more than one-third attended a 2-year institution, and 8 percent co-enrolled at some point before earning a bachelor's degree. No differences were detected between college graduates who began in public 4-year institutions and college graduates who began in private not-for-profit 4-year institutions in the rates of attending multiple institutions, co-enrolling, and transferring. However, those graduates who began in public institutions were more likely than their peers in private not-for-profit institutions to have ever attended 2-year institutions (40 vs. 32 percent).

Bachelor's degree recipients who began in 4-year institutions and had more persistence risk factors were more mobile over the course of their studies than those with fewer risk factors. While 31 percent of students with no risk factors attended multiple institutions, about half of students with one risk factor and 69 percent of students with two or more risk factors had done so. It should be noted that most of the risk factors were assessed at the time of degree completion and over the course of their enrollment college graduates may become independent and

Table 8-A. Percentage of 1999–2000 first-time bachelor's degree recipients who began in 4-year institutions who attended multiple institutions, by student and enrollment characteristics

Student and enrollment characteristics	Number of institutions attended					Type of multiple enrollment		
		More than one						
	One	Total	Two	Three or more	Four	Co-enrolled	Student-identified transfer	Enrolled in 2-year institutions
	Students who began in 4-year institutions							
Total	52.7	47.3	28.3	13.0	6.1	7.8	25.6	37.3
First institution sector								
Public	51.7	48.3	28.8	13.4	6.2	7.6	26.2	40.0
Private not-for-profit	54.4	45.6	27.4	12.3	5.8	8.0	24.4	32.3
Sex								
Male	55.4	44.6	26.5	12.2	6.0	7.3	24.8	34.4
Female	50.7	49.4	29.6	13.6	6.1	8.1	26.2	39.4
Race/ethnicity[1]								
American Indian	50.2	49.8	19.8	23.6	6.4	8.6	24.9	47.2
Asian/Pacific Islander	51.9	48.1	30.1	14.3	3.8	7.2	19.6	43.1
Black	47.2	52.8	30.4	13.3	9.1	8.2	27.9	41.1
White	53.3	46.7	27.8	12.9	6.1	7.7	26.0	36.7
Other	44.6	55.4	36.4	16.1	2.9	7.1	29.2	40.2
Hispanic	55.0	45.0	28.9	11.2	4.9	8.1	23.2	32.8
Age when began postsecondary education								
18 years or younger	58.9	41.1	25.9	11.0	4.2	6.5	19.6	33.7
19–23 years	46.3	53.7	31.9	14.8	7.0	9.3	32.1	40.6
24–29 years	20.9	79.1	37.8	26.5	14.8	8.7	53.5	52.8
30 years or older	30.4	69.6	26.0	18.8	24.8	15.8	49.9	57.3
Delayed enrollment								
No	58.8	41.2	26.3	10.6	4.3	6.4	19.7	34.4
Yes	29.7	70.3	35.4	21.9	13.0	12.8	48.0	47.9
Income and dependency quartiles 1999–2000								
Dependent	63.1	36.9	26.8	8.1	1.9	5.5	15.8	30.2
Low quartile	62.8	37.2	29.4	7.1	0.7	4.0	18.2	32.4
Middle quartiles	64.5	35.5	24.7	8.6	2.3	5.5	15.9	29.1
High quartile	61.5	38.5	28.4	8.1	2.0	6.2	14.5	30.3
Independent	31.9	68.1	31.2	22.6	14.3	12.2	45.2	51.4
Low quartile	40.1	59.9	31.4	20.0	8.5	7.3	39.3	43.7
Middle quartiles	31.9	68.2	32.2	21.4	14.5	12.7	46.9	51.1
High quartile	18.9	81.1	29.0	29.0	23.1	19.1	51.3	64.2
Number of risk factors 1999–2000[2]								
None	68.9	31.1	23.5	6.4	1.2	5.0	11.3	28.1
One	50.6	49.4	32.6	12.4	4.4	7.2	27.1	34.9
Two or more	30.8	69.2	32.2	22.9	14.1	12.2	45.1	52.0
Cumulative grade point average								
Less than 2.25	32.0	68.0	35.2	23.8	9.1	11.4	38.0	50.5
2.25–3.25	55.6	44.4	27.2	12.1	5.1	7.3	24.1	38.3
Greater than 3.25	50.7	49.3	29.2	13.1	7.0	7.9	26.8	35.7

See notes at end of table.

Table 8-A. Percentage of 1999–2000 first-time bachelor's degree recipients who began in 4-year institutions who attended multiple institutions, by student and enrollment characteristics—Continued

Student and enrollment characteristics	Number of institutions attended				Type of multiple enrollment		
		More than one					
	One	Total	Two	Four Three or more	Co-enrolled	Student-identified transfer	Enrolled in 2-year institutions
	Students who began in 4-year institutions						
Hours worked per week while enrolled during first year							
None	66.2	33.8	26.5	5.3 2.0	4.5	11.0	27.7
Less than 35 hours	67.0	33.0	23.7	8.0 1.3	5.6	13.6	28.4
35 hours or more	38.4	61.6	43.3	10.0 8.3	4.6	43.0	47.8

[1] American Indian includes Alaska Native, Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. Race categories exclude Hispanic origin unless specified.

[2] Risk factors include delaying enrollment, not having a high school diploma, enrolling part time, being financially independent (typically students over 24), having dependents other than a spouse, being a single parent, and working full time while enrolled. For more information, see Horn, L.J., and Premo, M.D. (1995). *Profile of Undergraduates in U.S. Postsecondary Education Institutions: 1992–93, With an Essay on Undergraduates at Risk* (NCES 96–237).

NOTE: Detail may not sum to totals because of rounding. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

develop additional risk factors such as becoming a parent. Furthermore, students who take longer to attain a degree have more opportunities to attend multiple institutions and develop risk factors.

Examining specific risk factors revealed that college graduates who delayed enrollment between high school and college were more likely than those who did not delay to participate in each type of multiple institution attendance. For example, 13 percent of students who delayed postsecondary entry had co-enrolled, and 48 percent had attended 2-year institutions at some point, compared with 6 and 34 percent, respectively, of their counterparts who did not delay enrollment.

Likewise, students who were financially independent from their parents or guardians were also more likely to have engaged in all forms of multiple institution attendance than their financially dependent peers. While 37 percent of dependent students had attended more than one institution before earning a bachelor's degree, the majority (68 percent) of independent students had done so.

Students who worked full time during their first year of enrollment were more mobile than their counterparts who worked part time or did not work at all. Full-time employees were more likely not only to attend more than one institution, with 62 percent doing so compared with 33–

34 percent of their part-time or unemployed peers, but also to transfer between institutions (43 vs. 11–14 percent).

Students who graduated with low cumulative GPAs—less than 2.25 on a 4-point scale, roughly equivalent to earning mostly C's and lower—were more likely than students with higher GPAs upon graduation to have attended more than one institution. Roughly two-thirds of students with low cumulative GPAs attended multiple institutions, compared with 44 percent with moderate GPAs (2.25–3.25) and 49 percent with high GPAs (3.25 and higher). Academic success, as measured by GPA, was not statistically related to the likelihood of co-enrolling, but students who performed poorly were more likely than their more successful peers to transfer (38 percent vs. 24–27 percent) and to attend 2-year institutions (51 percent vs. 36–38 percent). Thus, among bachelor's degree recipients, it appears that students who began in 4-year institutions and struggled academically were more likely to change schools than those who earned higher grades.

Time to Degree

Research has shown that students who begin in public 4-year institutions tend to take longer to attain a bachelor's degree than students who begin in private not-for-profit 4-year institutions (Bradburn et al. 2003). Just over one-third (38 percent) of college graduates who began in public 4-year institutions earned a degree within 4 years, while the majority (65 percent) of students who began at private not-for-profit institutions did so (tables 8-B and 8-C). The average time between initial enrollment in postsecondary education and bachelor's degree completion was about 6 years for graduates who began at public 4-year institutions and about 5 years for graduates who began at private not-for-profit 4-year institutions. Because of this difference, the time between postsecondary entry and bachelor's degree attainment is reported separately for students who began in public 4-year institutions and those who began in private not-for-profit 4-year institutions. Nonetheless, students who attended more than one institution took longer to complete their degree than students who attended just one institution, regardless of the sector in which they began. Students who began in public institutions and remained at the same institution to earn a degree averaged about 5 years between initial enrollment and bachelor's degree attainment, while students who enrolled in two institutions took about 6 years, students who enrolled in three institutions took about 9 years, and students who enrolled in four or more institutions took an average of 12 years. Similarly, for private not-for-profit institutions, as the number of institutions attended increased, so did the average time to completion (4, 5, 7, and 12 years, respectively). Among bachelor's degree recipients who began in 4-year institutions, co-enrolling, transferring, and attending a 2-year institution at some point also corresponded to taking more time between postsecondary entry and degree completion.

Table 8-B. Among 1999–2000 first-time bachelor's degree recipients who began in public 4-year institutions, percentage distribution according to time to degree and average time to completion, by multiple institution attendance patterns

	Time between postsecondary entry and bachelor's degree completion				Average time to completion (in years)
Attendance patterns	4 years	5 years	6 years	More than 6 years	
	Students who began in public 4-year institutions				
Total	37.6	29.7	10.1	22.6	6.2
Number of institutions attended					
One	45.3	34.9	9.8	10.0	4.9
More than one	29.2	24.1	10.4	36.2	7.7
Two	36.1	30.3	9.6	24.0	6.3
Three	22.1	16.7	13.6	47.6	8.5
Four or more	12.6	11.4	7.5	68.5	11.9
Co-enrolled					
Never co-enrolled	38.4	30.5	10.0	21.2	6.1
Sometimes co-enrolled	27.1	20.9	11.9	40.2	7.9
Enrolled in 2-year institutions					
No	41.7	33.2	9.8	15.4	5.4
Yes	31.4	24.5	10.6	33.5	7.4
Student-identified transfer					
No	43.7	33.0	9.4	13.9	5.4
Yes	20.3	20.6	12.1	47.1	8.5
First transfer direction[1]					
Upward	†	†	†	†	†
Lateral	20.8	23.5	11.9	43.9	8.4
Downward	10.9	15.3	15.0	58.8	9.3
Attempted to transfer credits[2]					
No	37.8	23.3	9.1	29.7	7.2
Yes	28.5	23.9	10.9	36.7	7.6

† Not applicable.

[1] A small percentage of cases contained inconsistent information indicating that some students who began in 4-year institutions transferred upward in their first transfer.

[2] Only students who attended multiple institutions in order to transfer, take additional classes, or both were asked whether they attempted to transfer credits.

NOTE: Detail may not sum to totals because of rounding. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

Table 8-C. Among 1999–2000 first-time bachelor's degree recipients who began in private not-for-profit 4-year institutions, percentage distribution according to time to degree and average time to completion, by multiple institution attendance patterns

	Time between postsecondary entry and bachelor's degree completion				Average time to completion (in years)
Attendance patterns	4 years	5 years	6 years	More than 6 years	
	Students who began in private not-for-profit 4-year institutions				
Total	64.6	17.0	5.4	13.0	5.3
Number of institutions attended					
One	79.7	13.6	2.9	3.8	4.1
More than one	46.5	21.2	8.3	24.1	6.7
Two	58.8	21.2	5.9	14.0	5.3
Three	31.5	27.2	10.9	30.4	7.3
Four or more	20.6	8.2	13.6	57.6	12.0
Co-enrolled					
Never co-enrolled	66.6	17.1	5.0	11.4	5.0
Sometimes co-enrolled	43.2	16.3	9.7	30.8	8.1
Enrolled in 2-year institutions					
No	71.9	15.9	4.6	7.6	4.5
Yes	49.0	19.6	6.9	24.5	6.8
Student-identified transfer					
No	74.7	14.3	3.3	7.7	4.7
Yes	33.1	25.4	11.7	29.9	7.1
First transfer direction[1]					
Upward	†	†	†	†	†
Lateral	33.4	26.7	11.3	28.6	6.8
Downward	25.5	24.1	11.9	38.6	7.8
Attempted to transfer credits[2]					
No	60.4	21.9	7.2	10.6	5.7
Yes	44.8	22.6	8.5	24.1	6.7

† Not applicable.

[1] A small percentage of cases contained inconsistent information indicating that some students who began in 4-year institutions transferred upward in their first transfer.

[2] Only students who attended multiple institutions in order to transfer, take additional classes, or both were asked whether they attempted to transfer credits.

NOTE: Detail may not sum to totals because of rounding. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

Reasons for Attending Multiple Institutions

Students who graduated with a bachelor's degree in 1999–2000 who attended more than one institution during their undergraduate education were asked why they had decided to attend multiple institutions. In the next section, the reasons students gave for attending 2-year institutions, transferring between schools, and co-enrolling will be examined separately for graduates who began in public 2-year, public 4-year, and private not-for-profit 4-year institutions.

Attended 2-Year Institutions

College graduates in 1999–2000 who had attended 2-year institutions at some point during their undergraduate education, including those who began in public 2-year institutions, were asked their reasons for having done so. Among students who began in public 2-year institutions, the largest proportion (31 percent) reported convenience in scheduling or location as their primary reason for attending these institutions (table 9). Twenty-two percent of these graduates cited financial reasons as their motivation to attend 2-year institutions, 13 percent said they enrolled to earn a degree or certificate, and 9 percent said they chose to attend because 2-year institutions offered a desired program. College graduates who first attended public 2-year institutions and later attended just one other institution (presumably a 4-year institution where they attained a bachelor's degree) were more likely to cite financial reasons as their motivation than their counterparts who attended at least two additional institutions (27 vs. 15 percent or less, respectively).

Among those who began in public and private not-for-profit 4-year institutions, students were more likely to report attending 2-year institutions because they offered a desired program than for any other reason (27 and 32 percent, respectively). Roughly one-fifth of those who began at 4-year institutions listed a convenient schedule or location as their reason for attending 2-year institutions, and an additional 17 percent listed financial reasons.

Transferred

The majority (70 percent) of bachelor's degree recipients who began in public 2-year institutions and later transferred reported that their reason for doing so was to earn a degree or because the destination institution offered a desired program not available at their current institution (table 10). Bachelor's degree recipients who began in public 2-year institutions and attended just one other institution—presumably the 4-year institution from which they attained a bachelor's degree—were more likely to report transferring to earn a degree or to participate in a

Table 9. Percentage of 1999–2000 first-time bachelor's degree recipients who ever attended 2-year institutions and percentage distribution according to reason for doing so, by beginning institution type and number of institutions attended

		Reason for attending 2-year institutions						
Number of institutions	Enrolled in 2-year institutions	Learn job skills/ personal enrichment	Offered desired program	Earn degree/ certificate	Preparing to transfer	Convenient location/ schedule	Financial reasons	Other
				Students who began in public 2-year institutions				
Total	100.0	6.3	9.5	12.5	9.8	31.4	21.7	9.0
Number of institutions attended								
Two	100.0	5.4	7.8	10.9	10.2	30.2	26.7	8.7
Three	100.0	7.6	12.1	14.2	10.3	32.1	14.6	9.1
Four or more	100.0	7.3	11.7	16.6	6.4	35.7	12.6	9.8
				Students who began in public 4-year institutions				
Total	40.0	8.5	27.1	9.5	6.2	19.6	17.3	11.9
Number of institutions attended								
Two	52.8	4.9	29.8	7.1	5.8	20.7	20.6	11.2
Three	81.6	11.3	26.9	9.1	6.8	18.9	16.3	10.8
Four or more	90.5	10.9	21.8	15.3	6.1	18.6	11.8	15.6
				Students who began in private not-for-profit 4-year institutions				
Total	32.3	7.3	31.8	5.7	10.2	17.0	17.0	11.0
Number of institutions attended								
Two	42.4	6.4	36.1	4.8	8.0	16.3	18.2	10.4
Three	62.9	7.7	28.3	5.8	11.1	17.2	18.6	11.1
Four or more	84.0	8.6	28.3	7.4	13.2	17.9	12.8	12.0

NOTE: Detail may not sum to totals because of rounding. Respondents who had attended 2-year or less-than-2-year institutions were asked why they enrolled there. Up to three responses were coded. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

desired program (79 percent) than their peers who attended three or more institutions (of whom 42–60 percent reported that their motivation was to earn a degree).

Among college graduates who started in 4-year institutions, about one-third of those who began in both public and private not-for-profit institutions reported having transferred for a desired program or to earn a degree. This may reflect students who decided to change majors or had academic problems, since they began in bachelor's degree-granting schools. An additional 31 percent of students who began in public institutions and 26 percent of those who began in private not-for-profit institutions reported having transferred because the destination school had

Table 10. Percentage of 1999–2000 first-time bachelor's degree recipients who reported transferring during their undergraduate education and percentage distribution according to reason for doing so, by beginning institution type and number of institutions attended

Number of institutions	Student-identified transfer	Reason for first transfer: Offered desired program/ earn degree	School characteristics (location, reputation)	Affordable/ other financial reasons	Personal reasons/ academic problems	Other
		Students who began in public 2-year institutions				
Total[1]	70.1	70.0	11.0	4.1	5.9	9.0
Number of institutions attended						
Two	69.0	78.6	7.8	2.9	3.0	7.8
Three	71.6	59.7	15.6	7.5	8.3	8.8
Four or more	72.6	41.5	19.1	2.6	19.3	17.5
		Students who began in public 4-year institutions				
Total	26.2	31.6	30.6	7.4	17.7	12.7
Number of institutions attended						
Two	44.9	32.5	31.6	7.8	18.1	10.0
Three	63.7	31.4	27.8	8.9	18.1	13.8
Four or more	78.4	28.4	33.2	2.9	15.7	19.9
		Students who began in private not-for-profit 4-year institutions				
Total	24.4	30.8	25.6	12.2	18.5	13.0
Number of institutions attended						
Two	45.4	31.8	27.5	12.2	19.4	9.1
Three	64.6	27.5	23.4	13.9	18.9	16.3
Four or more	68.3	34.9	22.8	7.4	13.8	21.1

[1] In B&B:2000/01, only students who reported that they attended multiple institutions in order to transfer were identified as transfer students. In some cases, students who began at 2-year institutions attended 4-year institutions without having met this definition of transfer.

NOTE: Detail may not sum to totals because of rounding. Respondents who transferred were asked, "Why did you decide to transfer to another school?" Up to three responses were coded. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

certain characteristics, such as location or reputation. Twelve percent of college graduates who began at private not-for-profit 4-year institutions, 7 percent who began at public 4-year institutions, and 4 percent of those who began at public 2-year institutions cited financial reasons for transferring between schools. Students who began in 4-year institutions were more likely to cite academic problems or personal reasons for transferring than those who began in 2-year institutions: 6 percent of those who began in community colleges transferred due to academic problems or personal reasons, compared with 18 percent of students who began in public 4-year institutions and 19 percent of those who began in private not-for-profit institutions. Among

college graduates who began in 4-year institutions, few differences could be detected in the reasons given for first transfer when considering the total number of institutions attended before earning a bachelor's degree.

Co-Enrolled

In order to decrease respondent burden in B&B:2000/01, students who co-enrolled were only asked to report the reasons they decided to do so if they met the following criteria: attended three or more institutions and had overlapping enrollment at two or more of these institutions for more than 1 month (5 percent of all respondents) or attended two 4-year institutions simultaneously for at least 2 months and did not report that their purpose for enrolling was solely to transfer from one institution to the other (1 percent of all respondents). Thus, in this section, sample sizes are often too small to detect any difference between groups. To increase the likelihood of attaining statistical significance, some similar answers were grouped together in this analysis (table 11).

Among college graduates who began in public 2-year institutions and co-enrolled, about one-quarter did so to take easier classes or fulfill requirements. Between 14 and 16 percent co-enrolled to take extra classes or because the program was not available, for financial reasons, or to get a better class schedule. Roughly one-fifth who began their postsecondary education in public 4-year institutions stated that their reason for co-enrolling was to take easier classes or fulfill requirements. An additional 18 percent co-enrolled to take extra classes or because a desired program was not available. Among graduates who began in private not-for-profit 4-year institutions, 18 percent co-enrolled to take easier classes or fulfill requirements, and one-quarter did so to take extra classes or because a desired program was not available.

Summary: Bachelor's Degree Recipients

Most college graduates who earned a bachelor's degree in 1999–2000 attended more than one institution before attaining a degree. While those who began in public 2-year institutions had to attend more than one institution in order to enroll in a bachelor's degree program, nearly half of students who began in 4-year institutions attended at least one additional institution before earning a degree. Over one-third of all bachelor's degree recipients transferred. Co-enrollment was the least common form of multiple institution attendance, with 9 percent of bachelor's degree recipients participating. Among those who started at 4-year institutions and attended

Table 11. Percentage of 1999–2000 first-time bachelor's degree recipients who co-enrolled during their undergraduate education and percentage distribution according to reason for doing so, by beginning institution type and number of institutions attended

		Reason for co-enrolling						
Number of institutions	Co-enrolled	Get done sooner	Take easier classes/ fulfill requirements	Better class schedule	Preparing to transfer	Taking extra classes/ program not available	Financial reasons	Other
				Students who began in public 2-year institutions				
Total	11.9	6.9	23.4	15.7	8.3	14.6	14.4	16.7
Number of institutions attended								
Two	5.4	†	†	†	†	†	†	†
Three	18.1	3.5	20.3	16.2	11.1	16.3	11.8	20.9
Four or more	30.9	11.4	27.5	15.0	4.6	12.5	17.7	11.3
				Students who began in public 4-year institutions				
Total	7.6	12.2	22.5	13.9	6.9	18.1	1.3	25.0
Number of institutions attended								
Two	10.9	#	11.2	5.8	12.1	30.6	1.1	39.2
Three	18.6	11.1	30.1	12.5	5.8	13.7	1.3	25.6
Four or more	32.9	18.2	17.3	18.8	6.4	19.0	1.3	19.0
				Students who began in private not-for-profit 4-year institutions				
Total	8.0	7.0	18.2	10.6	6.6	27.0	6.5	24.3
Number of institutions attended								
Two	11.1	7.6	5.9	4.2	5.9	42.9	#	33.5
Three	23.4	4.4	15.4	14.7	6.4	27.9	9.3	21.9
Four or more	34.9	10.1	28.3	8.3	7.0	17.4	6.1	22.8

† Not applicable.

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding. To lighten respondent burden, only respondents who attended three or more institutions and had overlapping enrollment at two or more of these institutions for more than 1 month, and respondents who attended two institutions at the same time for at least 2 months who did not attend 2-year or less-than-2-year institutions and who did not only transfer between institutions were asked why they decided to enroll at more than one school. Respondents could select up to three responses. 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, 2000/01 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:2000/01).

multiple institutions, the most common form of multiple institution attendance was enrolling in a 2-year institution.

Among bachelor's degree recipients, independent students, older students, and students with more persistence risk factors were more mobile during their postsecondary studies than dependent students and students with fewer persistence risk factors. Students who graduated with characteristics that put them at risk of not completing their postsecondary education were more likely to attend multiple institutions (more than one institution for students who began in 4-year institutions and more than two for those who began in 2-year institutions) than their counterparts

who graduated without any risk factors. However, by definition, over the course of their enrollment, college graduates may become independent and develop additional persistence risk factors such as becoming a parent. Furthermore, students who take longer to attain a degree have more opportunities to attend multiple institutions. Nonetheless, among college graduates who began at 4-year institutions, those who delayed entry into postsecondary education and those who worked full time during their first year enrolled—both persistence risk factors measured when graduates began their postsecondary education—were more likely than their counterparts who did not delay enrollment or work full time to attend multiple institutions.

For 1999–2000 bachelor's degree recipients, multiple institution attendance was negatively related to time to degree. Students who attended multiple institutions had a longer average time to completion than their peers who attended one institution (or, in the case of those who began in public 2-year institutions, two institutions). Reasons may be related to the difficulty of transferring credits, different requirements at various institutions, or mitigating factors such as a move, job change, or change in family status. For students who began in 4-year institutions, co-enrolling and transferring were also associated with slowed progress toward the bachelor's degree.

Conclusions

This study provides an overview of the extent to which undergraduates attend multiple institutions as well as the relationship between multiple institution attendance and persistence, attainment, and time to degree. The results of the study clearly show that attending more than one institution is a common practice for undergraduates. Among students who enrolled in postsecondary education for the first time in 1995–96, 40 percent had attended more than one institution as of 2001, while among 1999–2000 bachelor's degree recipients, nearly 60 percent had done so.

As would be expected, among 1995–96 beginning postsecondary students, those who began in a community college were more likely to transfer than those who began in 4-year institutions; nevertheless, about one-quarter of those who started in 4-year institutions had transferred, and for these students, transfer was associated with lower persistence rates. In addition, students who began in community colleges with intentions of earning a bachelor's degree, those with repeated multiple institution attendance (attending three or more institutions), and repeated transfers were less likely to attain a degree than their counterparts with fewer occurrences of multiple attendance.

When taking risk status and other related variables into account, multivariate analyses of beginning postsecondary students who began their postsecondary education in a 4-year institution with a bachelor's degree goal indicated a negative association between transfer and persistence. That is, among these students, those who transferred were less likely than those who had not transferred to attain a degree or be enrolled in 4-year institutions 6 years after first enrolling in postsecondary education. As with transfer, beginning postsecondary students who began their postsecondary studies in a 4-year institution and who attended a community college at some time during their enrollment were less likely to persist for 6 years or attain a degree than their counterparts who had not attended a community college. In contrast, beginning students who had ever co-enrolled were more likely to persist or attain than those who had not.

For 1999–2000 bachelor's degree recipients, multiple institution attendance was negatively related to time to degree. Students who attended multiple institutions had a longer average time to completion than their peers who attended one institution (or, in the case of those who began in public 2-year institutions, two institutions). Reasons may be related to the difficulty of transferring credits, different requirements at various institutions, or mitigating factors such as a

move, job change, or change in family status. For students who began in 4-year institutions, co-enrolling and transferring were also associated with slowed progress toward the bachelor's degree.

References

Adelman, C. (1999). *Answers in the Toolbox: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment* (PLLI 1999–8021). U.S. Department of Education. Washington, DC: Office of Educational Research and Improvement.

Association of American Colleges and Universities. (2002). *Greater Expectations: A New Vision for Learning as a Nation Goes to College.* Washington, DC: Author.

Berkner, L., He, S., and Forrest Cataldi, E. (2002). *Descriptive Summary of 1995–96 Beginning Postsecondary Students: Six Years Later* (NCES 2003–151). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Bradburn, E.M., and Hurst, D.G. (2001). *Community College Transfer Rates to 4-Year Institutions Using Alternative Definitions of Transfer* (NCES 2001–197). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Bradburn, E.M., Berger, R., Li, X., Peter, K., and Rooney, K. (2003). *A Descriptive Summary of 1999–2000 Bachelor's Degree Recipients 1 Year Later, With an Analysis of Time to Degree* (NCES 2003–165). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

de los Santos, Jr., A.G., and Wright, I. (1990). Maricopa's Swirling Students. *American Association of Community and Junior Colleges Journal, Jun/Jul*: 32–34.

Gose, B. (1995, August 4). Double Dippers. *The Chronicle of Higher Education*, pp. A27–A28.

Horn, L., and Berktold, J. (1998) *Profile of Undergraduates in U.S. Postsecondary Education Institutions: 1995–96* (NCES 98–084). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Horn, L., Peter, K., and Rooney, K. (2002). *Profile of Undergraduates in U.S. Postsecondary Institutions: 1999–2000* (NCES 2002–168). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Horn, L.J., and Premo, M.D. (1995). *Profile of Undergraduates in U.S. Postsecondary Education Institutions: 1992–93, With an Essay on Undergraduates at Risk* (NCES 96–237). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Lee, V., and Frank, K. (1990). Students' Characteristics That Facilitate the Transfer From Two-Year to Four-Year Colleges. *Sociology of Education, 60*: 178–193.

Light, A., and Strayer, W. (2004). Who Receives the College Wage Premium? Assessing the Labor Market Returns to Degrees and College Transfer Patterns. *Journal of Human Resources, 39*(3): 746–773.

McCormick, A.C. (1997). *Transfer Behavior Among Beginning Postsecondary Students: 1989–94* (NCES 97–266). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

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

Palmer, J., Ludwig, M., and Stapleton, L. (1994). *At What Point Do Community College Students Transfer to Baccalaureate-Granting Institutions? Evidence From a 13-State Study*. Washington, DC: American Council on Education, National Center for Academic Achievement and Transfer.

Tinto, V. (1987). *Leaving College: Rethinking the Causes and Cures of Student Attrition*. Chicago: University of Chicago Press.

Appendix A—Glossary

This glossary describes the variables used in this report. The items were taken directly from the NCES BPS:1996/2001 and B&B:2000/01 Data Analysis Systems (DAS), NCES software applications that generate tables from the data. (See appendix B for a description of the DAS.) In the index below, the variables are organized by general topic and, within topic, listed in the order they appear in the report. The glossary is in alphabetical order by variable name (displayed in capital letters to the right of the label) within each dataset in the order presented below.

The variables in the datasets used in the report are based on multiple sources of information. In the glossary, data that are derived solely from interview questions (asked during computer-assisted telephone or in-person interviews) are identified by the phrase "Response to the question [Interview question]." Otherwise, the variables were derived from a combination of data sources including the National Student Loan Data System (NSLDS), ACT database, and SAT records from ETS, Central Processing System data, and data from institutions collected using a computer-assisted data entry (CADE) program.

GLOSSARY INDEX

ATTENDANCE PATTERNS

DAS Variable Name

BPS:1996/2001

Age of as 12/31/95 **AGE**

Indicates student's age on 12/31/95.

18 years or younger
19–23 years
24–29 years
30 years or older

Received any aid 1995–96 **AIDANY1**

Response to the question "Did you receive any aid during academic year 1995–96?"

No
Yes

Degree expected at first institution **DGEXPY1**

Highest degree expected at the first institution attended in 1995–96.

None
Certificate
Associate's degree
Bachelor's degree

Time to bachelor's degree **ELFMBA2B**

Number of months elapsed from the first month enrolled through the month the first bachelor's degree was attained.

No bachelor's degree	0 month
4 years or less	48 months or less
5 years	49–60 months
6 years	61–84 months
More than 6 years	85 months or more

Delayed enrollment **ENDELAY**

Indicates whether student delayed enrollment in postsecondary education, as determined by receipt of a high school diploma prior to 1995 or reaching the age of 20 before December 31, 1995.

No	Did not delay
Yes	Delayed

DAS Variable Name

Co-enrolled **ENEVSI2B**

Indicates whether student ever simultaneously enrolled at more than one institution for at least 1 month as of June 2001.

Never co-enrolled
Sometimes co-enrolled

Attendance intensity through 2001 **ENIPTT2B**

Pattern of attendance intensity for all months in any institutions enrolled as of June 2001.

Always full time
Always part time
Mixed

Number of institutions attended **ENNI2B**

Number of institutions attended as an undergraduate as of June 2001. Includes transfers and co-enrollment.

One
More than one
  Two
  Three
  Four or more

Enrolled in public 2-year institutions **ENPU2Y2B**

Indicates whether or not the students had ever enrolled at a public 2-year institution as an undergraduate.

No	Never attended public 2-year institution
Yes	Attended public 2-year institution

Enrollment continuity through 2001 **ENSENU2B**

Number of enrollment spells at any institution through June 2001. An enrollment spell is defined as a period of continuous enrollment without a break of more than 4 months.

Continuously enrolled	Student was continuously enrolled without any interruption of more than 4 months.
Two enrollment spells	Student had two enrollment spells (was not continuously enrolled) from fall 1995 through June 2001 (one stopout period).
Three or more spells	Student had three or more enrollment spells (was not continuously enrolled) from fall 1995 through June 2001 (more than one stopout period).

DAS Variable Name

Transferred **ENTRN2B**

Number of transfers between institutions as of June 2001. A transfer occurred when the student left one institution and enrolled at another institution for 4 or more months.

Never transferred
Transferred
 Once
 Twice
 Three times

Highest degree ever expected in 1995–96 **EPHDEGY1**

Response to the question "What is the highest level of education you ever expect to complete?"

No degree or certificate
Certificate
Associate's degree
Bachelor's degree
Higher than a bachelor's degree

Income and dependency quartiles 1994 **INCOME3**

Total income in 1994 by dependency. Categories approximately represent income quartiles for dependents and independents. For dependent students, total income is the income of the parents.

Dependent	
Low quartile	Less than $25,000
Middle quartiles	$25,000–69,999
High quartile	$70,000 or more
Independent	
Low quartile	Less than $6,000
Middle quartiles	$6,000–24,999
High quartile	$25,000 or more

Level of first institution **ITNPLV**

Level of the first institution attended in 1995–96.

4-year	Denotes 4-year institutions that can award bachelor's degrees or higher, including institutions that award doctorate degrees and first-professional degrees.
2-year	Institution that does not confer bachelor's degrees, but does provide 2-year programs that result in a certificate or an associate's degree, or 2-year programs that fulfill part of the requirements for a bachelor's degree or higher at 4-year institutions.

DAS Variable Name

Level of first institution (continued) **ITNPLV**

Less-than-2-year	At least one of the programs offered at the institution is 3 months or longer, and produces a terminal award or certificate. In addition, no program at the institution lasts longer than 2 years.

Type of first institution **ITNPSAS**

Level and control of the first institution attended in 1995–96.

Public 2-year
Public 4-year
Private not-for-profit 4-year
Private for-profit less-than-4-year

First institution sector **ITNPSECT**

The sector of institution where the respondents first attended as of June 2001.

Public
Private not-for-profit

Hours worked per a week while enrolled 1995–96 **J1HOURY1**

Indicates the student-reported average number of hours the student worked per week while enrolled during 1995–96.

None
Less than 35 hours
35 hours or more

Highest degree attained anywhere **PRENRL2B**

Indicates the highest degree the student attained or the level of the institution in which the student is still enrolled if no degree had been attained, as of June 2001.

Highest degree attained anywhere:
- Bachelor's degree
- Associate's degree
- Certificate

No degree anywhere:
- Still enrolled
  - At 4-year institutions
  - At less-than-4-year institutions
- Not enrolled

DAS Variable Name

First transfer direction **PRTRTY2B**

Indicates the type of first transfer as of June 2001. Institution level refers to 4-year, 2-year, and less-than-2-year.

Upward	Transfers involving a move from one institution to another with a higher level.
Lateral	Transfers involving a move from one institution to another with the same level.
Downward	Transfers involving a move from one institution to another with a lower level.

Dependency status **SBDEP2Y1**

Student dependency status.

Dependent
Independent

Sex **SBGENDER**

Male
Female

Race/ethnicity **SBRACE**

American Indian
Asian/Pacific Islander
Black
White
Other
Hispanic

Number of risk factors 1995–96 **SBRSK1Y1**

Represents an index of risk from 0–7 related to 7 characteristics known to adversely affect persistence and attainment. Characteristics included are the following:

a) Delayed enrollment after high school
b) No high school diploma (including GED recipients)
c) Part-time enrollment
d) Financial independence
e) Having dependents other than spouse
f) Single parent status
g) Working full time while enrolled (35 hours or more)

DAS Variable Name

Number of risk factors 1995–96 (continued) **SBRSK1Y1**

None
One
Two or more

Grade point average 1995–96 **SEGPAY1**

Student grade point average (GPA) at the sampled NPSAS institution as reported by the institution during 1995–96.

Less than 2.25
2.25 to 3.25
Greater than 3.25

DAS Variable Name

B&B:2000/01

Age when began postsecondary education **AGEPSE**

Age when first enrolled in postsecondary education.

18 years or younger
19–23 years
24–29 years
30 or older years

Reason for attending a 2-year institution **CB2YRS1**

Response to the question "Why did you attend a 2-year institution during your undergraduate enrollment?"

Learn job skills/personal enrichment
Offered desired program
Earn degree/certificate
Preparing to transfer
Convenient location/schedule
Financial reasons
Other

First bachelor's degree **CBFSTBA**

Response to the question "Was the bachelor's degree you received from [bachelor's degree school] the first bachelor's degree you've ever received?"

No
Yes

Hours worked per a week during first year enrolled **CBHOURS**

Response to the question "how many hours did you typically work each week for pay during your first year of college?"

None
Less than 35 hours
35 hours or more

DAS Variable Name

Reason for co-enrolling **CBMLTS1**

Response to the question "Why did you attend more than one institution at the same time during your undergraduate enrollment?"

Get done sooner
Take easier classes/fulfill requirements
Better class schedule
Preparing to transfer
Taking extra classes/program not available
Financial reasons
Other

Co-enrolled **CBMULTPL**

Indicator of overlapping enrollment, which is defined as co-enrollment for a period greater than 1 month within the regular academic year (September–April).

Never co-enrolled
Sometimes co-enrolled

Number of institutions attended **CBNUMSCH**

Total number of postsecondary institutions attended for undergraduate study until completion of the bachelor's degree in the 1999–2000 school year.

One
More than one
Two
Three
Four or more

Undergraduate multiple institutions purpose **CBTRNSCH**

Response to the question "Since you started college, you've enrolled at more than one school. Did you..."

Transfer between schools
Enroll for additional classes
Enroll for additional degree
Transfer and take additional classes
None of the above

Attempted to transfer credits **CBTRNSFR**

Response to the question "Did you attempt to transfer any credits between schools?"

No
Yes

DAS Variable Name

Enrolled in 2-year institutions **COMMCOLL**

Response to the question "Have you ever attended a community college or other two-year college?"

No
Yes

Delayed enrollment **DELAYENR**

Indicate the number of years between the year of high school graduation and the first year enrolled in postsecondary education.

No	Did not delay
Yes	Delayed

Dependency status **DEPEND**

Student dependency status for federal financial aid. Students under age 24 are generally considered to be dependent on their parents for financial support. Students were considered to be independent in 1999–2000 if they met any of the following criteria:

1) 24 years old or older as of 12/31/1999;
2) A veteran of the U.S. Armed Forces;
3) Enrolled in a graduate or professional program beyond a bachelor's degree;
4) Married;
5) Orphan or ward of the court; or
6) Had legal dependents other than a spouse.

Dependent
Independent

Sex **GENDER**

Male
Female

Cumulative grade point average **GPA2**

Student cumulative grade point average in 1999–2000 on a 4.0 scale.

Less than 2.25
2.25–3.25
Greater than 3.25

DAS Variable Name

First institution sector **I1SECT**

Indicates the sector of the first postsecondary institution attended.

Public
Private not-for-profit

Dependent student income quartiles **PCTDEP**

Indicates income percentiles for parents of dependent students.

Low quartile	Less than $31,099
Middle quartiles	$31,100–81,769
High quartile	$81,770 or more

Independent student income quartiles **PCTINDEP**

Indicates income percentiles for parents of independent students.

Low quartile	Less than $11,999
Middle quartiles	$12,000–46,999
High quartile	$47,000 or more

Time between postsecondary entry and bachelor's degree completion **PSE_BA**

Indicates the time between first entry into postsecondary education and bachelor's degree completion (in months). This variable was calculated only for those respondents who did not have a prior bachelor's degree.

4 years
5 years
6 years
More than 6 years

Race/ethnicity **RACE1**

Student's race/ethnicity, including Hispanic/Latino.

American Indian
Asian/Pacific Islander
Black
White
Other
Hispanic

DAS Variable Name

Number of risk factors in 1999–2000 **RISKINDX**

Represents an index of risk from 0–7 related to 7 characteristics known to adversely affect persistence and attainment. Characteristics included are the following:

a) Delayed enrollment after high school
b) No high school diploma (including GED recipients)
c) Part-time enrollment
d) Financial independence
e) Having dependents other than spouse
f) Single parent status
g) Working full-time while enrolled (35 hours or more)

None
One
Two or more

Student-identified transfer **TRNPURP**

Students who indicated that they had attended more than one postsecondary institution before completing a bachelor's degree were asked why they chose to attend multiple institutions. Specifically, students were given the option of choosing one of the following reasons: transfer between schools, enroll for additional classes, enroll for an additional degree, transfer and take additional classes, or none of the above. Those who said they had attended multiple institutions in order to transfer between schools or to transfer and take additional classes were considered to have met the definition of student-identified transfer.

No	Did not transfer or reported main reason for attending more than one institution was for reasons other than to transfer.
Yes	Reported main reason for attending more than one institution was to transfer or to transfer and take additional classes.

Reason for first transfer **TRNR1**

Response to the question "Why did you decide to transfer to another school?"

Offered desired program/earn degree
School characteristics (location, reputation)
Affordable/other financial reasons
Personal reasons/academic problems
Other

DAS Variable Name

First transfer direction **TXFRTYP**

Indicates the type of first transfer. Institution level refers to 4-year, 2-year, and less-than-2-year.

Upward	Transfers involving a move from one institution to another with a higher level.
Lateral	Transfers involving a move from one institution to another with the same level.
Downward	Transfers involving a move from one institution to another with a lower level.

Appendix B—Technical Notes and Methodology

This analysis uses data from the 1996/01 Beginning Postsecondary Students Longitudinal Study (BPS:96/01) and the 2000/01 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01). Two NPSAS data collections conducted by the U.S. Department of Education's National Center for Education Statistics provide the base-year sample for the BPS and the B&B studies. The BPS survey participants were sampled from the 1995–96 National Postsecondary Student Aid Study (NPSAS:96) and the B&B survey participants were sampled from the 2000 National Postsecondary Student Aid Study (NPSAS:2000).

The NPSAS survey data underwent several data quality evaluations, which included both on-line data editing procedures and post-data collection editing. The on-line data editing ensured that the data collected fell within legitimate ranges and where feasible, items were cross-checked against other related items. After data collection, the data were cleaned and edited using several steps including verification of one-way frequencies for each item, cross-tabulations of related items, standard variable recoding and formatting (such as dates), the determination of outlier values, and logical imputations. After the CATI data were cleaned and edited, composite variables for specific data analyses were created, which were subjected to similar cleaning and checking procedures.

Beginning Postsecondary Students Longitudinal Study

The Beginning Postsecondary Students (BPS) Longitudinal Study is composed of the students who participated in NPSAS:96. The BPS sample consists of approximately 12,000 students identified in NPSAS:96 who were beginning postsecondary education for the first time in 1995–96. Among the NPSAS:96 respondents the response rate was 85.9 percent.[1] The First Follow-up of the BPS cohort (BPS:96/98) was conducted in 1998, approximately 3 years after these students first enrolled. Approximately 10,300 of the students who first began in 1995–96 were located and interviewed in the 1998 follow-up, for an overall weighted response rate of 79.8 percent. This response rate includes those who were nonrespondents in 1996. The Second Follow-up of the BPS cohort (BPS:96/2001) was conducted in 2001, 6 years after students'

[1] For more information on the BPS:96/98 survey, consult U.S. Department of Education, National Center for Education Statistics, *Beginning Postsecondary Students Longitudinal Study First Follow-up 1996–98, Methodology Report* (NCES 2000–157) (Washington, DC: 2000).

college entry. All respondents to the First Follow-up, as well as a subsample of nonrespondents in 1998, were eligible to be interviewed. Over 9,100 students were located and interviewed. The overall weighted response rate was 76.1 percent, with an institutional response rate of 91.1 percent and student response rate of 83.6 percent.[2]

Nonresponse among cohort members causes bias in survey estimates when the outcomes of respondents and nonrespondents are shown to be different. A bias analysis was conducted on the 2001 survey results to determine if any variables were significantly biased due to nonresponse.[3] Considerable information was known from the 1996 and 1998 surveys for nonrespondents to the 2001 interviews, and nonresponse bias could be estimated using variables with this known information. Weight adjustments were applied to the BPS:96/2001 sample to reduce any bias found due to unit nonresponse. After the weight adjustments, some variables were found to reflect zero bias, and for the remaining variables, the bias did not differ significantly from zero. The weight variable used in this report for analysis of the BPS:96/2001 data is B01LWT2.

The 2001 Baccalaureate and Beyond Longitudinal Study

The 2001 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01), is a spring 2001 follow-up of bachelor's degree recipients from NPSAS:2000. For B&B:2000/01, those members of the NPSAS:2000 sample who completed a bachelor's degree between July 1, 1999 and June 30, 2000 were identified and contacted for a follow-up interview. The estimates in this report are based on the results of surveys with approximately 10,000 bachelor's degree recipients, representing about 1.3 million bachelor's degree completers from 1999–2000.[4] The weighted overall response rate for the B&B:2000/01 interview was 74 percent, reflecting an institution response rate of 90 percent and a student response rate of 82 percent.

Accuracy of Estimates

The statistics in this report are estimates derived from a sample. Two broad categories of error occur in such estimates: sampling and nonsampling errors. Sampling errors occur because observations are made only on samples of students, not entire populations. Nonsampling errors occur not only in sample surveys but also in complete censuses of entire populations.

---

[2] For more information on the BPS:1996/2001 survey, consult U.S. Department of Education, National Center for Education Statistics, *Beginning Postsecondary Students Longitudinal Study:1996–2001 Methodology Report* (NCES 2002–171) (Washington, DC: 2002).

[3] Ibid.

[4] For more information on the B&B survey, consult U.S. Department of Education, National Center for Education Statistics, *Methodology Report for the 2001 Baccalaureate and Beyond Longitudinal Study* (NCES 2003–156) (Washington, DC: 2003).

Nonsampling errors can be attributed to a number of sources: inability to obtain complete information about all students in all institutions in the sample (some students or institutions refused to participate, or students participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data.

Item Response Rates

Weighted item response rates were calculated for all variables used in this report. The weighted item response rates were calculated by dividing the weighted number of valid responses by the weighted population for which the item was applicable. All of the items had very high response rates (at least 85 percent). For these variables, it is unlikely that reported differences are biased because of missing data.

Data Analysis System

The estimates presented in this report were produced using the Data Analysis System (DAS) for each of the surveys analyzed. The DAS software makes it possible for users to specify and generate their own tables. With the DAS, users can replicate or expand upon the tables presented in this report. In addition to the table estimates, the DAS calculates proper standard errors[5] and weighted sample sizes for these estimates. For example, table B-1 contains standard errors that correspond to table 2, generated by the DAS. If the number of valid cases is too small to produce a reliable estimate (less than 30 cases), the DAS prints the message "low-N" instead of the estimate. All standard errors for estimates presented in this report can be viewed at http://nces.ed.gov/das/library/reports.asp.

In addition to tables, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Included in the output with the correlation matrix are the design effects (DEFTs) for each variable in the matrix. Since statistical procedures generally compute regression coefficients based on simple random sample assumptions, the standard errors

[5] None of the survey samples were based on simple random sampling procedures and, therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. The DAS takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by the DAS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the Taylor series method.

must be adjusted with the design effects to take into account the stratified sampling method used in the surveys.

Table B-1. Standard errors for table 2: Percentage distribution (by columns) of 1995–96 beginning postsecondary students by the level and type of the first institution attended, according to multiple institution attendance patterns

		Level of first institution			Type of first institution			
Attendance patterns	Total	Less-than-2-year	2-year	4-year	Public 2-year	Public 4-year	Private not-for-profit 4-year	Private for-profit less-than-4-year
Total	†	†	†	†	†	†	†	†
Number of institutions attended								
One	1.11	2.15	2.02	0.75	2.19	0.96	1.19	1.97
More than one	1.11	2.15	2.02	0.75	2.19	0.96	1.19	1.97
Two	1.01	1.84	1.88	0.70	2.05	0.94	1.04	1.73
Three	0.58	0.92	1.08	0.43	1.17	0.56	0.66	0.72
Four or more	0.25	0.19	0.47	0.22	0.51	0.26	0.36	0.18
Co-enrolled								
Never co-enrolled	0.57	0.67	1.03	0.53	1.13	0.72	0.78	0.59
Sometimes co-enrolled	0.57	0.67	1.03	0.53	1.13	0.72	0.78	0.59
Transfer status								
Never transferred	1.03	1.81	1.83	0.78	1.97	0.98	1.28	1.72
Transferred	1.03	1.81	1.83	0.78	1.97	0.98	1.28	1.72
Number of times transferred								
Once	0.99	1.83	1.80	0.73	1.96	0.98	1.02	1.66
Twice	0.44	0.70	0.80	0.35	0.87	0.46	0.55	0.59
Three times	0.11	0.17	0.18	0.14	0.20	0.15	0.21	0.11
First transfer direction								
Upward	0.89	1.72	1.64	†	1.77	†	†	1.45
Lateral	0.60	1.07	1.07	0.61	1.16	0.81	0.91	1.14
Downward	0.38	†	0.61	0.55	0.66	0.71	0.80	0.53
Enrolled in public 2-year institutions								
No	1.09	1.64	0.56	0.72	†	0.97	0.97	1.44
Yes	1.09	1.64	0.56	0.72	†	0.97	0.97	1.44

† Not applicable.
NOTE: Detail may not sum to totals because of rounding.
SOURCES: U.S. Department of Education, National Center for Education Statistics, 1996/01 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:96/01); and Berkner, L., He, S., and Forrest Cataldi, E. (2002). *Descriptive Summary of 1995–96 Beginning Postsecondary Students: Six Years Later* (NCES 2003–151).

For more information about the Data Analysis Systems, consult the NCES DAS web site (http://nces.ed.gov/das) or contact:

Aurora D'Amico
National Center for Education Statistics
1990 K Street, NW
Room 8115
Washington, DC 20006
(202) 502-7334
aurora.d'amico@ed.gov

Statistical Procedures

Differences Between Means

The descriptive comparisons were tested in this report using Student's *t* statistic. Differences between estimates are tested against the probability of a Type I error,[6] or significance level. The significance levels were determined by calculating the Student's *t* values for the differences between each pair of means or proportions and comparing these with published tables of significance levels for two-tailed hypothesis testing.

Student's *t* values may be computed to test the difference between estimates with the following formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}} \quad (1)$$

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors. This formula is valid only for independent estimates. When estimates are not independent, a covariance term must be added to the formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2 - 2(r)se_1\, se_2}} \quad (2)$$

[6] A Type I error occurs when one concludes that a difference observed in a sample reflects a true difference in the population from which the sample was drawn, when no such true difference is present.

where *r* is the correlation between the two estimates.[7] This formula is used when comparing two percentages from a distribution that adds to 100. If the comparison is between the mean of a subgroup and the mean of the total group, the following formula is used:

$$t = \frac{E_{sub} - E_{tot}}{\sqrt{se_{sub}^2 + se_{tot}^2 - 2p\ \ se_{sub}^2}} \quad (3)$$

where *p* is the proportion of the total group contained in the subgroup.[8] The estimates, standard errors, and correlations can all be obtained from the DAS.

There are hazards in reporting statistical tests for each comparison. First, comparisons based on large *t* statistics may appear to merit special attention. This can be misleading since the magnitude of the *t* statistic is related not only to the observed differences in means or percentages but also to the number of respondents in the specific categories used for comparison. Hence, a small difference compared across a large number of respondents would produce a large *t* statistic.

A second hazard in reporting statistical tests is the possibility that one can report a "false positive" or Type I error. In the case of a *t* statistic, this false positive would result when a difference measured with a particular sample showed a statistically significant difference when there is no difference in the underlying population. Statistical tests are designed to control this type of error, denoted by alpha. The alpha level of .05 selected for findings in this report indicates that a difference of a certain magnitude or larger would be produced no more than one time out of twenty when there was no actual difference in the quantities in the underlying population. When we test hypotheses that show *t* values at the .05 level or smaller, we treat this finding as rejecting the null hypothesis that there is no difference between the two quantities. However, there are other cases when exercising additional caution is warranted. When there are significant results not indicated by any hypothesis being tested or when we test a large number of comparisons in a table, Type I errors cannot be ignored. For example, when making paired comparisons among different fields of study, the probability of a Type I error for these comparisons taken as a group is larger than the probability for a single comparison.

Linear Trends

While many descriptive comparisons in this report were tested using Student's *t* statistic, some comparisons among categories of an ordered variable with three or more levels involved a test for a linear trend across all categories (in particular for persistence risk index and income),

[7] U.S. Department of Education, National Center for Education Statistics, *A Note from the Chief Statistician,* no. 2, 1993.
[8] Ibid.

rather than a series of tests between pairs of categories. In this report, when differences among percentages were examined relative to a variable with ordered categories, Analysis of Variance (ANOVA) was used to test for a linear relationship between the two variables. To do this, ANOVA models included orthogonal linear contrasts corresponding to successive levels of the independent variable. The squares of the Taylorized standard errors (that is, standard errors that were calculated by the Taylor series method), the variance between the means, and the unweighted sample sizes were used to partition total sum of squares into within- and between-group sums of squares. These were used to create mean squares for the within- and between-group variance components and their corresponding F statistics, which were then compared with published values of F for a significance level of .05.[9] Significant values of both the overall F and the F associated with the linear contrast term were required as evidence of a linear relationship between the two variables. Means and Taylorized standard errors were calculated by the DAS. Unweighted sample sizes are not available from the DAS and were provided by NCES.

Multivariate Commonality Analysis

Many of the independent variables included in the analyses in this report are related, and to some extent the pattern of differences displayed in the descriptive tables reflect a common variation. For example, when examining the degree attainment by multiple institution attendance patterns, some of the observed relationship may be due to differences in other factors related to attending multiple institutions, such as attendance intensity and persistence risk factors. However, if nested tables were used to present the influence of all related factors, cell sizes would become too small to find the significant differences in patterns. When the sample size becomes too small to include another level of variation, other methods must be used to take such variation into account.

The method in this report uses multiple linear regression to adjust for the common variation among a list of independent variables.[10] This approach is sometimes referred to as commonality analysis[11] because it identifies lingering relationships after adjustment for common variation. This method is used simply to confirm statistically significant associations observed in the bivariate analysis while taking into account the interrelationship of the independent variables. The analysis is not based on a theoretical model or used to establish causal inferences and the

[9] More information about ANOVA and significance testing using the F statistic can be found in any standard textbook on statistical methods in the social and behavioral sciences.

[10] For more information about least squares regression, see Michael S. Lewis-Beck, *Applied Regression: An Introduction*, Vol. 22 (Beverly Hills, CA: Sage Publications, Inc., 1980); William D. Berry and Stanley Feldman, *Multiple Regression in Practice*, Vol. 50 (Beverly Hills, CA: Sage Publications, Inc., 1987).

[11] For more information about commonality analysis, see Kerlinger and Pedhazur, *Multiple Regression in Behavioral Research* (Holt, Rinehart, and Winston Inc., 1973).

regression model is not reduced. In other words, subsequent models were not run that removed nonsignificant independent variables. Significant coefficients reported in the regression tables indicate that when the variable is deleted from the model, it results in a non-zero change in R-squared, which is the basis of the commonality analysis. In other words, a significant coefficient means that the independent variable has a relationship that is unique, or distinct from the independent variables' common relationship with other independent variables in the model.

As discussed in the section "Data Analysis System" above, all analyses included in PEDAR reports must be based on the DAS, which is available to the public on-line (http://www.nces.ed.gov/DAS). Exclusively using the DAS in this way provides readers direct access to the findings and methods used in the report so that they may replicate or expand on the estimates presented. However, the DAS does not allow users access to the raw data, which limits the range of covariation procedures that can be used. Specifically, the DAS produces correlation matrices, which can be used as input in standard statistical packages to produce least squares regression models. This means that logit or probit procedures, which are more appropriate for dichotomous dependent variables, cannot be used.[12] However, empirical studies have shown that when the mean value of a dichotomous dependent variable falls between 0.25 and 0.75 (as it does in this analysis), regression and log-linear models are likely to produce similar results.[13]

The independent variables analyzed in this study and subsequently included in the multivariate model were chosen based on the descriptive analysis rather than on a theoretical model. Before conducting the study, a detailed analysis plan was reviewed by a Technical Review Panel (TRP) of experts in the field of higher education research and additional independent variables requested by the TRP were considered for inclusion. The analysis plan listed all the independent variables to be included in the study. The TRP also reviewed the preliminary results as well as the first draft of this report. The analysis plan and subsequent report were modified based on TRP comments and criticism.

Missing Data and Adjusting for Complex Sample Design

The DAS computes the correlation matrix using pairwise missing values. In regression analysis, there are several common approaches to the problem of missing data. The two simplest

[12] See John H. Aldrich and Forrest D. Nelson, "Linear Probability, Logit and Probit Models" (*Quantitative Applications in Social Sciences*, Vol. 45) (Beverly Hills, CA: Sage, 1984). Analysts who wish to estimate other types of models can apply for a restricted data license from NCES.

[13] See for example, L.A. Goodman, "The Relationship Between Modified and Usual Multiple-Regression Approaches to the Analysis of Dichotomous Variables," pp. 83–110 in David Hoise, ed., *Sociological Methodology* (San Francisco: Jossey-Bass, 1976); and D. Knoke, "A Comparison of Log-Linear and Regression Models for Systems of Dichotomous Variables" (*Sociological Methods and Research*, Vol. 3: Sage, 1975).

approaches are pairwise deletion of missing data and listwise deletion of missing data. In pairwise deletion, each correlation is calculated using all of the cases for the two relevant variables. For example, suppose you have a regression analysis that uses variables X1, X2, and X3. The regression is based on the correlation matrix between X1, X2, and X3. In pairwise deletion, the correlation between X1 and X2 is based on the nonmissing cases for X1 and X2. Cases missing on either X1 or X2 would be excluded from the calculation of the correlation. In listwise deletion, the correlation between X1 and X2 would be based on the nonmissing values for X1, X2, and X3. That is, all of the cases with missing data on any of the three variables would be excluded from the analysis.

The correlation matrix produced by the DAS can be used by most statistical software packages as the input data for least squares regression. The DAS provides either the SPSS or SAS code necessary to run least squares regression models. The DAS also provides additional information to incorporate the complex sample design into the statistical significance tests of the parameter estimates. Most statistical software packages assume simple random sampling when computing standard errors of parameter estimates. Because of the complex sampling design used for the survey, this assumption is incorrect. A better approximation of their standard errors is to multiply each standard error by the design effect associated with the dependent variable (DEFT),[14] where the DEFT is the ratio of the true standard error to the standard error computed under the assumption of simple random sampling. It is calculated by the DAS and displayed with the correlation matrix output.

Interpreting the Results

The least squares regression coefficients displayed in the regression tables are expressed as percentages. Significant coefficients represent the observed differences that remain between the analysis group (such as those who co-enrolled) and the comparison group (did not co-enroll) after controlling for the relationships of all the selected independent variables. For example, in table 5, the least squares coefficient for those who co-enrolled is 12.7. This means that compared to those who did not co-enroll, about 13 percent more of the group who co-enrolled would be expected to attain a degree or be enrolled in a 4-year institution, after controlling for the relationships among all the other independent variables.

[14] The adjustment procedure and its limitations are described in C.J. Skinner, D. Holt, and T.M.F. Smith, eds., *Analysis of Complex Surveys* (New York: John Wiley & Sons, 1989).