

Differential Characteristics of 2-Year Postsecondary Institutions

Postsecondary Education Descriptive Analysis Report



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Differential Characteristics of 2-Year Postsecondary Institutions

Postsecondary Education Descriptive Analysis Report

July 2007

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Executive Summary

Two-year institutions, including community colleges and career schools, have become increasingly important in American higher education since the 1940s. In 2003–04, 43 percent of all undergraduates were enrolled at 2-year institutions (Horn and Nevill 2006). Two-year colleges exist in the public, not-for-profit, and for-profit sectors and include many types of institutions with various and unique histories.

Many classification systems for 2-year institutions have been developed since that time and use a wide array of characteristics and perspectives to differentiate between 2-year institutions. However, these classification systems generally could not be applied to all 2-year institutions, or easily adjusted in subsequent years. Therefore, a classification system for 2-year institutions was developed by Phipps, Shedd, and Merisotis (2001) that employed cluster analysis and a number of variables available on the Integrated Postsecondary Education Data System (IPEDS) to identify seven groups of 2-year institutions: small publics; medium-sized publics; large publics; allied health not-for-profits; other not-for-profits; degree-granting for-profits; and other for-profits.¹

This report looks more carefully at the institutional categories developed from IPEDS, using data from three data sources. Institutional characteristics were obtained from the IPEDS 2003 collection year, newly available online

through the Data Analysis System (DAS).² In addition, data from the National Postsecondary Student Aid Study undergraduate sample for 2003–04 (NPSAS:2004) and the Beginning Postsecondary Students (BPS:1996/2001) study were used to explore student characteristics and outcomes. IPEDS is a survey of the universe of postsecondary institutions, while NPSAS and BPS are sample surveys of individuals. The analysis of NPSAS:2004 and BPS:96/98/01 data analysis uses standard *t*-tests to determine statistical significance of differences between estimates, and all differences reported in the text are statistically significant at the $p < .05$ level. For all three datasets, the 2-year classification was created in IPEDS:2003 and merged into the respective online DAS by matching the institutional identification numbers.

In order to illustrate how the various types of 2-year institutions differ, the report first presents brief profiles for each classification type that add to the findings presented in the original study. The second part of the analysis attempts to answer the study questions by focusing on four broad topic areas and highlighting the key differences that set a particular institutional type apart. These study questions include how the categories differ in terms of institutional resources, how the characteristics of students differ by category, how the categories differ in terms of affordability, and how measures of success differ among categories.

¹ The original classification used different category titles. For a crosswalk to the original classification groups, please see appendix B.

² Refer to appendix B for a description of the DAS.

Institutional Profiles

The following profiles briefly outline other important characteristics of the seven types of 2-year schools in order to provide context for the findings (tables 1 and 2 and figure A).

Small public institutions

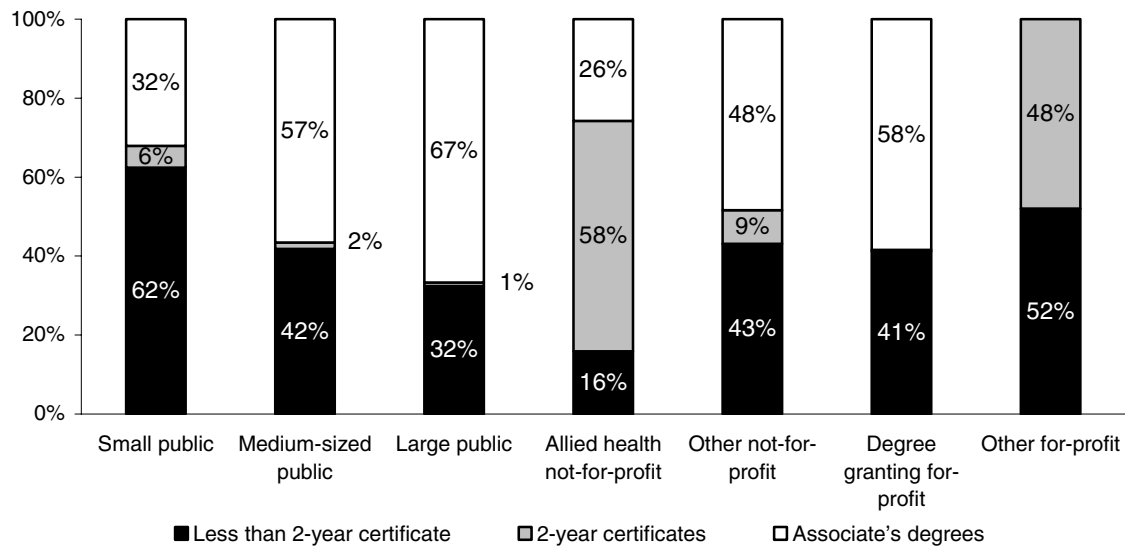
Small public 2-year schools were more likely than other 2-year institutions to be located in towns (52 percent) and in the Southeast region of the country (51 percent). The average 12-month enrollment at small public institutions in 2003–04 was 978 students. In 2002–03, 62 percent of the academic awards granted by small public institutions were less than 2-year certificates.

Medium-sized public institutions

Like small publics, medium-sized public 2-year schools were likely to be located in towns (43 percent) and were concentrated in the Southeast (37 percent). Over 2003–04, an average of 5,105 students were enrolled at medium-sized publics. Like large public institutions, the majority of awards (57 percent) granted at medium-sized publics in 2002–03 were associate’s degrees.

Large public 2-year schools were most likely to be located in suburban or urban areas (38 and 55 percent, respectively) and were most frequently found in the Far West region of the country (36 percent). In 2003–04, they enrolled an average of 21,271 students. Sixty-seven percent of the awards granted at large public institutions in 2002–03 were associate’s degrees.

Figure A. Distribution of awards completed at 2-year institutions: 2002–03



NOTE: Totals may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS:2003).

Allied health not-for-profit institutions

These institutions include a number of schools that focus on health professions and nursing. About two-thirds (66 percent) of allied health not-for-profit 2-year schools were concentrated in urban areas, and 65 percent were located in the Mid East and Great Lakes regions of the country. In 2003–04, an average of 136 students was enrolled at these institutions. Almost 58 percent of the awards granted by allied health not-for-profit institutions in 2002–03 were 2-year certificates.

Other not-for-profit institutions

Other not-for-profit 2-year schools were concentrated in suburban and urban areas (24 and 57 percent, respectively), and more than one-third were located in the Mid East region of the country. In 2003–04, these institutions enrolled an average of 657 students. Almost half of the awards granted by other not-for-profits in 2002–03 were associate’s degrees, and 43 percent were less than 2-year certificates.

Degree-granting for-profit institutions

Degree-granting for-profit 2-year schools were concentrated in urban areas (64 percent) and were likely to be located in the Mid East (24 percent), Great Lakes (19 percent) and Southeast (21 percent) regions of the country. In 2003–04, these institutions enrolled an average of 765 students. In 2003–04, 58 percent of the awards granted by degree-granting for-profits were associate’s degrees, and 41 percent were less than 2-year certificates.

Other for-profit institutions

Other for-profit 2-year schools, such as barber and cosmetology schools, were concentrated in urban areas (55 percent), although just over 20 percent were located in both suburban areas and towns. These institutions were located throughout the country, although they were slightly more concentrated in the Southeast and Far West regions. In 2003–04, these institutions enrolled an average of 249 students. Fifty-two percent of the awards granted by other not-for-profits were less than 2-year certificates, and 48 percent were 2-year certificates.

Differential Patterns of Institutional Offerings and Resources

Degree and certificate programs offered

Two-year institutions offer a wide variety of programs of study in the form of associate’s degrees and certificates (table 3). A clear difference exists between institutions offering only 2-year certificates and those that offer associate’s degrees in addition to certificates. Over 80 percent of public schools, other not-for-profits and degree-granting for-profits offered associate’s programs, while over 80 percent of allied health not-for-profits and other for-profits offered 2-year certificate programs.³

Student services available

Many institutions have on-campus services that help students with various aspects of their academic career. These can include academic counseling, career counseling, employment services for current students, placement services

³ By definition, other for-profit institutions granted fewer than five associate’s degrees in the classification year.

for graduating students, remedial courses, and other services (table 3). Public institutions were more likely to offer remedial services than other institutions. Large public institutions tended to offer the widest variety of student resources. About 83 percent offered day care and 82 percent offered cooperative (work-study) programs. A low proportion of for-profit institutions offered remedial services (39 percent for degree-granting, 13 percent for other non-profit), but a significant proportion offered career counseling and job placement (for degree-granting for-profits, 87 and 99 percent, respectively).

Institutional staff

The percentage distribution of staff differed by type of 2-year institution (table 4). The percentage of employees that were full-time ranged from 76 percent at other for-profit institutions to 47 percent at large public institutions. Full-time instructional faculty comprised 64 percent of all full-time staff at allied health not-for-profits, more than any other institutional category. All three types of public institutions had a higher proportion of full-time staff that were clerical and secretarial, as well as service and maintenance, than other 2-year institutions. The majority of part-time staff at all types of 2-year institutions was comprised of instructional faculty (73 percent to 78 percent).

Faculty composition

A majority of full-time faculty (93 percent) at allied health not-for-profits were women, while a majority of full-time faculty at both types of for-profit institutions were men (59 and 66 percent) (table 5). Compared to other public institutions, a higher proportion of faculty at large public institutions were Hispanic (6 percent) or Asian/Pacific Islander (4 percent). Other for-

profits had the highest proportions of full-time faculty who were Black, non-Hispanic (11 percent) and Hispanic (7 percent).

Faculty rank and salaries at degree-granting institutions⁴

Across all degree-granting 2-year institutions, the largest proportion of full-time faculty were instructors (34 to 81 percent), followed by faculty who had no rank (table 6). Public institutions had the largest proportions of full-time faculty who had no academic rank, ranging from 22 to 31 percent.

Full-time faculty of any rank at large public institutions received a higher average salary than their counterparts at small and medium-sized public institutions, ranging from \$40,089 to \$66,665 (table 7). Full-time faculty at for-profit degree-granting institutions received the lowest average salaries of any faculty, ranging from \$22,622 to \$34,507.

Differential Characteristics of Students

NPSAS:04, a sample survey, allows an examination of the characteristics of students who attend 2-year institutions.

Gender, race/ethnicity and age

While more women attended 2-year institutions than men (with the exception of degree-granting

⁴ The IPEDS faculty survey is limited to degree-granting institutions. By definition, other for-profit institutions do not grant degrees and are therefore not included in this portion of the analysis.

for-profits⁵), allied health not-for-profits were particularly likely to have a high proportion of women (86 percent) (table 8). In addition, students at allied health not-for-profits were more likely to be between the ages of 30 and 39 than those at all other 2-year institutions and less likely to be under 20.

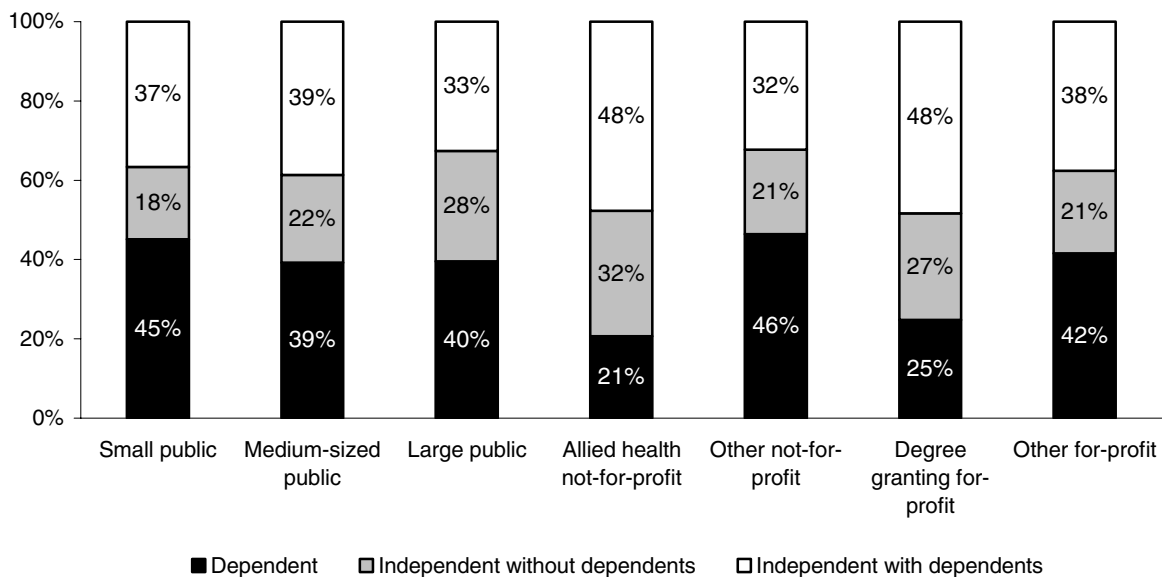
Large public institutions, other not-for-profits and degree-granting for-profit institutions show higher proportions of Hispanic students (19, 20 and 18 percent, respectively) than small and medium publics as well as allied health not-for-profit institutions. In addition, a higher proportion of students enrolled at large publics are Asian (9 percent) compared to all other institutions except other not-for-profits.

Dependency status, housing and income

The percentage of students who were dependent students ranged from 21 percent at allied health not-for-profits to 46 percent at other not-for-profit institutions (figure B). At allied health not-for-profits and for-profit degree-granting institutions, 48 percent of all students were independent supporting at least one dependent such as a child (table 8). Compared to other classification categories, a high proportion of students at other not-for-profit institutions lived on campus (20 percent).⁶

Degree-granting for-profit institutions had the highest proportion of dependent students with family incomes of less than \$25,000 (37 percent)

Figure B. Distribution of dependency status of students attending 2-year institutions, by institutional type: 2003–04



NOTE: Totals may not sum to 100 due to rounding.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS:2003).

⁵ For this group of institutions, the observed difference was not statistically significant.

⁶ The observed difference between other not-for-profits and other for-profits was not statistically significant.

compared to all other classification categories except other for-profit institutions. Similarly, both types of for-profit institutions as well as other not-for-profits had higher proportions of independent students with incomes that were less than \$15,000 (between 44 and 54 percent) compared to public and allied health not-for-profits.

Attendance status and work

Students attending for-profit institutions were more likely to attend full-time (72 and 81 percent, respectively) than students attending any type of public institution (table 8). While about half of students attending allied health not-for-profits attended full-time, these students also were more likely to work part-time (52 percent) than students at all other 2-year schools.

Differential Patterns of Institutional Affordability

NPSAS:04 data also can be used to describe the prices and net prices students face at different types of 2-year institutions.

Tuition and price of attendance

Average tuition and fee charges for students ranged from \$1,906 at large publics to \$11,183 at degree-granting for-profits (table 10).⁷ Similarly, average prices of attendance, which includes room and board expenses as well as tuition and fees, for students ranged from \$10,412 (again at large publics) to \$20,418 (again at degree-granting for-profits). Students at allied health not-for-profits faced significantly lower average tuition and fees

⁷ Note that 28 percent of large public institutions are located in California, a state-wide system that offers low tuition for state residents.

(\$5,196) and price of attendance (\$15,061) than students at all other private institutions.

Financial aid receipt

Students attending degree-granting for-profits were more likely than their counterparts at all other institutions (except other for-profits)⁸ to apply for federal aid (98 percent), to receive Pell grants (72 percent), and to receive Stafford loans (91 percent) (figure C and table 10). Students at degree-granting for-profits were also more likely than students at all other types of institutions except other for-profits to receive both types of loans (subsidized and unsubsidized) (76 percent).

Students attending large public institutions were less likely to apply for any type of financial aid (72 percent) or federal aid (58 percent) compared to students attending most other 2-year institutions.⁹ Students at other not-for-profits were more likely to receive institutional aid (44 percent) than students at medium and large publics as well as those at degree-granting for-profit institutions.

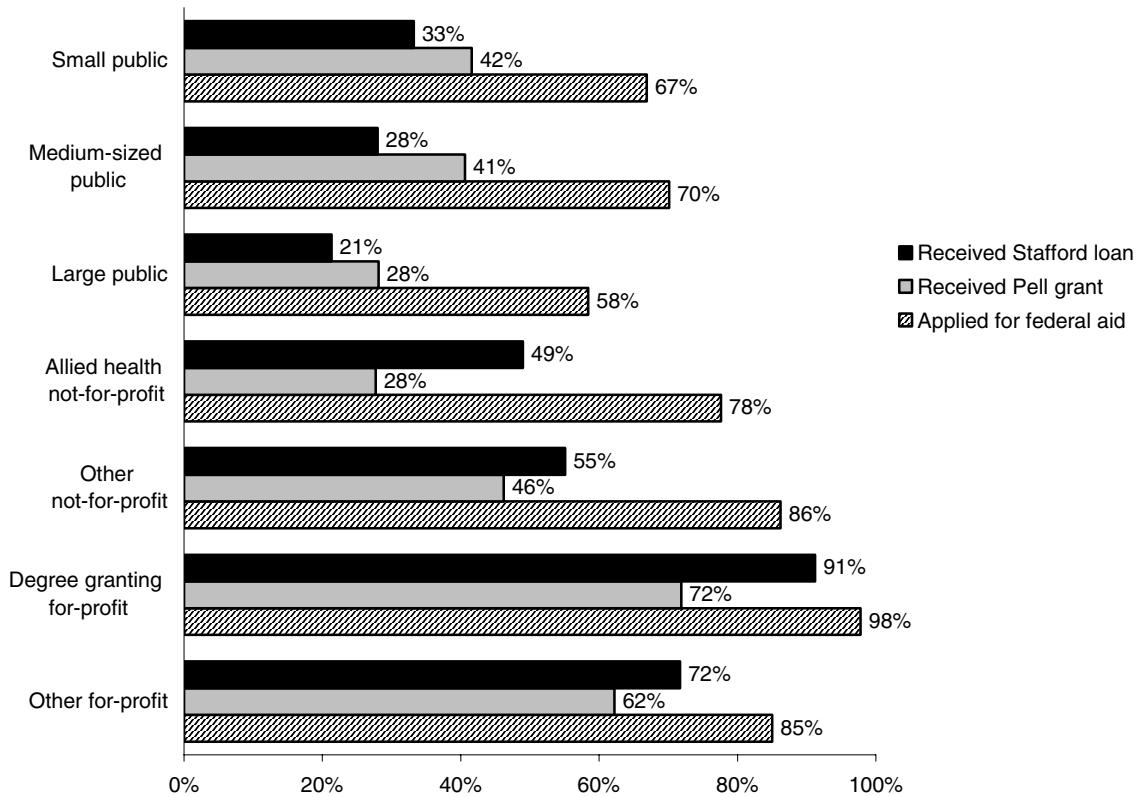
Net price of attendance and unmet need

Students face differing prices of attendance, as well as different amounts of financial aid. Together, the total price minus the financial aid received represents a “net price” to the student. Further, the net price may be calculated with grants alone (net price 1), or considering all aid, including loans (net price 2). This distinction is important because grants and loans pose different levels of cost to students and families.

⁸ The observed difference between federal financial aid applications among students at the two types of for-profit institutions is not statistically significant.

⁹ The observed difference between students attending small and large public institutions was not statistically significant.

Figure C. Percentage of students who applied for federal aid, received a Pell grant, or received a Stafford loan, by 2-year institution classification: 2003–04



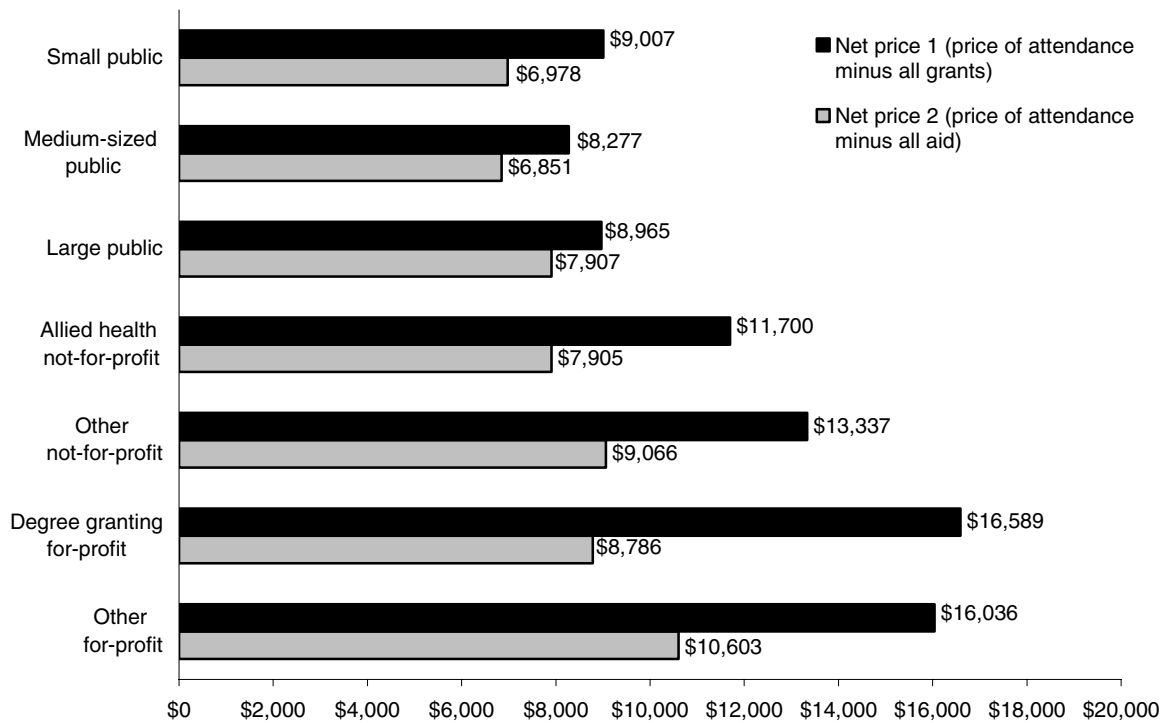
NOTE: Average estimates do not include zeroes.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Survey (NPSAS:2004).

When accounting for only grants, students at degree-granting for-profit institutions faced higher net prices (net price 1) (\$16,589) than students attending other 2-year schools except other for-profits (figure D and table 11). However, once loans were taken into account in a measure of total aid (net price 2), there was no statistical difference between the price faced by students at degree-granting for-profits and the prices faced by students at other 2-year schools.

A different pattern, however, is found when unmet need is considered (figure E). Unmet need can be defined as the net price minus the amount students and/or parents are expected to pay. It therefore represents the remaining amount that would be necessary to meet the total price of attendance. As was true for net price, when only grants are considered (unmet need 1), students at degree-granting for-profit institutions had more unmet need (\$13,564) than students at other

Figure D. Average net prices faced by students at 2-year institutions, by institutional type: 2003–04

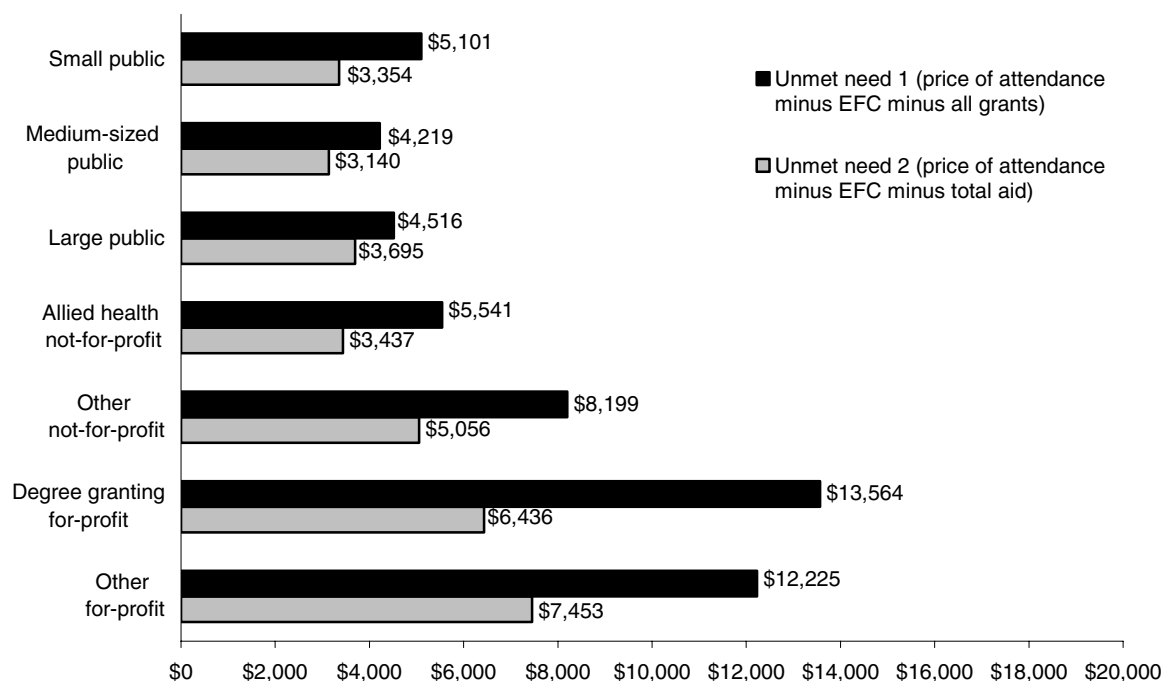


NOTE: All estimates of the average include zeros. Price of attendance is the student budget adjusted for attendance.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Survey (NPSAS:2004).

2-year institutions except other for-profits. But in this case, when loans are also factored into the equation (unmet need 2), students at degree-granting for-profit institutions had higher levels of average unmet need (\$6,436) than students at public and allied health not-for-profit institutions.

Allied health not-for-profit institutions present a special case. After taking financial aid into account (net price 1), students at these institutions faced an average net price after grants (\$11,700) that was higher than those at medium and large public institutions but lower than those at for-profit institutions, while no differences were

detected when examining net price after all aid. Average unmet need after taking into account total grant aid (unmet need 1) (\$5,541) was higher than that faced by students at medium and large public institutions but lower than that found at other private schools. After taking all aid, including loans, into account (unmet need 2), students at allied health not-for-profits faced an average unmet need (\$3,437) that did not significantly differ from that reported by students at public institutions but was significantly less than the average unmet need faced by students at for-profit institutions.

Figure E. Average unmet need faced by students at 2-year institutions, by institutional type: 2003–04

NOTE: All estimates of the average include zeros. Price of attendance is the student budget adjusted for attendance.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Survey (NPSAS:2004).

Differential Patterns of Student Progression

Expectations and student transfer

In 1996, the majority of students at all institutional categories for which there were data¹⁰ reported that they expected to attain a bachelor's degree (table 12), ranging from 56 percent to 86 percent. Students who first enrolled at large public institutions were most likely to expect that they would earn a bachelor's degree or higher (86 percent).

¹⁰ For students who first started at allied health not-for-profits and other for-profit institutions, there were too few cases to meet reporting standards.

Students who first attended degree-granting for-profit institutions were more likely to transfer to another institution (21 percent) than medium and large publics and other not-for-profit institutions. For degree-granting for-profits, the majority of transfers were to 2-year or less-than-2-year institutions (73 percent), while for large public institutions, the majority (64 percent) of those who transferred went to 4-year institutions.

Degree and certificate completions

When examining cumulative persistence after six years, the proportion of students who attained any type of degree (bachelor's or associate's) or certificate ranged from 34 percent among students who began at large publics to 58 percent among

students who started at other not-for-profits (table 12).

The majority (58 percent) of awards completed at allied health not-for-profits were 2-year certificates, while almost all awards at other not-for-profits were less than 2-year certificates or associate's degrees (table 13). Conversely, at medium and large public institutions as well as degree-granting for-profits, associate's degrees comprised the majority of awards granted. However, although most small public schools offered associate's degree programs, 62 percent of the academic awards granted by these institutions were less than 2-year certificates.

Degree and certificate completions by gender and race/ethnicity

The proportions of men and women receiving 2-year certificates varied by institutional type (table 13). Men received the majority of the 2-year certificates at small and medium-sized public institutions, as well as at degree-granting for-profit institutions (59, 60, and 63 percent). Conversely, women received the majority of the 2-year certificates at large publics (56 percent), both types of not-for-profit institutions (89 and 53 percent), and other for-profit institutions (54 percent).

There were also differences by race/ethnicity. For example, 13 percent of associate's degree awards at large public institutions went to Hispanic students, compared to 3 percent at small publics. At allied health not-for-profit institutions, 28 percent of associate's degrees were awarded to Black, non-Hispanic students (table 13).

Conclusion

This report used a 2-year classification system to examine the ways in which 2-year institutions differ. The report has illustrated variations among 2-year schools in terms of institutional and student characteristics, institutional resources, costs and financial aid, completions, and persistence.

Among public institutions, small and large institutions differed in key areas. Large public schools tended to offer lower tuition and more services and to be located in urban areas. On the other hand, small public institutions tended to charge slightly higher tuition, to be rural, and to be located in the Southeast.

For-profit schools appear quite similar to one another with the exception of the types of credentials offered and completed, which reflect the classification itself. In most other aspects—such as tuition, location, student characteristics, and student financial aid—these institutions exhibited few differences.

Other not-for-profits appeared to be similar to for-profits, but slightly more traditional. A high proportion offered remedial services compared to for-profit and allied health not-for-profit schools, and they focused on associate's degrees rather than certificates.

Allied health not-for-profit institutions differed from other not-for-profit institutions—and the other institutions in the classification system—in terms of the programs offered, funding streams, student characteristics, student costs and the types of awards granted. These schools, which include many nursing colleges, appeared to be between public institutions and other private schools in terms of affordability and financial aid. Students

at allied health not-for-profit institutions were more likely to be older, independent with dependents, and female than their counterparts at other 2-year schools.

Both public 2-year institutions and for-profit institutions enroll relatively high proportions of dependent and independent students from low-income families and who fell within the Pell eligible threshold. The proportion of students from

low-income families is larger at private institutions—particularly degree-granting for-profits—compared to students at public institutions, and students at private for-profit institutions are more likely to receive Pell Grants. However, public 2-year institutions, which are less expensive than private institutions, enroll a substantially greater number of students from low-income families.

Foreword

This report uses a classification developed in 2001 to examine the differential characteristics of 2-year institutions and their students (Phipps, Shedd, and Merisotis 2001). The first part of the report provides a profile of the institutions that make up each of the seven 2-year classification categories. The second section highlights key differences among these institutional types in terms of institutional resources, student characteristics, institutional affordability and measures of student success. In addition to the 2-year classification, the report occasionally examines 2-year institutions that have high proportions of low-income students.

For this report, the 2-year institutions classification variable was created using data from the Integrated Postsecondary Education Data System 2003 collection year (IPEDS:2003). IPEDS collects data from all primary providers of postsecondary education and can be used to describe trends in postsecondary education at the institution, state, and national levels. Institutional characteristics used in the classification process and for analysis were obtained from the Completions, Employee by Assigned Position, Faculty Salary, Fall Enrollment, Fall Staff, Institutional Characteristics, and Student Financial Aid components.

In addition, student characteristics and outcomes were examined using data from the National Postsecondary Student Aid Study undergraduate sample for 2003–04 (NPSAS:2004) and the Beginning Postsecondary Students (BPS:1996/2001) study.

The estimates presented in this report were produced using the NCES Data Analysis System (DAS), a statistical application that allows users to specify and generate tables for the IPEDS, NPSAS and BPS surveys. The DAS produces the design-adjusted standard errors necessary for testing the statistical significance of differences among estimates. The DAS is available as a web-based application. For more information, consult the DAS website (<http://nces.ed.gov/das/>). Additional information on the datasets used in this report can be found in appendix B.

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Introduction

Two-year institutions, including community colleges and career schools, have become increasingly important in American higher education since the 1940s. In 2003–04, 43 percent of all undergraduates were enrolled at 2-year institutions (Horn and Nevill 2006). The Department of Education defines 2-year institutions as postsecondary institutions that offer programs of at least 2 but less than 4 years duration. This definition includes occupational and vocational schools with programs of at least 1,800 hours, and academic institutions with programs of less than 4 years but does not include bachelor’s degree-granting institutions where the baccalaureate program can be completed in 3 years. Two-year colleges exist in the public, private not-for-profit, and private for-profit sectors and include many types of institutions with various and unique histories.

Public 2-year institutions, known as community colleges, date back more than 100 years. Community colleges originally focused on liberal arts education, and later on job training in response to overwhelming unemployment during the Great Depression. Today, community colleges maintain a number of objectives, including training citizens for work in their local communities, offering basic education services for students, and providing a venue for civic group activities. While each community college has a unique mission, these institutions generally share common goals of serving communities with open access policies, offering comprehensive education, providing service specific to community needs, focusing on teaching, and providing a venue for lifelong learning (AACCC 2006a, 2006b).

Private not-for-profit 2-year institutions include junior colleges as well as schools specializing in particular areas, such as technology, design, music, or the dramatic arts. Like community colleges, junior colleges have a long history of providing greater access to higher education that peaked in the 1940s and commonly emphasized teaching and preparing students for baccalaureate studies (Williams 1989). Conversely, for-profit 2-year institutions—also known as proprietary or career schools—historically focused exclusively on workforce preparation, although many have broadened their scope to include general education in recent years. Like most schools, these institutions experienced rapid growth as a result of the general increase in postsecondary education participation following World War II (Lee 1996) and were formally recognized as part of the postsecondary system in the 1972 Education Amendments (Naylor 1987).

Many classification systems for 2-year institutions have been developed since that time and use a wide array of characteristics and perspectives to differentiate between 2-year institutions. Some classifications use institutional characteristics—such as institutional control, geography, and enrollment size—to distinguish among 2-year colleges (Katsinas 2003; Cohen 2003). Others use an outcomes-based approach, classifying institutions based on curricular focus (Schuyler 2003; Shaman and Zemesky 2003). Still others use a combination of student characteristics and outcomes to determine a classification scheme. For example, Adelman (2005) used transcript data from high school graduates to develop “portraits” of populations who attend community colleges and to identify groups of students who were likely to persist. Building on the Adelman model, a recent study created a taxonomy called the “Community College Track,” which classifies students by their relative commitment to completing their respective degree programs (Horn and Nevill 2006). Most recently, the well-known Carnegie Classification released a new classification that allows researchers to distinguish between degree-granting 2-year schools in multiple ways, including size, location, control, and whether the institution has one or multiple campuses.¹

However, these classification systems generally could not be applied to all 2-year institutions, or easily adjusted in subsequent years. Therefore, a classification system for 2-year institutions was developed by Phipps, Shedd, and Merisotis (2001) that employed the statistical method of cluster analysis to identify groups of similar 2-year institutions based on a number of variables available on the Integrated Postsecondary Education Data System (IPEDS). IPEDS is the most comprehensive source of institutional data and is collected annually. Cluster analysis is a multivariate statistical procedure that attempts to mathematically form “clusters” or groups of relatively homogenous entities, based on measures of similarity with respect to specific variables, while maximizing the differences between groups.² For the original study, a focus group of experts in the field—researchers, association leaders, and policy analysts—selected twenty potential variables that were both policy relevant and appropriate to be included in the cluster analysis procedure. These variables were analyzed using the cluster analysis procedure to suggest the variables that were most useful in producing distinctive groups of institutions. The variables for institutional control (public, private not-for-profit, and private for-profit), enrollment size, and percentage of awards in specific degree or certificate programs were selected to create seven distinguishable categories by which to classify 2-year institutions: small publics; medium-sized

¹ See <http://www.carnegiefoundation.org/classifications/>.

² For more discussion of the cluster analysis method, see appendix B.

publics; large publics; allied health not-for-profits; other not-for-profits; degree-granting for-profits; and other for-profits.³

This report looks more carefully at the institutional categories developed from IPEDS by Phipps, Shedd, and Merisotis (2001) to examine how the groups differ in a number of new areas. In addition to the 2-year classification, the report occasionally examines the subgroup of 2-year institutions that have high proportions of low-income students, given that many 2-year institutions primarily serve this group of students. These institutions are identified as those at which more than 50 percent of first-time, full-time, degree/certificate-seeking students received federal grant aid.⁴ While not an exact measure of the composition of the student body, this identifies 2-year institutions that enroll high proportions of students from economically disadvantaged backgrounds and allows for additional institutional comparisons. These comparisons are included only in the areas in which interesting differences were observed.

Data sources and methodology

This report uses data from three data sources. Institutional characteristics were obtained from the Integrated Postsecondary Education Data System 2003 collection year (IPEDS:2003), newly available online through the Data Analysis System (DAS).⁵ IPEDS collects data from all primary providers of postsecondary education and can be used to describe trends in postsecondary education at the institution, state, and national levels.⁶ This report used variables from the Completions, Employee by Assigned Position, Enrollment, Faculty Salary, Fall Staff, Institutional Characteristics, and Student Financial Aid components. For this report, the classification variable for 2-year institutions was created and added to the IPEDS:2003 DAS.

In addition, data from the National Postsecondary Student Aid Study undergraduate sample for 2003–2004 (NPSAS:2004) and the Beginning Postsecondary Students (BPS:1996/2001) study were used to explore student characteristics and outcomes. For both datasets, the 2-year classification variable was created in IPEDS and merged into the respective online DAS.

The National Postsecondary Student Aid Study (NPSAS) is a comprehensive nationwide study designed to determine how students and their families pay for postsecondary education and to describe some demographic and other characteristics of those enrolled. The study is based on a

³ The original classification used different category titles. For a crosswalk to the original classification groups, please see appendix B.

⁴ See appendix B for more details.

⁵ Please refer to appendix B for more information about the DAS.

⁶ For more information on IPEDS, see <http://nces.ed.gov/ipeds/AboutIPEDS.asp>.

nationally representative sample of students in postsecondary education institutions, including undergraduate, graduate, and first-professional students.

The Beginning Postsecondary Students (BPS) Longitudinal Study is designed specifically to collect data related to persistence in and completion of postsecondary education programs; relationships between work and education efforts; and the effect of postsecondary education on the lives of individuals. The current BPS Longitudinal Study is made up of people who first entered postsecondary education in the 1995-96 academic year. These students were part of the NPSAS sample and were interviewed two additional times throughout their education and into the work force. The last interview took place in 2001.

The analysis of NPSAS:2004 and BPS:96/98/01 data analysis uses standard *t*-tests to determine statistical significance of differences between estimates, and all differences reported in the text are statistically significant at the $p < .05$ level.

Classification universe

The institutional universe for the classification used in this report includes Title IV institutions that are located in the 50 states and the District of Columbia. All institutions within the 2-year sector, including those that are non-degree-granting, were classified if they awarded at least five degrees or certificates in the study year. Less than 2-year institutions were excluded. The final universe of classifiable 2-year institutions consisted of 1,948 schools, or 89 percent of Title IV 2-year institutions located in the 50 states and the District of Columbia.⁷ They represented approximately 99 percent of the total 12-month unduplicated headcount enrollment at 2-year schools.

Degrees and certificates at 2-year institutions

IPEDS distinguishes between awards that are certificates and those that are associate's degrees. While associate's degree programs require 2 years of full-time equivalent college coursework, certificate programs, which tend to be trade specific or technical, can vary. Generally, sub-baccalaureate certificate programs are differentiated by the number of full-time equivalent academic years required to complete the program and are separated into three categories: less than 1-year, 1-year, and 2- but less than 4-years.⁸ For ease of language, 2- but less than 4-year certificates are referred to as simply 2-year certificates for the remainder of this

⁷ Eight percent awarded less than five 2-year certificates or degrees. The remaining 3 percent either had missing data or were not active.

⁸ For more information of certificates, please see the IPEDS glossary, located online at <http://nces.ed.gov/ipeds/glossary/>.

report. Moreover, with the exception of the discussion on program offerings, the analysis combined certificates that are less than 2-years in duration into a single category.

Definitions of the 2-year classification categories

As noted, the 2-year classification system is based on many variables, including institutional sector, enrollment and the type of credentials awarded. The seven categories are defined below:⁹

- Small public institutions are those with an unduplicated headcount of less than 2,000 students. These institutions tend to confer awards and degrees primarily in job and career skills development and to focus on overall workforce development for the communities that they serve.
- Medium-sized public institutions are those with an unduplicated headcount of 2,000 – 9,999 students. These institutions tend to confer awards and degrees that target job and career skills development and to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.
- Large public institutions are those with unduplicated headcount of at least 10,000 students. These institutions tend to be in urban locations, to confer awards and degrees that target job and career skills development, and to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.
- Allied health not-for-profit institutions are not-for-profit institutions that grant almost all of their awards in allied health programs. These institutions tend to be small in enrollment and to have an exclusive focus on allied health training, including nursing.
- Other not-for-profit institutions are those that tend to confer awards and degrees targeting job and career skills development, but may grant a smaller proportion of their awards in allied health programs. These institutions also tend to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.
- For-profit degree-granting institutions are those that offer an associate’s degree program—although many also offer certificates—that target job and career skills development. Many of these institutions offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.
- Other for-profit institutions are those that grant all of their awards as certificates. These institutions provide specialized training, usually in a single job category or area.

⁹ The original classification (Phipps, Shedd, and Merisotis 2001) used different category titles. For a crosswalk to the original classification groups, please see appendix B.

Goal and organization of the report

The goal of this report is to build upon the original classification report and identify additional ways in which the seven categories of 2-year institutions differ from one another. To this end, the analysis asked the following questions:

- How do the categories differ in terms of institutional resources (what they can offer students)?
- What types of students do 2-year institutions serve and how does this differ by category?
- How do these categories differ in terms of affordability?
- How do measures of student success differ among categories?

In order to illustrate how the various types of 2-year institutions differ, the report first presents brief profiles for each classification type that add to the findings presented in the original study. The second part of the analysis attempts to answer the study questions by focusing on four broad topic areas and highlighting the key differences that set a particular institutional type apart. The areas examined include institutional resources (degrees and services offered, staff, faculty, expenditure and revenue patterns); student characteristics (demographic background, educational activities and patterns); institutional affordability (tuition, prices of attendance, financial aid, need and unmet need); and measures of student success (expectations, transfer, persistence, degree completions).

Institutional Profiles

In addition to the classification criteria, the following profiles briefly outline other important characteristics of the seven types of 2-year schools in order to provide context for the findings outlined later in this report. These profiles are compiled from tables 1 and 2.

Small public institutions

Small public 2-year schools were likely to be located in towns (52 percent) and in the Southeast region of the country (51 percent). The average 12-month unduplicated headcount at small public institutions in 2003–04 was 978 students and on average about half of the entering class in fall 2003 were first-time, full-time, degree/certificate-seeking students. More than half of these institutions offered in-state tuition that was less than \$2,000 and the majority had more than 50 percent of first-time, full-time, degree/certificate-seeking students receiving federal grant aid¹⁰ (hereafter referred to as “a high proportion of low-income students”). In 2002–03, 62 percent of the academic awards granted by small public institutions were less than 2-year certificates.

Medium-sized public institutions

Like small publics, medium-sized public 2-year schools were likely to be located in towns (43 percent) and were concentrated in the Southeast (37 percent). Over 2003–04, an average of 5,105 students were enrolled at medium-sized publics, and on average 42 percent of the entering class in fall 2003 were first-time, full-time, degree/certificate-seeking students. More than three-quarters of these institutions reported in-state tuition charges between \$1,000 and \$3,499. Like large public institutions, the majority of awards (57 percent) granted at medium-sized publics in 2002–03 were associate’s degrees.

Large public institutions

Large public 2-year schools were most likely to be located in suburban or urban areas (38 and 55 percent, respectively) and were most frequently found in the Far West region of the country (36 percent). In 2003–04, they enrolled an average of 21,271 students, and on average,

¹⁰ See appendix B for more details.

Table 1. Number of institutions, average 12-month unduplicated headcount, percentage of entering class who are first-time, full-time, degree/certificate-seeking undergraduates, and the distribution of selected institution characteristics: 2003–04

Institutional characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
	Number						
Number of institutions	219	565	326	107	107	416	208
	Average						
12-month unduplicated headcount	978	5,105	21,271	136	657	765	249
Percentage of entering class who are full-time first-time degree/certificate-seeking undergraduates	52.5	42.4	29.1	59.9	60.4	75.9	79.0
	Percentage distribution						
Awards granted, 2002–03							
Less than 2-year certificate	62.4	41.8	32.4	15.9	43.1	41.2	52.0
2-year certificates	5.5	1.6	0.9	58.3	8.5	0.4	48.0
Associate's degrees	32.1	56.5	66.7	25.8	48.4	58.4	†
Average in-state tuition for full-time undergraduates at public institutions, 2003–04							
Less than \$1000	25.3	17.0	31.4	†	†	†	†
\$1,000–\$1,999	33.7	34.6	26.2	†	†	†	†
\$2,000–\$3,499	31.6	40.0	24.6	†	†	†	†
\$3,500 or more	8.9	8.4	16.6	†	†	†	†
Average tuition for full-time undergraduates at private institutions, 2003–04							
Less than \$2,000	†	†	†	10.8	2.1	0.0	†
\$2,000–\$4,999	†	†	†	30.1	16.0	1.3	†
\$5,000–\$9,999	†	†	†	48.4	45.7	52.6	†
\$10,000 or more	†	†	†	10.8	36.2	46.1	†
Urbanicity							
Urban	18.3	27.7	54.9	65.7	57.3	63.9	55.1
Suburban	13.5	19.9	38.0	18.1	24.2	28.2	21.9
Town	51.7	42.8	5.3	15.2	8.7	7.2	21.4
Rural	15.9	9.2	1.9	1.0	9.7	0.5	1.5
Unknown	0.5	0.4	0.0	0.0	0.0	0.3	0.0

See notes at end of table.

Table 1. Number of institutions, average 12-month unduplicated headcount, percentage of entering class who are first-time, full-time, degree/certificate-seeking undergraduates, and the distribution of selected institution characteristics: 2003–04—Continued

Institutional characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Geographic region							
New England CT ME MA NH RI VT	1.4	6.0	1.2	8.4	6.5	2.6	1.9
Mid East DE DC MD NJ NY PA	6.4	8.5	10.7	43.9	36.4	24.0	8.2
Great Lakes IL IN MI OH WI	5.0	13.8	18.1	20.6	9.3	18.8	16.8
Plains IA KS MN MO NE ND SD	13.7	12.2	4.9	11.2	9.3	7.7	17.3
Southeast AL AR FL GA KY LA MS NC SC TN VA WV	50.7	36.6	12.9	12.1	15.0	20.7	22.1
Southwest AZ NM OK TX	11.4	11.2	13.8	0.9	4.7	9.4	3.8
Rocky Mountains CO ID MT UT WY	7.3	2.8	2.8	1.9	1.9	5.3	9.6
Far West AK CA HI NV OR WA	4.1	8.8	35.6	0.9	16.8	11.5	20.2
Accreditation							
Regional accrediting agency	65.8	94.3	100.0	3.7	58.9	10.6	0.5
State accrediting or approval agency	54.3	66.2	62.3	78.5	56.1	72.4	53.1
National or specialized accrediting	59.4	77.3	77.6	95.3	56.1	95.0	99.0
Low income serving institution¹							
No	44.4	65.7	85.5	69.1	49.5	23.8	33.2
Yes	54.6	34.3	14.5	22.3	50.5	76.0	65.3

† Not applicable.

¹ Low-income serving institutions are those at which 50 percent or more of first-time, full-time degree- or certificate-seeking students received federal grant aid in 2003–04.

NOTE: Detail may not sum to totals because of rounding. Four for-profit institutions that offer degree programs awarded fewer than five degrees in the classification year and were therefore classified as other for-profits. Average tuition was not presented for other for-profit institutions because most of these institutions report tuition for their largest program rather than tuition for the academic year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

29 percent of the entering class in fall 2003 were first-time, full-time, degree/certificate-seeking students. Sixty-seven percent of the awards granted at large public institutions in 2002–03 were associate’s degrees. Large public institutions reported a wide range of in-state tuition charges. While one-third reported in-state tuition that was less than \$1,000, 17 percent of large publics reported charging over \$3,500. However, it is important to note that 91 (28 percent) of the 326 large public schools are located in California, an extensive state-wide system that offers low tuition. This may impact the findings for this group of institutions.

Table 2. Distribution of students attending 2-year institutions by selected institutional characteristics: 2003–04

Student characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
NPSAS institution was low-income serving ¹							
No	63.5	67.2	83.8	85.7	32.5	12.8	45.9
Yes	36.5	32.8	16.2	14.3	67.5	87.2	54.1
Undergraduate degree program							
Certificate	15.3	9.3	4.2	56.4	8.2	18.0	66.8
Associate's degree	73.9	72.7	71.6	35.9	83.2	76.1	17.4
Bachelor's degree	0.1	4.8	3.4	0.8	2.8	0.7	3.5
Not in a degree program or other	10.7	13.2	20.8	6.8	5.8	5.2	12.3
Associate's degree type							
AA, AS, general education or transfer	77.9	64.3	72.1	46.1	56.8	27.5	18.0
AAS, occupational or transfer program	22.1	35.7	27.9	53.9	43.2	72.5	82.0

¹ Low-income serving institutions are those at which 50 percent or more of first-time, full-time degree- or certificate-seeking students received federal grant aid in 2003–04.

NOTE: Detail may not sum to totals because of rounding. Although other for-profits by definition did not grant any associate's degrees in the study year, four offered those programs and therefore students may be enrolled in them.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Survey (NPSAS:2004).

Allied health not-for-profit institutions

As defined, these institutions awarded almost all of their degrees or certificates in allied health areas. This category therefore includes a number of nursing and other schools that focus on health professions. About two-thirds of allied health not-for-profit 2-year schools were concentrated in urban areas, and 65 percent were located in the Mid East and Great Lakes regions of the country. In 2003–04, an average of 136 students was enrolled at these institutions, and on average, 60 percent of the entering class in fall 2003 were full-time, first-time degree/certificate-seeking students. Eighty-nine percent of allied health not-for-profit institutions reported tuition that was less than \$10,000 and 22 percent had high proportions of low-income students. In terms of degrees and awards, almost three-fifths of the awards granted by allied health institutions in 2002–03 were 2-year certificates.

Other not-for-profit institutions

Other not-for-profit 2-year schools, such as barber and cosmetology schools, were concentrated in suburban and urban areas (24 and 57 percent, respectively), and more than one-third were located in the Mid East region of the country. In 2003–04, these institutions enrolled an average of 657 students, and on average, 60 percent of the entering class in fall 2003 were first-time, full-time, degree/certificate-seeking students. Over 80 percent of these schools reported tuition charges in 2003–04 that were more \$5,000 and over half of them had high proportions of low-income students. Almost half of the awards granted by other not-for-profits in 2002–03 were associate’s degrees, and 43 percent were less than 2-year certificates.

Degree-granting for-profit institutions

Degree-granting for-profit 2-year schools were concentrated in urban areas (64 percent) and were likely to be located in the Mid East (24 percent), Great Lakes (19 percent) and Southeast (21 percent) regions of the country. In 2003–04, these institutions enrolled an average of 765 students, and on average, 76 percent of the entering class in fall 2003 were first-time, full-time, degree/certificate-seeking students. Almost all of these schools reported tuition charges in 2003–04 that were more \$5,000, and three-quarters of them had high proportions of low-income students. Seventy-three percent of students enrolled in an associate’s degree program at degree-granting for-profits institutions were enrolled an occupational or technical program. In 2003–04, 58 percent of the awards granted by degree-granting for-profits were associate’s degrees, and 41 percent were less than 2-year certificates.

Other for-profit institutions

Other for-profit 2-year schools were concentrated in urban areas (55 percent), although just over 20 percent were located in both suburban areas and towns. These institutions were located throughout the country, although they were slightly more concentrated in the Southeast and Far West regions. In 2003–04, these institutions enrolled an average of 249 students, and on average, 79 percent of the entering class in fall 2003 were first-time, full-time, degree/certificate-seeking students. Sixty-five percent of these schools had high proportions of low-income students. Fifty-two percent of the awards granted by other not-for-profits were less than 2-year certificates, and 48 percent were 2-year certificates.

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Differential Patterns of Institutional Offerings and Resources

The programs and services offered by institutions often play an important role in student access, choice of institution, and success. Institutional resources—such as full-time staff, faculty and faculty salaries—impact the services and programs that schools offer to students.

Degree and certificate programs offered

Two-year institutions offer a wide variety of programs of study in the form of associate's degrees and certificates. A clear difference exists between institutions offering only 2-year certificates and those that offer associate's degrees in addition to certificates (table 3). Over 80 percent of public schools, other not-for-profits and degree-granting for-profits offered associate's programs, while over 80 percent of allied health not-for-profits and other for-profits offered 2-year certificate programs.¹¹ While 90 percent of large public institutions (and 83 percent of medium-sized publics) offered less than 1-year certificate programs, half of for-profit institutions, and few allied health not-for-profit institutions, offered this type of certificate program.

Student services available

Many institutions have on-campus services that help students with various aspects of their academic career. These can include academic counseling, career counseling, employment services for current students, placement services for graduating students, remedial courses, and other services. However, institutions differ in the services available to students (table 3). The majority of 2-year institutions in all classification categories reported offering academic/career counseling services. Public institutions were more likely to offer remedial services than the private institutions. In particular, large public institutions tended to offer the widest variety of student resources compared to other public as well as private institutions. About 83 percent offered day care and 82 percent offered cooperative (work-study) programs. Unlike other not-for-profits, allied health not-for-profit institutions were less likely to offer remedial services and placement services for students. Similarly, a low proportion of for-profit institutions offered remedial services (39 percent for degree-granting, 13 percent for other for-profit). Most of these

¹¹ By definition, other for-profit institutions granted fewer than five associate's degrees in the classification year.

Table 3. Number of 2-year institutions, the percentage distribution by degree-granting status, and the percentage offering selected programs of study and services, by type of 2-year institution: 2003–04

Institutional characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
	Number						
Number of institutions	219	565	326	107	107	416	208
	Percentage distribution						
Degree-granting status							
Degree-granting	81.7	98.6	100.0	21.5	82.2	100.0	1.9
Nondegree-granting, primarily postsecondary	18.3	1.4	#	78.5	17.8	#	98.1
	Percentage offering programs of study, 2003–04						
Less than one year certificate	67.1	82.7	89.9	3.7	34.6	50.0	53.8
One but less than 2-year certificate	85.8	97.0	98.8	10.3	56.1	70.9	61.5
Two but less than 4-year certificate	49.8	31.7	36.2	80.4	25.2	10.1	99.5
Associate's degree	81.7	98.6	100.0	21.5	82.2	100.0	1.9
	Percentage offering services, 2003–04						
Remedial services	95.4	100.0	100.0	46.7	73.8	38.9	12.6
Academic/career counseling services	99.5	100.0	100.0	89.7	90.7	87.3	83.1
Employment services for current students	68.9	92.4	96.9	51.4	66.4	88.7	39.1
Placement services for completers	78.1	88.0	89.6	39.3	66.4	99.0	82.1
On-campus day care for students' children	19.6	50.4	82.8	19.6	6.5	2.4	1.0
Accelerated programs	9.6	22.8	46.9	11.4	10.4	8.3	1.0
Cooperative (work-study) program	59.4	64.8	81.6	3.8	17.0	17.8	2.0
Distance learning opportunities	66.2	95.9	98.5	5.7	17.9	18.3	100.0

Rounds to zero.

NOTE: By definition, other for-profit institutions do not grant associate's degrees. While 2 percent (4) of other for-profit institutions offered an associate's degree program, they awarded only certificates in the classification year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

institutions offered career counseling and job placement (for degree-granting for-profits, 87 percent and 99 percent, respectively), and all institutions in the other for-profit category also offered distance learning opportunities in addition to placement services (compared to 18 percent of degree-granting for-profits).

Institutional staff

All 2-year institutions have a workforce composed of instructional, administrative/managerial, professional support, secretarial, and support staff. However, the percentage distribution of staff across these categories differed by type of 2-year institution. The percentage of employees that were full time ranged from 76 percent at other for-profit institutions to 47 percent at large public institutions (table 4). Full-time instructional faculty comprised 63 percent of all full-time staff at allied health not-for-profits, more than any other institutional category. The percentage of total full-time staff that was executive/administrative and managerial ranged from 8 percent at large publics to 19 percent at other for-profit institutions. All three types of public institutions had a higher proportion of full-time staff that were clerical and secretarial, as well as service and maintenance, than other 2-year institutions. Among public schools, small publics had a higher proportion of professional support staff (24 percent) than other public institutions. The majority of part-time staff at all types of 2-year institutions was comprised of instructional faculty (73 percent to 78 percent).

Faculty composition

An important segment of the workforce at 2-year institutions is instructional, i.e., the faculty. There are some significant differences in the status, demographics, and salary of faculty by type of 2-year institution (table 5). A majority of full-time faculty (93 percent) at allied health not-for-profits were women, while a majority of full-time faculty at both types of for-profit institutions was men (59 and 66 percent). Across all other classification categories, the differences between the proportions of male and female full-time faculty were smaller. Compared to other public schools, a higher proportion of faculty at large public institutions were Hispanic (6 percent) or Asian/Pacific Islander (4 percent). Across all institutional categories, other for-profits had the highest proportions of full-time faculty who were Black, non-Hispanic (11 percent) and Hispanic (7 percent).

Faculty rank and salaries at degree-granting institutions¹²

Across all degree-granting 2-year institutions, the largest proportion of full-time faculty was instructors (34 to 81 percent), followed by faculty who had no rank (table 6). It is important to keep in mind that some 2-year institutions do not use a faculty ranking system. Public institutions had the largest proportion of full-time faculty who had no academic rank, ranging

¹² The IPEDS faculty survey is limited to degree-granting institutions. By definition, other for-profit institutions do not grant degrees and are therefore not included in this portion of the analysis.

Table 4. Percentage full-time, and percentage distribution of full-time and part-time employees at 2-year institutions: 2002–03

Employees	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Percentage full time							
Public service/instruction/research	45.2	33.8	30.4	68.1	45.6	48.3	68.3
Executive/administrative and managerial	97.0	96.4	96.5	95.3	95.8	97.4	94.5
Other professional (support services)	85.0	72.0	72.9	78.3	84.9	89.0	92.5
Technical/para-professional	74.0	60.9	68.9	87.8	79.8	70.8	90.0
Clerical and secretarial	80.2	66.2	60.2	69.6	66.2	76.8	68.4
Skilled crafts	73.1	79.2	85.3	100.0	87.6	66.2	37.5
Service/maintenance	78.1	70.8	78.9	35.7	63.2	56.7	59.6
Percentage distribution							
All employees	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Full-time	65.4	49.7	46.8	71.7	62.5	66.0	76.4
Part-time	34.6	50.3	53.2	28.3	37.5	34.0	23.6
Total full-time employees	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Full-time public service/instruction/research	31.6	39.1	38.6	63.5	36.8	37.6	48.8
Executive/administrative and managerial	8.9	9.2	7.9	12.7	17.2	18.3	19.2
Other professional (support services)	23.7	16.4	11.6	8.7	21.7	25.6	19.0
Technical/para-professional	8.2	7.4	11.7	3.0	3.6	3.3	3.4
Clerical and secretarial	16.4	17.7	19.3	11.4	11.7	11.7	7.3
Skilled crafts	1.6	1.5	1.9	0.1	1.5	0.2	0.3
Service/maintenance	9.7	8.7	9.0	0.7	7.5	3.3	2.0
Total part-time employees	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Part-time public service/instruction/research	72.3	75.8	77.7	75.4	73.2	78.3	73.5
Executive/administrative and managerial	0.5	0.3	0.3	1.6	1.3	0.9	3.7
Other professional (support services)	7.9	6.3	3.8	6.1	6.4	6.2	5.0
Technical/para-professional	5.4	4.7	4.6	1.1	1.5	2.6	1.2
Clerical and secretarial	7.6	8.9	11.2	12.6	10.0	6.9	11.0
Skilled crafts	1.1	0.4	0.3	#	0.4	0.2	1.4
Service/maintenance	5.1	3.5	2.1	3.2	7.2	4.9	4.3

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding. Aggregate calculation performed on sum totals within each classification category. Combines degree granting and non-degree granting institution responses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

Table 5. Distribution of all full-time instructional staff at 2-year institutions, by gender and race/ethnicity: 2002–03

Full-time instructional staff	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
All full-time instructional staff	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gender							
Men	51.5	48.4	49.0	7.0	54.0	58.7	66.1
Women	48.5	51.6	51.0	93.0	46.0	41.3	33.9
Race							
White, non-Hispanic	86.3	88.2	79.8	92.7	85.8	81.0	78.7
Black, non-Hispanic	7.3	5.4	7.3	4.9	4.8	8.6	11.2
Hispanic	1.7	2.4	6.4	1.2	1.6	4.9	7.3
Asian or Pacific Islander	1.3	2.2	4.3	1.0	2.9	3.1	1.7
American Indian/Alaska Native	2.0	0.7	0.7	0.1	2.9	0.4	0.4
Race/ethnicity unknown	1.2	0.9	0.8	#	1.9	1.7	0.7
Nonresident alien	0.2	0.2	0.7	#	0.1	0.3	#

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding. Calculations performed on the aggregate 2-year classification level. Results for allied health not-for-profit institutions and other for-profit institutions should be interpreted with caution as only 57 allied health not-for-profit institutions out of 107 (53 percent) and 57 other for-profits out of 208 (27 percent) responded to the Fall Staff survey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

from 22 to 31 percent. Faculty at small public institutions were less likely (5 percent) to be full professors than faculty at other public institutions. At large public institutions that serve low-income students, faculty were more likely to be ranked as professors (assistant, associate, or full) than faculty at all large publics.

Full-time faculty of any rank at large public institutions received a higher average salary than their counterparts at small and medium-sized public institutions, ranging from \$40,089 to \$66,665 (table 7).¹³ Lecturers at allied health not-for-profits earned more, on average, than lecturers at any other type of institution (\$51,547). In addition, on average, full-time faculty at allied health not-for-profits received higher salaries than their counterparts at other not-for-profit institutions. Full-time faculty at for-profit degree-granting institutions received the lowest average salaries of any faculty, ranging from \$22,622 to \$34,507.

¹³ This may be due to the disproportionate representation of large public institutions from California or their greater likelihood to be located in urban areas, as noted above.

Table 6. Distribution of full-time faculty by rank at degree-granting 2-year institutions: 2002–03

Full-time faculty	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
All full time faculty	100.0	100.0	100.0	100.0	100.0	100.0	†
Professor	5.0	12.9	13.6	1.7	7.3	3.8	†
Associate professor	6.0	10.1	8.8	11.8	10.6	1.3	†
Assistant professor	7.9	10.7	9.8	10.9	13.1	0.7	†
Instructor	53.7	34.4	45.4	50.8	50.6	81.3	†
Lecturer	1.5	1.0	0.8	10.5	0.8	0.7	†
No academic rank	25.9	30.9	21.7	14.3	17.5	12.2	†
Low-income serving institutions ¹	100.0	100.0	100.0	‡	100.0	100.0	†
Professor	3.5	11.1	17.0	‡	5.8	1.9	†
Associate professor	4.2	9.9	10.5	‡	6.1	0.3	†
Assistant professor	5.4	9.4	15.0	‡	9.1	0.4	†
Instructor	58.3	35.5	40.9	‡	61.9	85.3	†
Lecturer	1.3	1.7	3.5	‡	1.2	0.4	†
No academic rank	27.2	32.4	13.1	‡	15.9	11.8	†

† Not applicable.

‡ Reporting standards not met.

¹ Low-income serving institutions are those at which 50 percent or more of first-time, full-time degree- or certificate-seeking students received federal grant aid in 2003–04.

NOTE: Detail may not sum to totals because of rounding. Calculations performed on the aggregate 2-year classification level. Full-time faculty by rank is only available for degree-granting institutions; therefore, by definition, most other for-profit institutions did not have data. Four for-profit institutions that offer degree programs awarded fewer than five degrees in the classification year and were therefore classified as other for-profits. Data for those schools were not included in this table. Results for allied health not-for-profit institutions should be interpreted with caution as only 22 allied health not-for-profit institutions (21 percent) were degree-granting.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

Table 7. Average annual salary (equated to 9-month contracts) of full-time instructional faculty at degree-granting 2-year institutions: 2002–03

Full-time faculty	Small public	Medium- sized public	Large public	Allied health not- for-profit	Other not- for-profit	Degree granting for-profit	Other for-profit
All institutions							
All faculty	\$39,059	\$45,148	\$57,198	\$44,961	\$33,563	\$29,340	†
Professors	54,832	56,918	66,665	60,352	41,021	32,829	†
Associate professors	46,912	48,519	56,429	49,638	37,778	31,687	†
Assistant professors	39,747	42,125	48,428	39,129	34,628	34,507	†
Instructors	35,219	39,694	53,127	43,413	31,064	29,276	†
Lecturer	34,245	38,353	40,089	51,547	35,552	22,622	†
No academic rank	41,496	43,078	48,881	43,587	33,995	27,366	†
Low income serving institution ¹							
All faculty	\$38,174	\$42,565	\$55,412	‡	\$30,575	\$28,686	†
Professors	52,930	53,203	73,986	‡	33,274	36,597	†
Associate professors	44,151	46,131	61,720	‡	32,636	32,171	†
Assistant professors	38,951	40,335	52,907	‡	30,279	31,373	†
Instructors	35,373	37,474	45,839	‡	30,146	28,693	†
Lecturer	35,083	37,618	42,621	‡	34,686	20,572	†
No academic rank	39,968	42,354	49,325	‡	31,071	27,121	†

† Not applicable.

‡ Reporting standards not met.

¹ Low-income serving institutions are those at which 50 percent or more of first-time, full-time degree- or certificate-seeking students received federal grant aid in 2003–04.

NOTE: Average annual salary amounts have been adjusted to account for the multiple contract lengths and subsequent variations in annual salaries (equated 9-month contract). Average salary data is available for degree-granting institutions only; therefore, by definition, most other for-profit institutions did not have data. Four for-profit institutions that offer degree programs awarded fewer degrees in the classification year and were therefore classified as other for-profits. Data for those schools were not included in this table. Results for allied health not-for-profit institutions should be interpreted with caution as only 22 allied health not-for-profit institutions (21 percent) were degree-granting.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

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Differential Characteristics of Students

Examining the characteristics of students attending various types of 2-year institutions adds to understanding about the types of students served by these schools as well as the institutional mission. In addition, examining student characteristics helps illuminate trends found in financial aid receipt and student outcomes. While the previous section was based on a universe of institutions, this section is based on information from a sample survey, and all differences were tested to assure that they are statistically significant.

Gender, race/ethnicity and age

While more women attended most types of 2-year institutions than men (with the exception of degree-granting for-profits) (table 8), allied health not-for-profits were particularly likely to have a high proportion of women (86 percent) compared with most 2-year institutions (except other for-profits). In addition, students at allied health not-for-profit schools were more likely to be between the ages of 30 and 39 than those at all other 2-year institutions.

Large public institutions, other not-for-profits and degree-granting for-profit institutions show higher proportions of Hispanic students (19, 20 and 18 percent, respectively) than small and medium publics as well as allied health not-for-profit institutions. In addition, a higher proportion of students enrolled at large publics were Asian (9 percent) compared to all other institutions except other not-for-profits.

Across all categories, the gender and racial composition of the student body often differed from that of the full-time faculty as reported in table 5. For example, at other for-profits, women comprised 76 percent of students but 34 percent of full-time faculty. At large public institutions, 19 percent of students were Hispanic while 6 percent of full-time faculty was Hispanic. At degree-granting for-profit institutions, 25 percent of students were Black, compared to 9 percent of the full-time faculty. Other institutions exhibited similar differences between student and faculty composition.

Table 8. Distribution of students attending 2-year institutions, by demographic and enrollment characteristics: 2003–04

Student characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
All students	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gender							
Men	41.9	38.1	41.9	14.2	40.5	42.5	24.0
Women	58.2	61.9	58.1	85.8	59.6	57.5	76.0
Age as of 12/31/03							
Less than 20 years old	31.3	20.5	19.5	6.8	25.3	14.4	25.9
20–29	36.2	44.1	47.1	48.4	49.6	54.1	56.7
30–39	13.7	17.7	17.1	33.5	15.7	20.0	10.8
40–49	13.0	11.8	11.1	10.6	7.4	8.2	5.9
50 or older	5.8	5.8	5.3	0.7	2.0	3.3	0.8
Race/ethnicity							
White	82.9	70.7	56.4	82.2	48.5	54.0	60.7
Black	9.7	19.4	14.3	13.5	19.2	25.3	17.9
Hispanic	5.4	7.0	19.1	1.9	20.3	17.6	18.1
Asian/Pacific Islander	0.9	2.3	9.0	2.3	6.1	2.6	2.5
American Indian/Alaska Native	1.1	0.6	1.3	0.0	5.9	0.6	0.8
Dependency status							
Dependent	45.1	39.2	39.6	20.7	46.4	24.8	41.6
Independent without dependents	18.2	22.1	27.9	31.6	21.3	26.9	20.8
Independent with dependents	36.6	38.7	32.6	47.7	32.3	48.4	37.6
Dependent income (family)							
Less than \$25,000	16.9	20.0	21.3	9.8	24.5	37.0	24.7
\$25,000–\$49,999	31.8	28.3	25.3	24.2	24.9	34.8	26.7
\$50,000–\$79,999	25.1	25.8	25.9	38.5	25.9	17.4	22.9
\$80,000 or more	26.3	25.9	27.5	27.5	24.7	10.8	25.7
Independent income							
Less than \$15,000	30.0	31.2	29.1	14.0	43.5	43.5	54.2
\$15,000–\$29,999	23.9	24.7	23.3	30.7	27.6	33.1	28.1
\$30,000–\$49,999	21.7	19.6	20.0	25.5	11.9	14.9	11.1
\$50,000 or more	24.5	24.6	27.7	29.8	17.0	8.6	6.6
Attendance intensity (all schools)							
Exclusively full-time	45.7	38.4	27.0	52.0	61.9	72.1	80.7
Exclusively part-time	38.5	45.6	57.8	25.1	26.1	18.7	12.6
Mixed full-time and part-time	15.8	16.0	15.2	23.0	12.0	9.2	6.7

See notes at end of table.

Table 8. Distribution of students attending 2-year institutions, by demographic and enrollment characteristics: 2003–04—Continued

Student characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Housing							
On campus	5.7	2.4	1.2	4.7	19.7	3.1	6.4
Off campus	61.1	63.7	64.8	80.1	57.2	75.0	70.1
Living with parents	33.2	33.8	34.0	15.2	23.1	21.9	23.5
Work intensity while enrolled (excludes work-study/assistantship)							
No job	25.6	21.4	21.1	20.7	31.6	25.9	34.0
Part-time	38.0	39.6	38.0	52.1	36.1	31.8	34.7
Full-time	36.4	38.9	40.9	27.2	32.3	42.3	31.3

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Survey (NPSAS:2004).

Dependency status, housing and income

The percentage of students who were dependent students ranged from 21 percent at allied health not-for-profits to 46 percent at other not-for-profit institutions. At allied health not-for-profits and for-profit degree-granting institutions, 48 percent of all students were independent supporting at least one dependent such as a child. In addition, more students in all categories lived off campus than on campus or with their parents, although students attending medium and large public institutions were more likely than students at private institutions to live with their parents.¹⁴ Compared to other classification categories, a high proportion of students at other not-for-profit institutions lived on campus (20 percent).¹⁵

Degree-granting for-profit institutions had the highest proportion of dependent students with family incomes of less than \$25,000 (37 percent) compared to all other classification categories except other for-profit institutions.¹⁶ Similarly, both types of for-profit institutions as well as other not-for-profits had higher proportions of independent students with incomes that were less than \$15,000 (between 44 and 54 percent) compared to public and allied health not-for-profits.

¹⁴ The observed difference for small 2-year public institutions was not statistically significant.

¹⁵ The observed difference between other not-for-profits and other for-profits was not statistically significant.

¹⁶ The observed difference between other not-for-profits and other for-profits was not statistically significant.

Attendance status and work

Students attending for-profit institutions were more likely to attend exclusively full-time (72 and 81 percent, respectively) than students attending any type of public institution. Further, students attending small public institutions were more likely to attend full-time than students at large public schools (46 percent compared to 27 percent). While about half of students attending allied health not-for-profits attended full-time, these students also were more likely to work part-time (52 percent) than students at all other 2-year schools.

Differential Patterns of Institutional Affordability

The cost of attending postsecondary education is paramount in the minds of students, especially low-income students. Financial aid programs play a critical role in the ability of students, and in particular lower-income students, to pay for college. However, student financial aid in the form of loans and grants comes from many sources, including the federal government, institutions, states, and private organizations. Thus, examining both costs and financial aid by source and type is key to understanding students' ability to pay for school and how this differs among the seven institutional groups. The following tables show tuition and fees, net prices, and financial need for the various categories of 2-year institutions. While tuition charges and total prices of attendance varied dramatically among institutional sectors, the final range of prices after accounting for all financial aid was less broad. As in the previous section, this section is based on information from a sample survey, and all differences were tested to assure that they are statistically significant

Tuition and price of attendance

At public institutions, published (“sticker price”) tuition charges often differ for in-district, in-state and out-of-state students, while private institutions generally do not differentiate in this way.¹⁷ For example, 36 percent of large publics reported in-district tuition that was less than \$1,000, compared to 28 percent and 20 percent of small and medium-sized publics (table 9). This likely reflects the fact 28 percent of large public institutions are located in California, a state-wide system that primarily charges fees, rather than tuition, for state residents.

Overall, students at public institutions tend to face lower average tuition and fees and prices of attendance than students at private institutions (table 10).¹⁸ Average tuition and fee charges for students ranged from \$1,906 at large publics to \$11,183 at degree-granting for-profits. Similarly, average prices of attendance—which includes room and board expenses as well as tuition and fees—for students ranged from \$10,412 (again at large publics) to \$20,418 (again at degree-granting for-profits). Students at allied health not-for-profits faced significantly lower average

¹⁷ Tuition charges reported by institutions represent the average tuition charged by institutions to full-time students for the academic year.

¹⁸ Note that these prices take student attendance patterns into account.

Table 9. Distribution of average tuition charges for the academic year for full-time undergraduates: 2003–04

Average tuition	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Average in-district tuition for full-time undergraduates at public institutions, 2003–04							
Less than \$1000	27.9	19.8	35.7	†	†	†	†
\$1,000–\$1,999	34.7	40.5	42.2	†	†	†	†
\$2,000–\$3,499	31.1	37.7	20.6	†	†	†	†
\$3,500 or more	5.8	2.0	0.3	†	†	†	†
Average in-state tuition for full-time undergraduates at public institutions, 2003–04							
Less than \$1000	25.3	17.0	31.4	†	†	†	†
\$1,000–\$1,999	33.7	34.6	26.2	†	†	†	†
\$2,000–\$3,499	31.6	40.0	24.6	†	†	†	†
\$3,500 or more	8.9	8.4	16.6	†	†	†	†
Average out-of-state tuition for full-time undergraduates at public institutions, 2003–04							
Less than \$1000	19.5	1.6	1.5	†	†	†	†
\$1,000–\$1,999	12.6	11.8	2.5	†	†	†	†
\$2,000–\$3,499	20.0	16.1	12.9	†	†	†	†
\$3,500 or more	47.4	70.5	81.8	†	†	†	†
Average tuition for full-time undergraduates at private institutions, 2003–04							
Less than \$2,000	†	†	†	10.8	2.1	#	†
\$2,000–\$4,999	†	†	†	30.1	16.0	1.3	†
\$5,000–\$9,999	†	†	†	48.4	45.7	52.6	†
\$10,000 or more	†	†	†	10.8	36.2	46.1	†

† Not applicable.

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding. Average tuition was not presented for other for-profit institutions because most of these institutions report tuition for their largest program rather than tuition for the academic year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

tuition and fees (\$5,196) and price of attendance (\$15,061) than students at all other private institutions, although these charges were still higher than the average prices faced by students attending public institutions.

Table 10. Average tuition and fees, price of attendance, percentage of students applying for aid, percentage receiving Pell grants, Stafford loans, institutional aid, state aid and private (alternative) loans, and the average amounts received for full-time, full-year students at 2-year institutions: 2003-04

2-year institutions	Average tuition and fees		Average price of attendance	Percentage who applied for aid		Federal Pell grant		Stafford loan (any)	
	Average	and		Percentage	who applied	Percent	Average	Percent	Average
Small public	\$2,557		\$11,267	82.7	66.9	41.6	\$2,992	33.2	\$4,060
Medium-sized public	2,149		10,451	84.2	70.1	40.6	3,160	28.0	3,572
Large public	1,906		10,412	71.5	58.4	28.1	3,110	21.3	4,496
Allied health not-for-profit	5,196		15,061	94.5	77.6	27.7	3,032	49.0	5,492
Other not-for-profit	9,051		18,079	92.8	86.2	46.2	3,307	55.1	4,791
Degree granting for-profit	11,183		20,418	98.8	97.8	71.9	3,273	91.2	5,915
Other for-profit	9,955		19,550	88.2	85.0	62.2	3,081	71.7	5,122

2-year institutions	Both subsidized and unsubsidized Stafford loans		Institutional aid (any)		State aid (any)		Private (alternative) loans	
	Percent	Average amount	Percent	Average amount	Percent	Average amount	Percent	Average amount
Small public	13.2	\$5,970	30.0	\$1,751	23.4	\$1,590	2.1	‡
Medium-sized public	9.9	5,244	16.4	2,251	22.4	1,412	4.2	3,780
Large public	8.6	6,455	11.1	1,519	15.8	1,406	3.0	3,946
Allied health not-for-profit	21.9	‡	25.1	3,744	18.6	‡	8.9	‡
Other not-for-profit	29.8	6,097	43.5	4,251	33.8	2,994	9.2	4,582
Degree granting for-profit	76.3	6,444	8.9	5,556	21.3	3,574	18.1	6,339
Other for-profit	46.1	6,511	14.2	5,278	3.6	‡	8.4	‡

‡ Reporting standards not met.

NOTE: Average estimates do not include zeroes. Students receiving any institutional or state aid primarily received grants, although a small portion (no more than 10 percent) of aid was from other sources.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003-04 National Postsecondary Student Aid Survey (NPSAS:2004).

Financial aid receipt

Given the trends in tuition and price outlined above, the patterns of student financial aid receipt were not surprising; that is, students at private institutions tend to apply for and receive financial aid at higher rates than their counterparts at public institutions. However, some unique findings emerged for 2-year institutions that go beyond sector differences (table 10).

In particular, students attending degree-granting for-profits differed from their counterparts at all other institutions (except other for-profits)—they were more likely to apply for federal financial aid (98 percent), receive Pell grants (72 percent), and receive Stafford loans (91 percent). In addition, the average loan amounts (\$5,915) were higher for these students than for students at all public institutions and other not-for-profits. Students at degree-granting for-profits were also more likely than students at all other types of institutions except other for-profits to receive both types of Stafford loans (subsidized and unsubsidized loans) (76 percent), and they were more likely than students at public institutions to receive private (alternative) loans. Moreover, while the proportion of students at degree-granting for-profit institutions who received state aid (21 percent) did not differ significantly from the proportions of students at public institutions receiving state aid (16 to 23 percent), students attending the former received higher average amounts of state aid than students at the latter (\$3,574 compared to \$1,406, \$1,412 and \$1,590, respectively).

Examining the other categories of 2-year institutions revealed fewer findings, although students attending large public institutions were less likely to apply for any type of financial aid (72 percent) or federal aid (58 percent) compared to students attending most other 2-year institutions.¹⁹ Students attending large public institutions were also less likely to receive either federal grants or federal loans (28 percent and 21 percent, respectively) than those at medium-sized public institutions,²⁰ while students at small public institutions were more likely to receive institutional aid (30 percent) than students at large publics. Students at other not-for-profits were more likely to receive institutional aid (44 percent) than students at medium and large publics as well as those at degree-granting for-profit institutions. Furthermore, the average amount of institutional aid that students at other not-for profits received (\$4,251), was more than the amounts received by students attending public institutions.

¹⁹ The observed difference between students attending small and large public institutions was not statistically significant. The impact of the California community college system on the “large public” category may be particularly relevant here, as a number of students likely face such low sticker prices of attendance that they do not apply for financial aid.

²⁰ The observed difference between students attending small and large public institutions was not statistically significant.

Net price of attendance and unmet need

While separate examinations of total price of attendance and financial aid receipt are useful in any discussion of affordability, it is important to also examine the “net prices” faced by students. Net prices reflect the total price of attending an institution after taking into account financial aid that a student may receive. While grants represent clear price reductions to the student, loans must be paid back by the student and therefore the perceptions of net prices are more complex. Therefore, it is instructive to examine net prices after only grants, as well as net prices that take into account all financial aid, including loans.

Further, an assessment of affordability should take into account the financial need of students, which can be measured by the difference between a student’s Expected Family Contribution (EFC) and the total price of attendance. A student’s EFC represents the amount the student/parents are expected to contribute toward the price of attending college, and is calculated for the purposes of financial aid application, based on a formula that considers such factors as income, family size, and number of family members enrolled in college. The EFC attempts to measure a student’s relative ability to pay for college in order to assist in allocating financial aid. Thus, “unmet need” reflects the remaining amount that is not covered by either the student/parents or financial aid—that is, the net price minus the amount that the student and/or family are expected to contribute. As with net prices, since grants do not need to be repaid while loans do, multiple unmet need amounts are calculated that account for various combinations of financial aid.

There are differences in financial need, net prices, and unmet need among the categories of 2-year institutions (table 11). For example, students at degree-granting for-profit institutions reported lower average EFCs (\$3,588) and higher average levels of need (\$17,352) than students at most other 2-year schools.²¹ This likely reflects the relatively high proportion of low-income students attending those institutions. The combination of higher average tuition prices at these institutions and the patterns of aid received by students leads to net prices that differ according to the type of aid:

- When accounting for only grants (net price 1, i.e., the total price of attendance minus grant aid received), students at degree-granting for-profit institutions faced higher net prices (\$16,589) than students attending other 2-year schools except other for-profits. Students also had more unmet need (\$13,564) than students at other 2-year institutions except other for-profits.

²¹ Average EFCs did not differ significantly from those at small publics and other not-for-profits, and need did not significantly differ from other not-for-profits.

Table 11. Average tuition, expected family contribution (EFC), total price of attendance and net price for for full-time, full-year students attending 2-year institutions: 2003–04

Institutional prices and need	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Tuition and fees	\$2,557	\$2,149	\$1,906	\$5,196	\$9,051	\$11,183	\$9,955
Price of attendance	11,267	10,451	10,412	15,061	18,079	20,418	19,550
Expected Family Contribution (EFC composite)	7,044	7,049	8,739	7,979	7,409	3,588	5,305
Need (total price of attendance minus EFC)	7,216	6,222	5,862	8,871	12,540	17,352	15,662
Net price 1 (total price of attendance minus all grants)	9,007	8,277	8,965	11,700	13,337	16,589	16,036
Net price 2 (total price of attendance minus all aid)	6,978	6,851	7,907	7,905	9,066	8,786	10,603
Unmet need 1 (total price of attendance minus EFC minus all grants)	5,101	4,219	4,516	5,541	8,199	13,564	12,225
Unmet need 2 (total price of attendance minus EFC minus total aid)	3,354	3,140	3,695	3,437	5,056	6,436	7,453

NOTE: All estimates of the average include zeros. Price of attendance is the student budget adjusted for attendance.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Survey (NPSAS:2004).

- When loans were taken into account (net price 2), there was no statistical difference between the net price faced by students at degree-granting for-profits and the net prices faced by students at other 2-year schools. However, students had higher levels of average unmet need (\$6,436) than students at public and allied health not-for-profit institutions. In other words, although students at degree-granting for-profit institutions generally faced net prices (after all aid) that did not differ from those faced by students at other 2-year schools, on average they had higher levels of unmet need.

Allied health not-for-profit institutions have a different pattern of net prices and unmet need. As mentioned previously, students attending these institutions had average tuition and prices of attendance that were lower than those faced by students at other private institutions but higher than the average amounts reported by students at public institutions. These differences are reflected in the net prices and unmet need:

- After taking only grant aid into account, students at these institutions faced an average net price after grants (net price 1) that was higher than those at medium and large public institutions but lower than those at for-profit institutions. Similarly, unmet need after taking into account total grant aid (unmet need 1) (\$5,541) was higher than that faced by students at medium and large public institutions but lower than that found at other non-public schools.
- No differences were detected in net prices when all aid was considered. In addition, students at allied health not-for-profits faced an average unmet need (\$3,437) that did not significantly differ from that reported by students at public institutions. However, it was significantly less than the average unmet need faced by students at for-profit institutions.

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Differential Patterns of Student Progression

Students' expectations regarding educational attainment, their persistence through college, and the actual degrees they achieve are markers along students' paths into and through college, and can vary across institutional types. In addition, transfer rates (that is, the number of students who switch institutions and use credit hours earned at the first school towards a credential at the second) also vary, and on first glance seem to correlate with the different institutional missions outlined in the introduction of this analysis. From an institutional perspective, examining degree completions by gender and race/ethnicity reveals the various types of institutions at which particular groups of students are succeeding.

Expectations and student transfer

Most students who enter a postsecondary program of study do so with the stated intention of earning a degree or certificate (table 12). Indeed, in 1996 students at all institutional categories for which there were data²² more often reported that they expected to attain a bachelor's degree (56 percent to 86 percent) than any other degree goal. Students who first enrolled at large public institutions were most likely to expect that they would earn a bachelor's degree or higher (86 percent). While a majority of students at other not-for-profits and degree-granting for-profit institutions reported that they intended to earn a bachelor's degree, students at these institutions were more likely than students at large publics to indicate that an associate's degree was the highest degree they ever expected (22 and 23 percent compared to 8 percent).

While enrolled in college, many students transfer between 2-year schools or to 4-year institutions. Between 1995–96 and 2001, between 40 and 48 percent of first-time beginning students at all public institutions as well as other not-for-profits transferred at least once. Students who first attended degree-granting for-profit institutions were less likely to transfer to another institution (21 percent) than medium and large publics and other not-for-profit institutions. For degree-granting for-profits, the majority of transfers were to 2-year or less-than-2-year institutions, while for large public institutions, the majority (64 percent) of those who transferred went to 4-year institutions.

²² For students who first started at allied health not-for-profits and other for-profit institutions, there were too few cases to meet reporting standards.

Table 12. Student transfer and persistence outcomes among students who started at 2-year institutions in 1995–96, 6 years later

Persistence outcomes	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
All institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Highest degree ever expected, 1996							
Bachelor's degree or higher	56.3	71.6	85.6	‡	71.9	61.3	‡
Associate's degree	17.4	13.7	8.2	‡	22.1	22.9	‡
Certificate	19.9	7.1	3.0	‡	3.8	13.6	‡
Less than 4-years, no degree or certificate	6.4	7.7	3.2	‡	2.3	2.2	‡
Cumulative persistence outcome, 2000–01							
Attained a degree (BA or AA), or certificate	45.0	37.5	33.8	‡	57.8	54.2	‡
Still enrolled	13.7	15.2	19.0	‡	8.6	4.3	‡
Never attained, not enrolled	41.3	47.3	47.2	‡	33.6	41.5	‡
Ever transferred, 2001							
Never transferred	56.4	60.1	58.1	‡	52.5	79.5	‡
One or more	43.6	39.9	41.9	‡	47.5	20.5	‡
Type of transfer (institutional level), 2001							
2-year to 4-year	59.3	52.6	63.8	‡	53.9	27.5	‡
2-year to 2-year or less	40.7	47.4	36.2	‡	46.2	72.5	‡

‡ Reporting standards not met.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students, 1995–96 (BPS:1996/98/01).

Degree and certificate completions

When examining cumulative persistence after six years (table 12), the proportion of students who attained any type of degree (bachelor's or associate's) or certificate ranged from 34 percent among students who began at large publics to 58 percent among students who started at other not-for-profits. As table 3 has already indicated, however, there are distinct differences among the seven types of 2-year institutions in terms of the degrees and awards offered; that is, allied health not-for-profit institutions and other for-profits tend to offer certificate programs while the remaining institutions primarily offer associate's degree programs.

Consistent with the trends observed in program offerings, the majority (58 percent) of awards completed at allied health not-for-profits were 2-year certificates, while almost all awards at other not-for-profits were less than 2-year certificates or associate's degrees (table 13). Conversely, at medium and large public institutions as well as degree-granting for-profits, associate's degrees comprised the majority of awards granted. However, although the bulk of small public schools offered associate's degree programs, 62 percent of the academic awards granted by these institutions were less than 2-year certificates.

Degree and certificate completions by gender and race/ethnicity

Since a majority of students attending all types of 2-year institutions were women, one would expect to find that women completed more than half of awards granted by 2-year institutions. This generally held true for less than 2-year certificates as well as for associate's degrees.²³ For example, at allied health not-for-profits, women completed 78 percent of less than 2-year certificates and 88 percent of associate's degrees. However, the proportion of men and women receiving 2-year certificates varied by institutional type. The majority of 2-year certificates were granted to men at small and medium-sized public institutions, as well as at degree-granting for-profit institutions (59, 60, and 63 percent). Conversely, more than half of 2-year certificates were granted to women at large publics, both types of not-for-profit institutions (89 and 53 percent), and other for-profit institutions (54 percent).

There were also differences by race/ethnicity. For example, 13 percent of associate's degree awards at large public institutions went to Hispanic students, compared to 3 percent at small publics (table 13). At allied health not-for-profit institutions, 28 percent of associate's degrees were awarded to Black, non-Hispanic students. At large publics, 20 percent of 2-year certificates went to Hispanic students, compared to less than 10 percent at all other institution categories.

Degree and certificate completions at low-income serving schools

Across the seven institutional types, some degrees or certificates were more likely to be awarded by low-income serving schools. For example, the majority of less than 2-year certificates granted by for-profit institutions (both degree-granting and other) was awarded at low-income serving institutions (78 percent and 68 percent). Similarly, within degree-granting for-profit institutions, 2-year certificates were most likely to be granted by those that served low-income students (96 percent). Among small public institutions, those that were low-income

²³ Fifty-one percent of associate's degrees at other not-for-profit institutions were awarded to men.

Table 13. Distribution of award completions at 2-year institutions by gender, race/ethnicity and status as a low-income serving institution: 2002–03

Award completions	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
All awards, 2002–03	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 2-year certificate	62.4	41.8	32.4	15.9	43.1	41.2	52.0
2-year certificates	5.5	1.6	0.9	58.3	8.5	0.4	48.0
Associate's degrees	32.1	56.5	66.7	25.8	48.4	58.4	†
Less than 2-year certificates							
Gender							
Men	47.5	46.6	45.9	21.6	44.2	34.7	40.7
Women	52.5	53.4	54.1	78.4	55.8	65.3	59.3
Race/ethnicity							
White non-Hispanic	66.4	68.9	56.9	56.9	62.0	51.2	51.1
Black non-Hispanic	23.3	20.1	12.1	11.5	3.4	21.1	19.7
Hispanic	5.7	5.2	14.4	2.8	2.5	16.3	12.5
American Indian/Alaska Native	1.9	1.0	1.2	0.4	1.9	1.2	0.9
Asian or Pacific Islander	1.3	2.1	7.4	2.0	4.2	4.0	5.4
Race/ethnicity unknown	1.4	2.5	6.1	24.5	20.1	5.7	10.2
Non-resident alien	0.1	0.3	1.9	1.9	5.9	0.4	0.2
Low income serving institution ¹							
No	58.4	70.2	85.4	88.3	87.2	22.4	32.3
Yes	41.6	29.8	14.6	11.7	12.8	77.6	67.7
2-year certificates							
Gender							
Men	58.6	59.9	44.2	11.0	46.7	63.4	46.1
Women	41.4	40.1	55.8	89.0	53.3	36.6	53.9
Race/ethnicity							
White non-Hispanic	77.0	69.1	52.1	79.2	62.6	65.7	64.8
Black non-Hispanic	12.2	18.7	9.6	11.9	10.6	21.5	9.2
Hispanic	5.5	3.8	20.1	2.8	3.6	8.1	8.6
American Indian/Alaska Native	2.9	0.5	0.9	0.1	1.5	1.0	1.0
Asian or Pacific Islander	1.4	2.3	10.8	1.8	14.8	2.9	3.4
Race/ethnicity unknown	1.1	5.4	4.0	3.2	2.7	0.3	12.4
Non-resident alien	#	0.1	2.5	0.9	4.2	0.5	0.6
Low income serving institution ¹							
No	39.8	81.5	98.1	78.6	66.9	4.2	44.7
Yes	60.2	18.5	1.9	21.4	33.1	95.8	55.3

See notes at end of table.

Table 13. Distribution of award completions at 2-year institutions by gender, race/ethnicity and status as a low-income serving institution: 2002–03—Continued

Award completions	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Associate's degrees							
Gender							
Men	39.9	36.8	37.8	12.1	51.3	49.8	†
Women	60.1	63.2	62.2	87.9	48.7	50.2	†
Race/ethnicity							
White non-Hispanic	75.7	78.3	61.9	64.1	47.1	59.2	†
Black non-Hispanic	13.5	9.0	10.7	27.8	9.3	15.8	†
Hispanic	2.7	5.0	12.5	3.8	9.6	13.1	†
American Indian/Alaska Native	4.0	1.3	0.9	0.4	2.4	0.7	†
Asian or Pacific Islander	1.5	2.5	6.8	3.0	15.6	4.0	†
Race/ethnicity unknown	1.9	2.7	4.0	0.7	13.8	6.1	†
Non-resident alien	0.6	1.1	3.2	0.2	2.2	1.0	†
Low income serving institution¹							
No	48.8	70.5	86.2	86.1	41.6	31.7	†
Yes	51.2	29.5	13.8	13.9	58.4	68.3	†

Rounds to zero.

† Not applicable.

¹ Low-income serving institutions are those at which 50 percent or more of first-time, full-time degree or certificate-seeking students received federal grant aid in 2003–04.

NOTE: Detail may not sum to totals because of rounding. By definition, other for-profit institutions do not award associate's degrees. Calculations performed on the aggregate 2-year classification level. Certificate and degree completions for institutions that did not report grant aid receipt data were excluded when calculating rates for low-income serving institutions so that columns sum to 100 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

serving granted 60 percent of 2-year certificates although table 2 indicated that only 36 percent of students enrolled at small publics attended low-income serving schools. Finally, the majority of associate's degrees granted by small publics, other not-for-profits and degree-granting for-profits were also granted by institutions that served low-income students (51, 58, and 68 percent respectively).

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Conclusion

This report examined the ways in which 2-year institutions differ based on a recently developed 2-year classification system. The report has illustrated variations among 2-year schools in terms of institutional and student characteristics, institutional resources, costs and financial aid, completions, and persistence. Many of these differences reflect sector differences, such as a higher proportion of revenues from state funding and sometimes local funding among public institutions, or higher average tuition, rates of financial aid receipt and average need amounts among students at private schools. Other differences reflect varying institutional missions, such as the availability of certain on-campus services or student transfer rates. Despite these trends, however, the report also illustrates that the classification system distinguishes between postsecondary institutions within the same sector. These differing characteristics of 2-year schools may impact the decisions that students make regarding their postsecondary education.

Among public institutions, small and large institutions differed in key areas. Large public schools tended to offer lower tuition and more services and to be located in urban areas. Students attending these schools tended to be more racially diverse and to be enrolled part-time. In addition, more students at large schools reported that they planned to earn a bachelor's degree and more were still enrolled after 6 years. On the other hand, small public institutions tended to charge slightly higher tuition, to be rural, and to be located in the Southeast. Their students were more likely to be low-income, to attend full-time, and to attain a degree or certificate within 6 years.

For-profit schools appear quite similar to one another with the exception of the types of credentials offered and completed, which reflect the classification itself. In most other aspects—such as tuition, location, student characteristics, and student financial aid—these institutions exhibited few differences.

Other not-for-profits appeared to be similar to for-profits, but slightly more traditional than for-profit schools. A high proportion offered remedial services compared to other private schools (both for-profit and allied health not-for-profit schools), and they focused on associate's degrees rather than certificates. In addition, more students at these schools lived on-campus, pursued associate's degrees, and received both institutional and state aid compared to students at for-profit institutions.

Allied health not-for-profit institutions differed from other not-for-profit institutions—and the other institutions in the classification system—in terms of the programs offered, funding streams, student characteristics, student costs and the types of awards granted. These schools, which include many nursing colleges, appeared to be between public institutions and other private schools in terms of affordability and financial aid. Unlike other students in the private sectors, the students at allied health schools tended to have higher incomes and the ability to cover more of their tuition costs. Moreover, students at allied health institutions were unique in that they were more likely to be older, independent with dependents, and female than their counterparts at other 2-year schools.

This analysis confirms what other studies have shown. Both public 2-year institutions and for-profit institutions enroll relatively high proportions of dependent and independent students from low-income families and who fell within the Pell eligible threshold. The proportion of students from low-income families is larger at private institutions—particularly degree-granting for-profits—compared to students at public institutions, and students at private for-profit institutions are more likely to receive Pell Grants. However, public 2-year institutions, which are less expensive than private institutions, enroll a substantially greater number of students from low-income families.

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Appendix A—Glossary of Variables and Terms

This appendix describes the IPEDS:2003, NPSAS:2004 and BPS:96/98/01 data used in this report. The items were taken directly from the National Center for Education Statistics’ Data Analysis System (DAS). The DAS is a web-based NCES analysis tool that generates tables from the data available in IPEDS:2003, NPSAS:2004 and BPS:96/98/01. (See appendix B for a description of the DAS.) In the index below, the variables are organized by each data source and then listed in the order in which they are discussed in the text. The glossary presents variables and terms in alphabetical order by variable name (displayed in capital letters to the right of the label below). In the IPEDS DAS, some variables are “qualified” by another; that is, they must be filtered by another variable before meaningful data can be extracted. For example, the total number of degree completions must be qualified by the type of degree completed (note that “all degrees” may be selected).

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DAS Variable

Age as of 12/31/03 (NPSAS:2004)

AGE

Students age as of 12/31/03. Continuous variable lumped into the following categories:

- Less than 20
- 20 to 29 years old
- 30 to 39 years old
- 40 to 49 years old
- Over 50 years old

Applied any aid (NPSAS:2004)

AIDAPP

Student applied for any aid, 2003–04

- Yes
- No

Academic rank (IPEDS:2003)

ARANK

The number of full-time faculty by rank, qualified by gender. Rank is usually assigned by institution. This variable is also used as a qualifier for EMPCNTT (see variable definition).

- All full-time faculty total
- Professor
- Associate professor
- Assistance professor
- Instructor
- Lecturer
- No academic rank

Attendance intensity (all schools) (NPSAS:2004)

ATTNPTRN

Student's attendance intensity at all institutions attended in 2003–2004 academic year. For all months enrolled from July 2003 through June 2004, indicates whether the student was always enrolled full-time, part-time, or mixed full-time and part-time when enrolled.

- Exclusively full-time
- Exclusively part-time
- Mixed full-time and part-time

Attendance pattern (NPSAS:2004)

ATTNSTAT

Student's attendance pattern at all institutions attended during the 2003–2004 academic year. Students are considered to have enrolled for a full year if they were enrolled 9 or more months during the NPSAS year. Months did not have to be contiguous or at the same institution, and students did not have to be enrolled for a full month in order to be considered enrolled for that month. The first two categories of this variables were used as a filter for all tuition and financial aid variables in NPSAS:2004.

- Full-time/full year, 1 institution
- Full-time/full year, more than 1 institution
- Full-time/part year
- Part-time/full year, 1 institution
- Part-time/full year, more than 1 institution
- Part-time/part year

DAS Variable

Average salary of full-time instructional faculty (IPEDS:2003)

AVESALT

Average salary of full-time instructional faculty for men and women combined. Refers to instruction/research staff employed full time (as defined by the institution) whose major regular assignment is instruction, including those with released time for research. This group includes faculty designated as “primarily instruction” and “instruction, combined with research and public service.” Qualified by ARANK and CONTRACT (see variable definitions).

Award level (IPEDS:2003)

AWLEVEL

Levels at which degrees/awards were completed. This is a qualifier for all CRACE variables (see variable definitions).

- Award of less than 1 academic year
- Award of at least 1 but less than 2 academic years
- Award of at least 2 but less than 4 academic years
- Associate’s degree
- Award or diploma; more than 2-year but less than 4-year
- Bachelor’s degree
- Post-baccalaureate certificate
- Master’s degree
- Post-master’s certificate
- Doctoral degree
- First-professional degree

The first two categories were combined into one—award of less than 2 academic years. The analysis also used the categories of award of at least two but less than 4 academic years (renamed 2-year certificates), and associate’s degree.

Student budget (attendance adjusted) (NPSAS:2004)

BUDGETAJ

Price of attendance or total student budget (attendance adjusted) at NPSAS institution during 2003–2004 academic year. For students who attended one institution only. Equal to the sum of tuition and fees plus total non-tuition expenses.

Classification of instructional program (IPEDS:2003)

CIPCODE

Classification of instructional Program (CIP) code. A six-digit code in the form xx.xxxx that identifies instructional program specialties within educational institutions.

Contract length (IPEDS:2003)

CONTRACT

The contracted teaching period of faculty 9/10 month (employed for 2 semesters, 3 quarters, 2 trimesters, 2 4-month sessions, or the equivalent) or 11/12 month (the entire year). This is a qualifier for EMPCNTT and AVESALT (see variable definitions).

Equated 9-month contract. Equated 9-month contracts adjusts for faculty members who are on 11-or 12-month appointments to approximate a nine-month period

Degree completions, grand total men (IPEDS:2003)

CRACE15

Total number of degrees completed by men in 2003, qualified by award level (AWLEVEL).

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Non-degree granting, primarily postsecondary	
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DAS Variable

Dependency status (NPSAS:2004)

DEPEND2

Student's dependency status for federal financial aid need analysis purposes during 2003–2004 academic year.

- Dependent
- Independent without dependents
- Independent with dependents

Income of dependent students' parents (NPSAS:2004)

DEPINC

Dependent students' parents total income for 2002. Continuous variables lumped into the following categories:

- Less than \$25,000
- \$25,000 to \$49,999
- \$50,000 to \$79,999
- More than \$80,000

Primary function (IPEDS:2003)

EAPRECTP

Primary function of employees. This is a qualifier for EAPTOT (see variable definition).

- Full time public service/instruction/research
- Executive/administrative and managerial
- Other professional (support services)
- Technical/para-professional
- Clerical and secretarial
- Skilled crafts
- Service/maintenance

Total employees (IPEDS:2003)

EAPTOT

Total number of employees on the institution's payroll as of November 1 of the reporting year. Qualified by EAPRECTP (see variable definition).

Expected Family Contribution (EFC composite) (NPSAS:2004)

EFC

Composite estimate of the federal Expected Family Contribution used in need analysis.

Number of full-time instructional faculty, total (IPEDS:2003)

EMPCNTT

Number of full-time instructional faculty for men and women combined. Instruction/research staff employed full time (as defined by the institution) whose major regular assignment is instruction, including those with released time for research. For the Faculty Salaries survey, this group includes faculty designated as "primarily instruction" and "instruction, combined with research and public service." Qualified by ARANK and CONTRACT (see separate definitions).

DAS Variable

12-month unduplicated headcount: 2002–03 (IPEDS:2003)

ENRUNDUP

Indicates how many individuals the institution served over a 12-month period (the unduplicated headcount). Unduplicated count is the sum of students enrolled for credit with each student counted only once during the reporting period, regardless of when the student enrolled. Credit is an instructional activity (course or program) that can be applied by a recipient toward the requirements for a degree, diploma, certificate, or other formal award.

Number of transfers as of 2001 (BPS:96/98/01)

ENTRN2B

Number of transfers between institutions as of June 2001. A transfer occurs when the respondent leaves one institution (the origin) and enrolls at another institution (the destination) for 4 or more months. The date of transferring is defined as the first month the respondents were enrolled at destination institution after they left the origin institution. Lumped into the following categories:

- Never transferred
- One or more

Highest degree ever expected, 1996 (BPS:96/98/01)

EPHDEGY1

Highest degree a student ever expects to earn, asked in 1996.

- Bachelor's degree or higher
- Associate's degree
- Certificate
- Less than 4-years, no degree or certificate

Applied for federal aid (NPSAS:2004)

FEDAPP

Indicates whether the student applied for federal financial aid for the 2003–2004 academic year.

Percentage receiving federal grant aid (IPEDS:2003)

FGRNT_P

Percentage of first-time, full-time, degree/certificate-seeking undergraduates receiving federal grants at the NPSAS institution, during the entire academic year (for institutions reporting on a fall cohort) or during the entire 12-month period (for institutions reporting on a full year cohort). Federal grants include those provided by federal agencies such as the U.S. Department of Education, such Title IV Pell Grants and Supplemental Educational Opportunity Grants (SEOGs). Also includes need-based and merit-based educational assistance funds and training vouchers provided from other federal agencies and/or federally sponsored educational benefits programs, including the Veteran's Administration, Department of Labor, and other federal agencies.

Percentage of students receiving federal grant aid at NPSAS institution (NPSAS:2004)

FGRNT_P

Percentage of first-time, full-time, degree/certificate-seeking undergraduates receiving federal grants at the NPSAS institution, during the entire academic year (for institutions reporting on a fall cohort) or during the entire 12-month period (for institutions reporting on a full year cohort). Federal grants include those provided by federal agencies such as the U.S. Department of Education, such Title IV Pell Grants and Supplemental Educational Opportunity Grants (SEOGs). Also includes need-based and merit-based educational assistance funds and training vouchers provided from other federal agencies and/or federally sponsored educational benefits programs, including the Veteran's Administration, Department of Labor, and other federal agencies.

DAS Variable

Gender (NPSAS:2004)

GENDER

Student's gender.
Male
Female

Income of independent students and spouses (NPSAS:2004)

INDEPINC

Independent student's total income for 2002, including income of the spouse. See DEPINC for a note on income. Continuous variable, lumped into the following categories:

Less than \$15,000
\$15,000 to \$29,999
\$30,000 to \$49,999
More than \$50,000

Institutional aid total (NPSAS:2004)

INSTAMT

Total amount of institutional aid received during 2003–2004 academic year. Equal to the sum of institutional grants and fellowships, institutional loans, institution-sponsored work-study, and graduate student assistantships.

First institution - state location (BPS:96/98/01)

INSTATE

State in which the first institution attended by the student was located. Used as a filter variable for BPS estimates (limited to Washington, DC and the 50 states).

Transfer institutions by level, 2001 (BPS:96/98/01)

ITTRLV2B

Level of the first (origin) and the second (destination) institutions attended as of 2001. The following categories were used:

2-year to 4-year
2-year to 2-year or less

Work intensity while enrolled (exclude work-study/assistantship) (NPSAS:2004)

JOBENR

Intensity of work (excluding work-study/assistantship/traineeship) while enrolled during 2003–2004 academic year. Full-time is defined as 35 or more hours per week, and part-time is any amount less than 35 hours.

Less than 1-year certificate (IPEDS:2003)

LEVEL1

Whether the institution offers an organized program of study at the postsecondary level that is completed in less than 1 full-time equivalent academic year (less than 30 credit hours or 900 contact hours).

Yes
No

DAS Variable

One but less than 2-year certificate (IPEDS:2003)

LEVEL2

Whether the institution offers an organized program of study at the postsecondary level that is completed in at least 1 but less than 2 full-time equivalent academic years (at least 30 but less than 60 credit hours or at least 900 but less than 1,800 contact hours).

- Yes
- No

Associate’s degree (IPEDS:2003)

LEVEL3

Whether the institution offers associate’s degree awards, an award that normally requires at least 2 but less than 4 years of full-time equivalent college work (60 credit hours or 1,800 contact hours).

- Yes
- No

Two but less than 4-year certificate (IPEDS:2003)

LEVEL4

Whether the institution offers an organized program of study at the postsecondary level that is completed in at least 2 but less than 4 full-time equivalent academic years (at least 60 but less than 120 credit hours or at least 1,800 but less than 3,600 contact hours).

- Yes
- No

Degree of urbanicity, 2002–03 (IPEDS:2003)

LOCALE

A code to indicate the degree of urbanization of the institution’s locale. Large City: A central city of a CMSA or MSA with the city having a population greater than or equal to 250,000. Mid-size City: A central city of a CMSA or MSA, with the city having a population less than 250,000. Urban Fringe of Large City: Any incorporated place, CDP, or non-place territory within a CMSA or MSA of a Large City and defined as urban by the Census Bureau. Urban Fringe of Mid-size City: Any incorporated place, CDP, or non-place territory within a CMSA or MSA of a Large City of a Mid-size City and defined as urban by the Census Bureau. Large Town: An incorporated place or CDP with a population greater than or equal to 25,000 and located outside a CMSA or MSA. Small Town: An incorporated place or CDP with a population less than 25,000 and greater than or equal to 2,500 and located outside a CMSA or MSA. Rural: Any incorporated place, CDP, or non-place territory designated as rural by the Census Bureau. Lumped into the following categories:

- Urban
- Suburban
- Small Town
- Rural

Housing (NPSAS:2004)

LOCALRES

Student’s housing status at the NPSAS sample institution during 2003–2004 academic year.

- On campus
- Off campus
- Living with parents

DAS Variable

Student budget minus all aid (NPSAS:2004)

NETCST1

Net total price of attendance after all financial aid. Equal to the total student budget minus total aid. It represents the estimated “out-of-pocket” expense to students remaining after all financial aid is received in academic year 2003–2004. Students who attended more than one institution were excluded.

Student budget minus all federal grants (NPSAS:2004)

NETCST2

Net total price after all federal grants for 2003–2004 academic year. Equal to total student budget minus federal grants. Students who attended more than one institution were skipped.

Student budget minus all grants (NPSAS:2004)

NETCST3

Net total price after all grants for the 2003–2004 academic year. Equal to total student budget minus total grants.

Region, 2002–03 (IPEDS:2003)

OBEREG

Geographic region

- New England (CT, ME, MA, NH, RI, VT)
- Mid East (DE, DC, MD, NJ, NY, PA)
- Great Lakes (IL, IN, MI, OH, WI)
- Plains (IA, KS, MN, MO, NE, ND, SD)
- South (AL, AR, FL, GA, KY, LA, MS, NC)
- Southwest (AZ, NM, OK, TX)
- Rocky Mountains (CO, ID, MT, UT, WY)
- Far West (AK, CA, HI, NV, OR, WA)

Federal Pell grant (NPSAS:2004)

PELLAMT

Total amount of federal Pell grants received at all institutions attended during 2003–2004 academic year. Pell grants are need-based grants awarded to undergraduates who have not yet received a bachelor’s degree and students in teaching certificate programs. The amount of a Pell grant depends on the EFC, price of attendance, and attendance status (full-time or part-time, full-year or part-year). In 2003–2004 academic year the maximum Pell grant amount was \$4,050.

Current year GRS cohort as a percent of entering class (IPEDS:2003)

PGRCOVRT

The GRS cohort as a percent of the total entering class. The GRS cohort represents students who are full-time first-time degree/certificate-seeking undergraduates and enrolled for credit. A full-time student is enrolled for 12 or more semester credits, or 12 or more quarter credits, or 24 or more contact hours a week each term. A first-time student is one attending any institution for the first time at the undergraduate level and includes students enrolled in academic or occupational programs and includes students enrolled in the fall term who attended college for the first time in the prior summer term. Credit is instructional activity (course or program) that can be applied by a recipient toward the requirements for a degree, diploma, certificate, or other formal award.

DAS Variable

Private (alternative) loans (NPSAS:2004)

PRIVLOAN

Indicates the amount of alternative commercial or private loans received by students in 2003–2004 academic year. Examples of such loans are personal loans secured through financial institutions or lenders like TERI or Sallie Mae. Does not include loans from family or friends.

Cumulative persistence outcome, 2000-01 (BPS:96/98/01)

PROUTYX6

Cumulative outcome of enrollment at the end of academic year 2000–01. An academic year is defined as months from July of first year through June of next year, inclusive. Bachelor’s degree overwrites associate’s degree and certificate, and associate’s degree overwrites certificate. e.g., if a respondent attained a certificate during 1995–96, and attained a bachelor’s degree in 1998–99, the cumulative persistence at the end of 2001 will be a bachelor’s degree. If the respondents had any enrollment during Feb through June of 2001, they were “still enrolled.” Lumped into the following categories:

- Attained bachelor’s degree, associate’s degree, or certificate
- Still enrolled
- Never attained, not enrolled

Race/ethnicity (with multiple) (NPSAS:2004)

RACE

Student’s race-ethnicity with Hispanic or Latino origin as a separate category. Students reporting multiple races/ethnicities were excluded.

- White
- Black
- Hispanic or Latino
- Asian/Pacific Islander
- American Indian/Alaskan Native

Primary function, occupational activity, degree granting institutions (IPEDS:2003)

SABDTYPE

Description of staff by primary function and occupation, full- or part-time at degree granting institutions. Primary occupational activity reflects the principal activity of a staff member as determined by the institution. If an individual participates in two or more activities, the primary activity is normally determined by the amount of time spent in each activity.

- Full time, faculty (instruction/research/public service) total

Primary function, occupational activity, non-degree granting institutions (IPEDS:2003)

SCNLEVEL

Type of full- or part-time staff by primary occupation at non-degree granting institutions. Primary occupational activity reflects the principal activity of a staff member as determined by the institution. If an individual participates in two or more activities, the primary activity is normally determined by the amount of time spent in each activity.

- Full time, faculty (instruction/research/public service)

DAS Variable

Accelerated programs (IPEDS:2003)

SLO1

Institution offers the option to complete a college program of study in fewer than the usual number of years, most often by attending summer sessions and carrying extra courses during the regular academic term.

Yes

No

Cooperative (work-study) program (IPEDS:2003)

SLO2

Institution offers a program that provides for alternate class attendance and employment in business, industry, or government.

Yes

No

Distance learning opportunities (IPEDS:2003)

SLO3

Institution offers an option for earning course credit at off-campus locations via cable television, internet, satellite classes, videotapes, correspondence courses, or other means.

Yes

No

Student budget minus EFC (NPSAS:2004)

SNEED1

The student's total need for need-based financial aid. Equal to total student budget minus the federal expected family contribution.

Student budget minus EFC minus all aid (NPSAS:2004)

SNEED2

The remaining need after all financial aid (need-based and non-need-based) received. Equal to the total student budget minus expected family contribution and total aid.

Student budget minus EFC minus all grants (NPSAS:2004)

SNEED5

The remaining need after all grant aid. Equal to the total student budget minus expected family contribution, and minus total grants.

Total men (IPEDS:2003)

STAFF15

Total number of staff who are men. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree-granting institutions (see separate definitions).

Total women (IPEDS:2003)

STAFF16

Total number of staff who are women. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree-granting institutions (see separate definition).

DAS Variable

Total Nonresident, alien (IPEDS:2003) **STAFF17**

Total number of staff who are nonresident, alien. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree granting institutions (see separate definitions).

Total Black, non-Hispanic (IPEDS:2003) **STAFF18**

Total number of staff who are Black, non-Hispanic. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree granting institutions (see separate definitions).

Total American Indian/Alaska native (IPEDS:2003) **STAFF19**

Total number of staff who are American Indian/Alaska native. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree granting institutions (see separate definitions).

Total Asian/Pacific Islander (IPEDS:2003) **STAFF20**

Total number of staff who are Asian/Pacific Islander. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree granting institutions (see separate definitions).

Total Hispanic (IPEDS:2003) **STAFF21**

Total number of staff who are Hispanic. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree granting institutions (see separate definitions).

Total White, non-Hispanic (IPEDS:2003) **STAFF22**

Total number of staff who are White, non-Hispanic. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree granting institutions (see separate definitions).

Total Race/ethnicity unknown (IPEDS:2003) **STAFF23**

Total number of staff whose race/ethnicity is unknown. Qualified by SABDTYPE for degree granting institutions and SCNLEVEL for non-degree granting institutions (see separate definitions).

Grand total (IPEDS:2003) **STAFF24**

Total number of staff. Qualified by SABDTYPE for degree-granting institutions and SCNLEVEL for non-degree granting institutions (see separate definitions).

Stafford total subsidized and unsubsidized (NPSAS:2004) **STAFFAMT**

Total amount of federal Stafford loans (subsidized, unsubsidized, Direct, and FFELP) received at all institutions attended during 2003–2004 academic year; including loans borrowed to attend schools other than the NPSAS sample school. Annual loan limits for Stafford loans vary by class level and dependency status.

DAS Variable

Stafford loan types received (NPSAS:2004)

STAFTYPE

This variable indicates the combination of subsidized and unsubsidized Stafford loans received at all institutions attended during 2003–2004 academic year.

- No Stafford loans
- Subsidized only
- Both subsidized and unsubsidized
- Unsubsidized only

State aid total (NPSAS:2004)

STATEAMT

Total amount of state aid received during 2003–2004 academic year. Equal to the sum of state grants, state loans, state-sponsored work-study, and vocational rehabilitation and job training grants, including federal Workforce Investment Act funds.

Remedial services (IPEDS:2003)

STUSRV1

Institution offers instructional activities designed for students deficient in the general competencies necessary for a regular postsecondary curriculum and educational setting.

- Yes
- No

Academic/career counseling service (IPEDS:2003)

STUSRV2

Institution offers activities designed to assist students in making plans and decisions related to their education, career, or personal development.

- Yes
- No

Employment service for students (IPEDS:2003)

STUSRV3

Institution offers activities intended to assist students in obtaining part-time employment as a means of defraying part of the cost of their education.

- Yes
- No

Placement service for completers (IPEDS:2003)

STUSRV4

Institution offers assistance for students in evaluating their career alternatives as well as in obtaining full-time employment upon leaving the institution.

- Yes
- No

DAS Variable

On-campus child care for students' children (IPEDS:2003) **STUSRV8**

Institution offers a student service designed to provide appropriate care and protection of infants, preschool, and school-age children so their parents can participate in postsecondary education programs.

Yes

No

In-district average tuition for full-time undergraduate students (IPEDS:2003) **TUITION1**

The tuition charged by the institution for the full academic year 2003–04 to those undergraduate students residing in the locality in which they attend school. This may be a lower rate than in-state tuition if offered by the institution.

Estimated for public institutions only. Values were grouped into the following categories:

Less than \$1,000

\$1,000–\$1,999

\$2,000–\$3,499

More than \$3,5000

In-state average tuition for full-time undergraduate students (IPEDS:2003) **TUITION2**

The tuition charged by the institution for the full academic year 2003–04 to those students who meet the state's or institution's residency requirements. Estimated for both public and private institutions. Values were grouped into the following categories:

Public institutions

Less than \$1,000

\$1,000–\$1,999

\$2,000–\$3,499

More than \$3,5000

Private institutions

Less than \$2,000

\$2,000–\$4,999

\$5,000–\$9,999

More than \$10,000

Tuition and fees (NPSAS:2004) **TUITION2**

Average tuition and fees at the sampled NPSAS institution for students who attended only one institution during 2003–2004 academic year.

2-year institution classification (IPEDS:2003) **TWOYRCAT**

See the definitions outlined in appendix B.

Small public 2-year institutions

Medium-sized public 2-year institutions

Large public 2-year institutions

Allied health not-for-profit 2-year institutions

Other not-for-profit 2-year institutions

Degree granting for-profit 2-year institutions

Other for-profit 2-year institutions

DAS Variable

2-year college classification (NPSAS:2004)

TWOYRCAT

Merged in from IPEDS 2003. See definitions outlined in appendix B.

- Small public 2-year institutions
- Medium-sized public 2-year institutions
- Large public 2-year institutions
- Allied health not-for-profit 2-year institutions
- Other not-for-profit 2-year institutions
- Degree granting for-profit 2-year institutions
- Other for-profit 2-year institutions

2-year college classification (BPS:96/98/01)

TWOYRCAT

Merged in from IPEDS 2003. See definitions outlined in appendix B.

- Small public 2-year institutions
- Medium-sized public 2-year institutions
- Large public 2-year institutions
- Allied health not-for-profit 2-year institutions
- Other not-for-profit 2-year institutions
- Degree granting for-profit 2-year institutions
- Other for-profit 2-year institutions

Undergraduate degree program (NPSAS:2004)

UGDEG

Undergraduate student's degree program during the 2003–2004 academic year.

- Certificate
- Associate's degree
- Bachelor's degree
- No undergraduate degree

Associate degree type (NPSAS:2004)

UGDEGAA

Student's associate's degree type during 2003–2004 academic year. For student who is working on an associate's degree (UGDEG=2).

- Not working on an associate's degree
- AA, AS, general education or transfer
- AAS, occupational or technical program

Appendix B—Technical Notes and Methodology

This report used data from three data sources. Institutional characteristics were obtained from the Integrated Postsecondary Education Data System 2003 collection year (IPEDS:2003), newly available online through the Data Analysis System (DAS). IPEDS collects data from all primary providers of postsecondary education and can be used to describe trends in postsecondary education at the institution, state, and national levels.¹ This report used variables from the Completions, Employee by Assigned Position, Enrollment, Faculty Salary, Fall Staff, Institutional Characteristics, and Student Financial Aid components.

In addition, data from the National Postsecondary Student Aid Study undergraduate sample for 2003–2004 (NPSAS:2004), and the Beginning Postsecondary Students (BPS:1996/2001) study were used to explore student characteristics and outcomes. For both datasets, the 2-year classification variable was created in IPEDS and merged into the respective online DAS by matching the institutional identification numbers.

Integrated Postsecondary Education Data System

The Integrated Postsecondary Education Data System (IPEDS) is a comprehensive census of about 10,000 institutions whose primary purpose is to provide postsecondary education. Postsecondary education is defined within IPEDS as the provision of formal instructional programs whose curriculum is designed primarily for students who have completed the requirements for a high school diploma or its equivalent. This includes academic, vocational, and continuing professional education programs but excludes institutions that offer only avocational (leisure) and adult basic education programs. IPEDS collects data from postsecondary institutions in the United States (50 states and the District of Columbia) and other jurisdictions, such as Puerto Rico.

Participation in IPEDS is a requirement for the institutions that participate in Title IV federal student financial aid programs such as Pell Grants or Stafford Loans during the academic year. Title IV institutions include traditional colleges and universities, 2-year institutions, and for-profit degree- and non-degree-granting institutions (such as schools of cosmetology), among others. About 6,700 institutions are designated as Title IV participants for these institutions.

¹ <http://nces.ed.gov/ipeds/AboutIPEDS.asp>.

For this report, data was drawn from several components of the survey, including the following:

- *Institutional Characteristics (IC)*: includes institutional control or affiliation; levels of degrees and awards offered; and types of programs.
- *Enrollment (EF)*: includes information about full- and part-time enrollment by racial/ethnic category and gender for undergraduates, first-professional, and graduate students.
- *Fall Staff*: collects the numbers of full- and part-time institutional staff, number of full-time and part-time faculty by race/ethnicity and gender, contract length, salary class intervals, number of other persons employed full time and part time by race/ethnicity and gender, primary occupational activity, salary class intervals, counts of full-time faculty by academic rank, and new hires by primary occupational activity, both by race/ethnicity and gender.
- *Completions*: includes counts of recognized degree completions in postsecondary education programs by level (associate's, bachelor's, master's, doctor's, and first-professional) and on other formal awards by length of program, by race/ethnicity and gender of recipient, and by field of study, which is identified by 6-digit Classification of Instructional Programs (CIP) codes.
- *Salaries*: includes the number of full-time instructional faculty by rank, gender, and length of contract; total salary outlay; and fringe benefits information, and number of full-time instructional faculty covered by these benefits.
- *Employees by Assigned Position*: includes employee headcount by full- and part-time status, and by faculty and tenure status (if applicable).

IPEDS also provides data on financial aid, finance, and graduation rates. Detailed information about IPEDS is available at the National Center for Education Statistics Web site (<http://nces.ed.gov/ipeds/>), including variable descriptions, data collection screens, and descriptions of the web-based data collection system.

For this report, the universe of institutions was drawn from the 2002–03 Institutional Characteristics component, part of the 2003 collection cycle. The variable response rates provided in table B1 for those variables were calculated as those cases in which data were reported.

The Enrollment data, Graduation Rates data, and Student Financial Aid data are all subject to imputation for nonresponse—both total (institutional) nonresponse and partial (item) nonresponse. For specific imputation methods please see Knapp et al. (2005a, 2005b, 2006).

Table B1. Response rates for IPEDS collections, survey components, and selected variables for institutions in the study universe, by 2-year classification: 2003–04

Institutional characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Survey response rates							
Completions	99.5	100.0	100.0	100.0	100.0	99.8	99.5
Employees by assigned position	99.5	100.0	100.0	100.0	100.0	100.0	99.5
Enrollment	100.0	100.0	100.0	100.0	99.1	100.0	99.0
Faculty salary ¹	98.3	99.5	99.4	95.7	95.5	90.6	†
Fall staff	95.0	100.0	100.0	53.3	80.4	78.1	27.4
Finance	99.1	99.6	100.0	99.1	99.1	99.5	98.6
Institutional characteristics	100.0	100.0	100.0	100.0	100.0	100.0	99.5
Student financial aid	98.6	99.8	100.0	86.0	99.1	99.5	96.6
Variable response rates							
12-month unduplicated headcount (undergraduate), 2002–03	100.0	100.0	100.0	100.0	99.1	99.8	98.6
First-time, full-time degree/certificate seeking students as a percent of entering class	99.1	100.0	100.0	86.9	99.1	98.8	98.1
Percentage receiving federal grant aid	97.3	99.8	99.7	78.5	99.1	98.8	94.7
Total employees	96.8	99.8	100.0	100.0	100.0	99.3	98.6
Staff grand total	92.7	100.0	100.0	53.3	80.4	77.2	26.9
Number of full-time instructional faculty ¹	95.0	99.3	99.7	95.7	94.3	86.8	†
Average salary of full-time instructional faculty ¹	95.0	99.3	99.7	95.7	94.3	86.8	†
Average in-state tuition for full-time undergraduate students	86.3	99.1	98.5	86.9	87.9	74.0	13.5
Degree completions, grand total	93.6	97.2	93.3	99.1	96.3	97.8	99.5
Public institutions							
Total all revenues and other additions	52.5	85.0	81.9	†	†	†	†
Total expenses and deductions	52.5	85.0	81.9	†	†	†	†
Private, not-for-profit institutions							
Total revenues and investment returns	†	†	†	91.6	89.7	†	†
Total expenses	†	†	†	91.6	89.7	†	†
Private for-profit institutions							
Total revenues and investment return	†	†	†	†	†	87.5	89.9
Total expenses	†	†	†	†	†	87.5	89.9

† Not applicable.

¹ This survey component or variable is collected for degree-granting institutions only. Therefore, the response rate reflects only degree-granting institutions in any given classification category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

Data Perturbation and Confidentiality

Four laws cover protection of the confidentiality of individually identifiable information collected by NCES—the Privacy Act of 1974, as amended; the E-Government Act of 2002; the Education Sciences Reform Act of 2002; and the USA Patriot Act of 2001. Therefore,

Under law, public use data collected and distributed by the National Center for Education Statistics (NCES) may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law. Any effort to determine the identity of any reported case by public-use data users is prohibited by law. Violations are subject to Class E felony charges of a fine up to \$250,000 and/or a prison term up to 5 years.

In order to preserve individuals' confidentiality, data in the Graduation Rates, Salaries, Fall Staff, and Student Financial Aid (SFA) data files were subject to perturbation. All data in this report are based on the perturbed data and the data included in the Data Analysis System (DAS) as well as the Peer Analysis Tool (PAS) are perturbed (see Knapp et al. 2005a, 2005b, 2006).

National Postsecondary Student Aid Study

The National Postsecondary Student Aid Study (NPSAS) was first implemented by NCES during the 1986–87 academic year to meet the need for national-level data about significant financial aid issues. Since 1987, NPSAS has been conducted every 3 to 4 years, with the most recent implementation during the 2003–04 academic year. NPSAS:04 was conducted as the student component of the National Study of Faculty and Students (NSoFaS).

NPSAS surveys aided and unaided students at all levels of postsecondary education (undergraduate, graduate, and professional) and is the only periodic, nationally representative survey of students regarding financial aid. There is no other single national database that contains student-level records for students receiving aid from all of the numerous and disparate programs funded by the federal government, the states, postsecondary institutions, employers, and private organizations. The NPSAS studies reflect the changes made in government guidelines for financial aid eligibility and availability, and provide measures of the impact of those changes. The NPSAS studies also provide information about the current operation of financial aid for postsecondary students.

The fundamental purpose of NPSAS is to create a dataset that brings together information about a variety of aid programs for a large sample of undergraduate, graduate, and first-professional students. NPSAS provides the data for comprehensive descriptions of the

undergraduate and graduate/first-professional student populations in terms of their demographic characteristics, academic programs, types of institutions attended, attendance patterns, employment, and participation in civic and volunteer activities. It also includes data on tuition and price of attendance, the various types of financial aid received, and the net price of attendance after aid. NPSAS provides research and policy analysts with data to address basic issues about postsecondary affordability and the effectiveness of the existing financial aid programs. Information for NPSAS:04 was obtained from several sources, including student records, student interviews, and U.S. Department of Education databases.²

Alternating NPSAS surveys also provide base-year data on a subset of students who become the sample for Beginning Postsecondary Students Longitudinal Study with a follow-up survey 2 years later (for example, BPS:04/06 was based on NPSAS:04, with a future follow up due in 2009). A section of the NPSAS student interview focuses on describing the experience of these students in their first year of postsecondary education. Also, for the first time, NPSAS:04 includes representative samples of undergraduate students for 12 states that explicitly expressed interest and support for such state-level data.

Sample Design

The NPSAS:04 target population consists of all eligible students enrolled at any time between July 1, 2003 and June 30, 2004 in postsecondary institutions in the United States or Puerto Rico that had signed Title IV participation agreements with the United States Department of Education making them eligible for the federal student aid programs (Title IV institutions). Eligible students could not be concurrently enrolled in high school and could not be enrolled solely in a GED or other high school completion program.

The institution sampling frame for NPSAS:04 was constructed from the 2000–01 IPEDS Institutional Characteristics (IC) files. The institutions on the sampling frame were partitioned into 58 institutional strata based on institutional control, highest level of offering, and Carnegie classification. NPSAS:04 also includes state-representative undergraduate student samples for three types of institutions (public 4-year, public 2-year, and not-for-profit 4-year) in 12 states.³ For further information on the NPSAS sample, see Cominole et al. (2006).

² See <http://nces.ed.gov/surveys/npsas/index.asp>.

³ These 12 states were selected by NCES from those expressing interest. The 12 states were categorized into three groups based on population size: four small states (Connecticut, Delaware, Nebraska, Oregon), four medium-size states (Georgia, Indiana, Minnesota, Tennessee), and four large states (California, Illinois, New York, Texas).

Perturbation

To protect the confidentiality of NCES data that contain information about specific individuals, NPSAS:04 data were subject to perturbation procedures to minimize disclosure risk. Perturbation procedures, which have been approved by the NCES Disclosure Review Board, preserve the central tendency estimates, but may result in slight increases in nonsampling errors.

Imputation

All variables with missing data used in this report as well as those included in the related Data Analysis System (DAS) release have been imputed. The imputation procedures employed a two-step process. In the first step, the matching criteria and imputation classes that were used to stratify the dataset were identified such that all imputation was processed independently within each class. In the second step, the weighted sequential hot deck process was implemented,⁴ whereby missing data were replaced with valid data from donor records that match the recipients with respect to the matching criteria. For more information about the imputation process, see Cominole et al. (2006).

Weighting

All estimates in this report are weighted to represent the target population. The weights compensate for the unequal probability of selection of institutions and students in the NPSAS sample. The weights also adjust for multiplicity at the institution and student levels,⁵ unknown student eligibility, nonresponse, and poststratification. The institution weight is computed and then used as a component of the student weight.

⁴ The term “hot deck” refers to the fact that the set of potential donors changes for each recipient. In contrast, “cold deck” imputation defines one static set of donors for all recipients. In all such imputation schemes the selection of the donor from the entire deck is a random process.

⁵ It was determined after institution sample selection that in some cases, either 1) an institution had merged with another institution, or 2) student enrollment lists for two or more campuses were submitted as one combined student list. In these instances, the institution weights were adjusted for the joint probability of selection. Likewise, students who attended more than one institution during the NPSAS year also had multiple chances of selection. If it was determined from any source (the student interview, or the student loan files (Pell or Stafford) that a student had attended more than one institution, the student’s weight was adjusted to account for multiple chances of selection.

Quality of Estimates

Unit Response Rates and Bias Analysis

The bias in an estimated mean based on respondents, \bar{y}_R , is the difference between this mean and the target parameter, π , i.e., the mean that would be estimated if a complete census of the target population was conducted and everyone responded. This bias can be expressed as follows:

$$B(\bar{y}_R) = \bar{y}_R - \pi$$

The estimated mean based on nonrespondents, \bar{y}_{NR} , can be computed if data for the particular variable are available for most of the nonrespondents from another source (e.g., institution information from IPEDS). The true target parameter, π , can be estimated for these variables as follows:

$$\hat{\pi} = (1 - \eta) \bar{y}_R + \eta \bar{y}_{NR}$$

where η is the weighted unit (or item) nonresponse rate. For the variables that are from the frame, rather than from the sample, π can be estimated without sampling error. The bias can then be estimated as follows:

$$\hat{B}(\bar{y}_R) = \bar{y}_R - \hat{\pi}$$

or equivalently:

$$\hat{B}(\bar{y}_R) = \eta(\bar{y}_R - \bar{y}_{NR}).$$

This formula shows that the estimate of the nonresponse bias is the difference between the mean for respondents and nonrespondents multiplied by the weighted nonresponse rate. The following summarizes institution-level, student-level, and item-level bias analyses (more information can be found in Cominole et al., 2006).

Institution-Level Bias Analysis

Of the 1,630 eligible sample institutions, 1,360 were respondents (83.5 unweighted percent and 80.0 weighted percent). The institution weighted response rate is also below 85 percent for six of the nine types of institutions. The weighted response rates by type of institution range from

70.3 percent for public 4-year nondoctorate institutions to 92.6 percent for not-for-profit less-than-4-year institutions (see Cominole et al. 2006 for more information).

A nonresponse bias analysis was conducted for all institutions and for the six types of institutions with a weighted response rate below 85 percent (U.S. Department of Education 2003). The nonresponse bias was estimated for variables known (i.e., non-missing) for most respondents and nonrespondents, using extensive data available for all institutions from IPEDS.

The institution weighting adjustments eliminated some, but not all, bias. For all institutions, public less-than-2-year institutions, and public 2-year institutions, 5.6 percent, 6.3 percent, and 6.8 percent, respectively, of the variable categories before weighting adjustments were significantly biased. After weighting adjustments, no significant bias remained for the variables analyzed. For the other types of institutions, the percentage of variable categories with significant bias decreased after weight adjustments. Significant bias was reduced for the variables known for most respondents and nonrespondents, which are considered to be some of the more analytically important variables and are correlated with many of the other variables. These variables include region, institution total enrollment, CPS match, Federal Pell Grant recipient, Stafford loan recipient, Federal Pell Grant amount and Stafford loan amount.

Student-Level Bias Analysis

Of the 101,000 eligible sample students, the unweighted response rate was 89.8 percent, and the weighted response rate was 91.0 percent. The student weighted response rate is above 85 percent for all types of institutions with the exception of public 2-year institutions. The weighted response rates by type of institution range from 83.9 percent for public 2-year institutions to 96.9 percent for not-for-profit 4-year nondoctorate institutions (see Cominole et al. 2006 for more information).

A nonresponse bias analysis was conducted only for students from public 2-year institutions, for variables known for most respondents and nonrespondents. These variables are included on the DAS: region; institution total enrollment; CPS match (yes/no); Federal Pell Grant recipient (yes/no); Stafford loan recipient (yes/no); Federal Pell Grant amount; Stafford loan amount; percent part-time fall enrollment; and in-state tuition. These institution-level data were available from IPEDS.

The student weighting adjustments eliminated some, but not all, bias for students in public 2-year institutions. Significant bias was reduced from 35.4 to 29.2 percent for the variables known for most respondents and nonrespondents, which are considered to be some of the more analytically important variables and are correlated with many of the other variables. However,

significant bias still remains because there were small numbers of nonrespondents in public 2-year institutions applying for and receiving federal aid. Although there was considerable reduction in bias due to weighting adjustments, nonresponse bias remains in nearly 30 percent of the variables after weighting adjustments. All significant bias was eliminated for the non-aid variables (i.e., region, institution total enrollment, percent part-time fall enrollment, and in-state tuition). Detailed results of the student nonresponse bias analysis for selected variables (including Pell grants, Stafford loans, and tuition) for public 2-year institutions in California, Connecticut, Delaware, Minnesota, and New York are available in appendix K of the NPSAS:2004 methodology report (Cominole et al. 2006). Because this report focuses on 2-year institutions, the lower student response rate for public 2-year institutions and the remaining bias for students in these institutions should be kept in mind, especially when considering aid variables.

Item-Level Bias Analysis

When item response rates were less than 85 percent, a nonresponse bias analysis was conducted. Item response rates (RRI) are calculated as the ratio of the number of respondents for whom an in-scope response was obtained (I^x for item x) to the number of respondents who are asked to answer that item. The number asked to answer an item is the number of unit level respondents (I) minus the number of respondents with a valid skip item for item x (V^x). When an abbreviated questionnaire is used to convert refusals, the eliminated questions are treated as item nonresponse” (U.S. Department of Education 2003).

$$RRI^x = I^x / (I - V^x)$$

A student is defined to be an item respondent for an analytic variable if that student has data for that variable from any source, including logical imputation. A nonresponse bias analysis was conducted for variables with response rates below 85 percent. A set of variables known for both respondents and nonrespondents were used for the item-level bias analysis and tested (adjusting for multiple comparisons) to determine if the bias was significant at the 5 percent level. The *NPSAS:04 Methodology Report* provides a more detailed description of items with response rates below 85 percent (Cominole et al. 2006). In this report, several variables with response rates below 85 percent were used, including: dependent parent income (DEPINC), worked while enrolled (JOBENR), housing (LOCALRES), and attendance status (ATTNSTAT).

A byproduct of the imputation (described in the imputation section of this appendix) is the reduction or elimination of item-level nonresponse bias. Imputation reduces or eliminates nonresponse bias by replacing missing data with statistically plausible values. The effectiveness

of imputation implemented to reduce item nonresponse bias is presented in the methodology report. All variables used in this report were fully imputed; therefore, there is no missing data.

Standard Errors

To facilitate computation of standard errors for both linear and nonlinear statistics, a vector of bootstrap sample weights has been added to the analysis file. These weights are zero for units not selected in a particular bootstrap sample; weights for other units are inflated for the bootstrap subsampling. The initial analytic weights for the complete sample are also included for the purposes of computing the desired estimates. The vector of replicate weights allows for computing additional estimates for the sole purpose of estimating a variance. Assuming B sets of replicate weights, the variance of any estimate, $\hat{\theta}$, can be estimated by replicating the estimation procedure for each replicate and computing a simple variance of the replicate estimates; i.e.,

$$Var(\hat{\theta}) = \frac{\sum_{b=1}^B (\hat{\theta}_b^* - \hat{\theta})^2}{B}$$

where $\hat{\theta}_b^*$ is the estimate based on the b -th replicate weight (where $b = 1$ to the number of replicates) and B is the total number of sets of replicate weights. Once the replicate weights are provided, this estimate can be produced by most survey software packages (e.g., SUDAAN [RTI International 2004]).

The replicate weights were produced using a methodology and computer software developed by Kaufman (2004). This methodology allows for finite population correction factors at two stages of sampling. The NPSAS application of the method incorporated the finite population correction factor at the first stage only where sampling fractions were generally high. At the second stage, where the sampling fraction was generally low, the finite population correction factor was set to 1.00.

Cautions for Analysts

Multiple institutions. Students who attended more than one institution during the 2003–04 academic year (about 7 percent of undergraduates students) are coded in a separate category (“more than one institution”) for institution type, institution control, and attendance pattern. Although included in the “totals” in this report, due to confounding tuition and fees and attendance patterns, students who attended multiple institutions were excluded in the estimates by institution type, tuition and fees categories, and attendance pattern in this report.

Sources of error. The estimates in this report are subject to sampling and nonsampling errors. Nonsampling errors are due to a number of sources, including but not limited to, nonresponse, coding and data entry errors, misspecification of composite variables, and inaccurate imputations. In a study like NPSAS there are multiple sources of data for some variables (CPS, CADE, Student Interview, etc.) and reporting differences can occur in each. Data swapping and other forms of perturbation, implemented in order to protect respondent confidentiality, can lead to inconsistencies as well.

Sampling errors exist in all sample-based datasets, including NPSAS. Estimates calculated from a sample will differ from estimates calculated from other samples even if all the samples used the same sample design and methods. For similar reasons, estimates of average aid amounts based on the NPSAS sample will probably differ from specific program amounts reported by the department's program offices.

The standard error (described earlier) is a measure of the precision of the estimate. In this tabulation, each estimate's standard error was calculated using bootstrap replication procedures and can be produced using the NPSAS:04 Data Analysis System (DAS) software. Standard errors for table 6 are presented in table B2. All differences reported in the selected findings were significant at the .05 level.

NCES recommends that readers not try to produce their own estimates such as the percentage of all students receiving aid or the numbers of undergraduates enrolled in the fall who received any aid, federal aid, state aid, etc., by combining estimates in this tabulation with the Integrated Postsecondary Education Data System (IPEDS) fall 2003 enrollment numbers. The IPEDS enrollment data include some students not eligible for NPSAS (e.g., those enrolled in U.S. Service Academies, or those taking college courses while enrolled in high school). Additional information on the NPSAS:04 sample is presented in the sample design section of this appendix and will also be described in the forthcoming methodology report.

Beginning Postsecondary Students Longitudinal Study

The Beginning Postsecondary Students Longitudinal Study (BPS) is based on a sample of students who enrolled in postsecondary education for the first time in a specific academic year. Two BPS surveys have been conducted thus far, one that followed students who first began their postsecondary education in 1989–90 (BPS:90/94) and a second followed students who began in 1995–96 (BPS:96/98/01). Unlike other NCES longitudinal surveys that follow age-specific cohorts of secondary school students, the BPS sample includes nontraditional students who have delayed their postsecondary education due to financial need or family responsibilities, or other

Table B2. Standard errors for table 8: Distribution of students attending 2-year institutions, by demographic and enrollment characteristics: 2003–04

Student characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Gender							
Men	5.50	0.91	0.65	4.00	5.21	6.18	14.00
Women	5.50	0.91	0.65	4.00	5.21	6.18	14.00
Age as of 12/31/03							
Less than 20 years old	7.00	1.15	0.57	2.22	5.66	2.44	7.70
20–29	5.39	1.19	0.70	4.75	3.83	1.79	5.34
30–39	2.31	0.77	0.48	5.51	4.07	2.29	4.44
40–49	1.97	0.62	0.43	3.98	2.47	1.34	2.89
50 or older	1.45	0.54	0.29	0.54	1.05	0.71	0.49
Race/ethnicity							
White	6.08	3.02	1.64	6.52	7.23	4.14	14.27
Black	4.70	2.58	0.96	5.92	4.64	5.58	9.52
Hispanic	2.10	1.27	1.33	1.11	5.18	5.07	6.58
Asian/Pacific Islander	0.61	0.28	0.69	1.47	3.63	1.00	1.67
American Indian/Alaska Native	0.59	0.16	0.18	†	6.03	0.28	0.78
Dependency status							
Dependent	7.06	1.53	0.88	5.85	6.97	3.26	9.21
Independent without dependents	2.82	0.88	0.59	4.84	2.89	2.83	4.1
Independent with dependents	4.78	1.04	0.73	3.34	6.18	4.71	9.6
Dependent income (family)							
Less than \$25,000	5.98	1.39	0.78	10.52	3.66	4.71	10.49
\$25,000–\$49,999	2.57	1.23	0.90	10.23	5.36	3.42	2.35
\$50,000–\$79,999	2.50	1.06	0.82	5.17	5.08	1.91	2.61
\$80,000 or more	7.70	1.62	1.21	10.03	5.70	2.49	9.50
Independent income							
Less than \$15,000	2.63	1.33	0.89	5.33	4.87	2.30	8.67
\$15,000–\$29,999	3.18	0.91	0.59	6.66	3.66	2.93	6.49
\$30,000–\$49,999	2.00	0.74	0.68	5.67	2.85	1.81	2.57
\$50,000 or more	3.95	1.62	0.93	6.75	3.65	1.39	2.72
Attendance intensity (all schools)							
Exclusively full-time	7.72	1.88	1.05	13.69	5.16	4.02	4.36
Exclusively part-time	5.85	1.70	1.04	9.19	5.34	4.15	4.21
Mixed full-time and part-time	2.35	0.91	0.76	6.18	2.47	1.67	4.12

See notes at end of table.

Table B2. Standard errors for table 8: Distribution of students attending 2-year institutions, by demographic and enrollment characteristics: 2003–04—Continued

Student characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
Housing							
On campus	2.13	0.56	0.18	1.89	5.75	1.69	3.85
Off campus	6.04	1.62	0.93	5.03	6.38	3.4	5.18
Living with parents	6.68	1.55	0.94	3.91	4.43	3.05	3.78
Work intensity while enrolled (excludes work-study/assistantship)							
No job	3.20	0.60	0.46	3.51	4.18	1.55	8.18
Part-time	3.85	1.25	0.63	5.23	3.03	1.65	5.40
Full-time	2.41	1.08	0.63	6.29	4.82	1.90	5.62

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Survey (NPSAS:2004).

reasons. Students who began their postsecondary studies before the base year of the study, or who stopped out, and then returned to their studies in the base year were not included, nor were students who were still enrolled in high school.

BPS:96/98/01 is based on a sample of students who were enrolled in postsecondary education for the first time in 1995–96 and participated in the 1995–96 National Postsecondary Student Aid Study (NPSAS:96). This BPS study began with a sample of approximately 12,000 students who were identified in NPSAS:96 as having entered postsecondary education for the first time in 1995–96.

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; among the NPSAS:96 respondents the response rate was 85.9 percent (Wine et al. 2000). The second follow-up of the BPS cohort (BPS:96/98/01) was conducted in 2001, 6 years following 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 weighted response rate was 83.6 percent overall, but was somewhat higher among respondents to both the 1996 and the 1998 interviews (87.4 percent). The weight used for the analysis of data from the BPS:96/98/01 was WTD00, which includes students who responded to both the first and last follow-up surveys (Wine et al. 2002).

The BPS survey data underwent several data quality evaluations, which included both online data editing procedures and post-data collection editing. For more information, see Wine et al. (2002).

Bias Analysis

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 BPS:96/01 survey results to determine if any variables were significantly biased due to nonresponse. 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:96/01 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. This analysis was performed on variables found on the frame where the true value is known for both respondents and nonrespondents. For other variables collected in the survey, where data is available only for respondents, it is not known whether the weight adjustments completely eliminate bias.

Item Response Bias

All the variables used in this report and defined in appendix A had item response rates above 85 percent. Therefore, a bias analysis for individual survey items was not necessary.

Data Analysis System

The estimates presented in this report were produced using the Data Analysis Systems (DAS) the IPEDS:2003 surveys as well as for the NPSAS:2004 undergraduate survey and the BPS:96/98/01 longitudinal study. 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.

For IPEDS:2003 data, the DAS provides the information for those institutions who responded as well as the number of respondents by institutional sector. For NPSAS:2004 and

BPS:96/98/01 estimates, the DAS calculates proper standard errors⁶ and weighted sample sizes in addition to the table estimates. For example, table B2 contains standard errors that correspond to estimates in table 6 in the report. The DAS prints the message “low n” instead of the estimate when the number of valid cases is too small to produce a reliable estimate (fewer than 30 cases). All standard errors for estimates presented in this report can be viewed at http://nces.ed.gov/das/library/tables_listings/200xxx.asp.

Each DAS can be accessed electronically at <http://nces.ed.gov/DAS>. For more information about the Data Analysis System or the data in this report, contact:

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Statistical Procedures

Universe estimates

For the IPEDS portion of the study, the statistics are estimates derived from a population. In using a census of an entire population there is not a risk of sampling error, but there is still the possibility of nonsampling error. Nonsampling error can be attributed to a number of sources: inability to obtain complete information about all institutions in the sample (some institutions did not participate, or 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, and imputing missing data.

To take into account nonsampling error and its potential effect on descriptions of differences within the population, it is helpful to set criteria for the “meaningful size” of such differences. All of the differences in this section have been found to be meaningful based upon the following criteria:

⁶ The NPSAS samples are not simple random samples, 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.

- For percentage distributions, 5 percentage point difference.
- For differences between the seven classification categories, a 5 percentage point difference or a \$200 difference.

These thresholds were selected after examining the data in order to find a range that would capture differences of interest. The criteria are not definitive, however, and it is possible observed differences were valid but below the cutoff set for the criterion.

Survey estimates and differences between means

For the NPSAS and BPS sections of this analysis, the statistics are derived from samples of undergraduates. The estimates in this report are subject to sampling and nonsampling errors. As outlined above, nonsampling errors are due to a number of sources, including but not limited to, nonresponse, coding and data entry errors, misspecification of composite variables, and inaccurate imputations. Sampling errors occur because observations are made only on samples of students, not entire populations. Estimates calculated from a sample will differ from estimates calculated from other samples even if all the samples used the same sample design and methods. Moreover, in a study like NPSAS there are multiple sources of data for some variables (CPS, CADE, Student Interview, etc.) and reporting differences can occur in each. Data swapping and other forms of perturbation, implemented in order to protect respondent confidentiality, can lead to inconsistencies as well. To account for the possibility of these errors, all of the findings reported in these sections were tested for significance using a two-tailed t-test; reported differences were significant at the .05 level. The Bonferroni adjustment was used when analyzing differences among distributions where more than one possible comparison existed.

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,⁷ 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:

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

⁷ 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 difference is present.

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:

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

where r is the correlation between the two estimates (U.S. Department of Education, 1993). 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:

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

where p is the proportion of the total group contained in the subgroup (U.S. Department of Education, 1993). 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.

Analysis Universe and Key Variables

This report uses the classification system for 2-year institutions developed by Phipps, Shedd, and Merisotis (2001) that employed cluster analysis and a number of variables available on IPEDS to identify groups of similar 2-year institutions.

Cluster Analysis Method

“Cluster analysis” is the generic name for a variety of procedures that can be used to create a classification. These multivariate statistical procedures attempt to mathematically form “clusters” or groups of relatively homogenous entities based on measures of similarity and/or difference with respect to specific variables. Though many methods exist, hierarchical and K-means (iterative) cluster analysis are the most widely used. The hierarchical clustering method, however, is not as appropriate for a large number of cases, as the results become unwieldy. In Phipps, Shedd, and Merisotis (2001), because of the large number of cases, K-means was the method used.⁸

The K-means procedure begins by creating an aggregate mean—combining all variables included in the analysis—for each case (i.e., for each institution) and then temporary estimates of the cluster means.⁹ Initial clusters are then formed by assigning each case to the cluster with the mean/center closest to its own, and then the cluster center is recalculated. An iterative process is used to find the final cluster centers, and at each step cases are grouped into the cluster with the closest center, and the cluster centers are recalculated. This process continues until no further changes are made in the centers or until a maximum number of iterations is reached.

K-means cluster analysis requires the specification of the number of clusters to be formed. Often the “natural” or optimal number of clusters is not known; therefore methods have been developed to help determine this number. The most common procedure is to run a subset of cases in hierarchical cluster analysis and look for “jumps” in the fusion coefficient—the numerical value at which various cases merge to form a cluster. A “jump” in the fusion coefficient suggests that two relatively dissimilar clusters have been merged; thus, the number of clusters prior to the merger is the most probable solution. Another appropriate strategy is to try several different analyses (for example, requesting three, four, and five clusters) in a search for the most appropriate solution. Either way a judgment about the number of clusters must be made; unfortunately, there is no single test that reveals the exact number of clusters that should be

⁸ For more detail about the procedures used in Phipps, Shedd, and Merisotis (2001), see the original report.

⁹ The values of the first k cases in the data file are used as temporary estimates of the k cluster means, where k is the number of clusters that are to be formed. The number of clusters to be formed is specified by the user. SPSS Inc., *SPSS Base 10.0 Applications Guide*, SPSS Inc.: 1999.

generated (Aldenderfer and Blashfield 1984). Phipps, Shedd, and Merisotis (2001) used both methods to help guide the K-means cluster analysis. Hierarchical analysis was used to find an appropriate range for the number of clusters, and those cluster numbers within the range were all tried in the analysis to determine which was the most appropriate.

A K-means analysis produces the distance each case is from its cluster center as well as an ANOVA table. The size of the “F” statistic—the ratio of the between-cluster mean square and the within-cluster mean square—is used for identifying variables that drive the clustering and those that differ little across clusters. In cluster analysis, the “F” statistic is not used to test significant differences between groups, but rather provides information about each variable’s contribution to the separation of the groups; once the driving variables have been identified, they can be used to create meaningful categories.

The choice of variables to be included in the cluster analysis is one of the most critical steps in the process. Because the analysis uses an aggregate mean, each variable that is included in the analysis affects the clustering results—this is one of the reasons why the choice of variables is crucial. Ideally, variables should be chosen within the context of a theory used to support the classification and serve as the basis for the choice of variables to be used. Phipps, Shedd, and Merisotis (2001) used a combination of a review of the literature, a focus group of experts, and preliminary analysis of descriptive statistics in order to choose appropriate variables. After cluster analysis was performed, a post-analysis of the “driver” variables—those with the highest “F” statistics—was conducted. From the post-analysis, the “best” variable(s) was determined and then used to separate the institutions into the different categories of the classification system. Consistent with standard cluster analysis procedure, once the variable(s) for classification were identified, the entire cluster analysis process was then conducted within the subgroups formed.¹⁰

The results of the cluster analysis by Phipps, Shedd, and Merisotis (2001) revealed that the variables for institutional control (public, not-for-profit, and for-profit), enrollment size, and percentage of awards in specific degree or certificate programs created seven distinguishable categories by which to classify 2-year institutions. These categories are defined below (parentheses contain the category titles used in the original study, which have been modified for this report):

- Small publics (formerly called community development and career institutions) are those with an unduplicated headcount of less than 2,000 students. These institutions tend to confer awards and degrees primarily in job and career skills development and to focus on overall workforce development for the communities that they serve.

¹⁰ Please see the original report for more details.

- Medium-sized public (formerly called community connector institutions) are those with an unduplicated headcount of 2,000–9,999 students. These institutions tend to confer awards and degrees that target job and career skills development, and to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.
- Large publics (formerly called community mega-connectors) are those with unduplicated headcount of at least 10,000 students. These institutions tend to be in urban locations, to confer awards and degrees that target job and career skills development, and to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.
- Allied health not-for-profit institutions are not-for-profit institutions that grant almost all of their awards in allied health programs. These institutions tend to be small in enrollment and to have an exclusive focus on allied health training.
- Other not-for-profit institutions (formerly called connector institutions) are those that tend to confer awards and degrees targeting job and career skills development, but may grant a smaller proportion of their awards in allied health programs. These institutions tend to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.
- For-profit degree-granting institutions (formerly called certificate institutions) are those that offer an associate’s degree program—although many also offer certificates—that target job and career skills development. Many of these institutions offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.
- Other for-profit institutions (formerly called career connector institutions) are those that grant all of their awards as certificates. These institutions provide specialized training, usually in a single job category or area.

For this report, institutions were classified into the categories outlined above using the IPEDS Institutional Characteristics, Completions, and Enrollment Surveys for the 2002–03 survey year.

Analysis universe

The IPEDS analysis universe generated for this analysis included 1,948 2-year institutions among the 2,271 2-year institutions in the IPEDS 2003 collection year. The following criteria were used to select comparable institutions for analysis:

- Institutions in the 50 states and the District of Columbia eligible to receive Title IV funding.
- Postsecondary institutions within the 2-year sector that offered programs of at least 2 but less than 4 years’ duration.

- Institutions that awarded at least five associate’s degrees or 2-year certificates in the study year; less than 2-year schools were excluded.
- Schools that reported the data necessary to classify them (such as enrollment or completions data).

In 2002–03, IPEDS contained 2,271 2-year institutions. Of these, 277 did not meet the other universe criteria and 46 did not have the necessary information to classify them (table B3). The final universe of classifiable 2-year institutions consisted of 1,948 2-year schools (86 percent) and represented approximately 99 percent of the total 12-month unduplicated headcount enrollment within the 2-year sector.

Table B3. Classification universe

2-year institutions	Number	Percentage of total
All 2-year institutions	2,271	100.0
Institutions not eligible for Title IV funding	67	3.0
Institutions not located in the 50 States or DC	26	1.1
Institutions not active in 2003	3	0.1
Institutions granted fewer than five 2-year awards in 2002–03	181	8.0
Institutions with missing data	46	2.0
Total classifiable institutions	1,948	85.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

Of the study universe, large public institutions enrolled the majority of 12-month unduplicated headcount students, 66 percent, followed by medium-sized public institutions at 28 percent (table B4). Large public institutions also awarded the majority of associate’s degrees that were awarded by 2-year institutions in 2002–03. Together, large and medium-sized public institutions awarded the majority of less than 2-year certificates as well. However, degree-granting for-profits awarded 12 percent of less than 2-year certificates and 11 percent of associate’s degrees, and other for-profits awarded 41 percent of 2-year certificates.

In order to examine differences between the final universe and the institutions that were excluded as a result of the selection and classification criteria, a bias analysis was performed for each institutional sector (tables B5 to B7).

Table B4. Number and distribution of 12-month enrollment and degree completions in the study universe, by type of 2-year institution: 2002–03

Institutional characteristics	Small public	Medium-sized public	Large public	Allied health not-for-profit	Other not-for-profit	Degree granting for-profit	Other for-profit
12-month unduplicated enrollment							
Number of students	214,489	2,883,015	6,926,233	14,516	69,623	317,820	51,483
Percentage of the total	2.0%	27.5%	66.1%	0.1%	0.7%	3.0%	0.5%
Less than 2-year certificates							
Number	24,608	121,024	133,223	689	9,747	38,968	11,323
Percentage of total	7.2%	35.6%	39.2%	0.2%	2.9%	11.5%	3.3%
2-year certificates							
Number	2,162	4,751	3,188	2,488	1,920	382	10,435
Percentage of total	8.5%	18.8%	12.6%	9.8%	7.6%	1.5%	41.2%
Associate's degrees							
Number	12,656	163,554	275,263	1,117	10,962	55,153	0
Percentage of total	2.4%	31.5%	53.1%	0.2%	2.1%	10.6%	0.0%

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

Table B5. Final universe of public 2-year institutions compared to excluded public 2-year institutions: 2002–03

Public 2-year institutions	Final universe	Excluded N institutions	N
Average percentage of entering class that are first-time, full-time degree/certificate seeking students, Fall 2003	40.5	1,106	55
Average 12-month unduplicated headcount (undergraduate), 2002–03	9,039	1,110	56
Average in-state tuition for full-time undergraduate students, 2003–04	\$1,998	1,063	52
Average percentage of students receiving federal grant aid, 2002–03	42.5	1,095	50
Average percentage of instructional staff that are full-time, 2002–03	41.4	1,100	56
Average salary of full-time instructional faculty, equated 9-month contract ¹	\$47,889	1,049	25

¹ This survey component or variable is collected for degree-granting institutions only.

NOTE: Excluded institutions did not meet the criteria for the study universe: eligible for Title IV funding; located in the 50 states or DC; active in 2003; granted at least five 2-year awards in 2002–03; and having the data necessary to classify them. This analysis was conducted through the online Data Analysis System, which does not recode or impute for missing data. Therefore, the number of institutions presented differs for variables measured, depending on how many institutions were missing data for that variable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

Table B6. Final universe of not-for-profit 2-year institutions compared to excluded not-for-profit 2-year institutions: 2002–03

Not-for-profit 2-year institutions	Final universe	N	Excluded institutions	N
Average percentage of entering class that are first-time, full-time degree/certificate seeking students, Fall 2003	60.2	196	74.2	23
Average 12-month unduplicated headcount (undergraduate), 2002–03	395	213	297	26
Average in-state tuition for full-time undergraduate students, 2003–04	\$7,291	186	\$5,096	34
Average percentage of students receiving federal grant aid, 2002–03	46.5	183	67.8	9
Average percentage of instructional staff that are full-time, 2002–03	65.6	203	†	26
Average salary of full-time instructional faculty, equated 9-month contract ¹	\$35,951	105	\$21,077	9

† Not applicable.

¹ This survey component or variable is collected for degree-granting institutions only.

NOTE: Excluded institutions did not meet the criteria for the study universe: eligible for Title IV funding; located in the 50 states or DC; active in 2003; granted at least five 2-year awards in 2002–03; and having the data necessary to classify them. This analysis was conducted through the online Data Analysis System, which does not recode or impute for missing data. Therefore, the number of institutions presented differs for variables measured, depending on how many institutions were missing data for that variable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

Table B7. Final universe of for-profit 2-year institutions compared to excluded for-profit 2-year institutions: 2002–03

For-profit 2-year institutions	Final universe	N	Excluded institutions	N
Average percentage of entering class that are first-time, full-time degree/certificate seeking students, Fall 2003	77.0	612	74.9	153
Average 12-month unduplicated headcount (undergraduate), 2002–03	593	622	342	155
Average in-state tuition for full-time undergraduate students, 2003–04	\$10,640	335	\$9,152	79
Average percentage of students receiving federal grant aid, 2002–03	62.9	608	65.7	142
Average percentage of instructional staff that are full-time, 2002–03	59.5	593	63.3	149
Average salary of full-time instructional faculty, equated 9-month contract ¹	\$29,269	365	\$25,440	62

¹ This survey component or variable is collected for degree-granting institutions only.

NOTE: Excluded institutions did not meet the criteria for the study universe: eligible for Title IV funding; located in the 50 states or DC; active in 2003; granted at least five 2-year awards in 2002–03; and having the data necessary to classify them. This analysis was conducted through the online Data Analysis System, which does not recode or impute for missing data. Therefore, the number of institutions presented differs for variables measured, depending on how many institutions were missing data for that variable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003 Integrated Postsecondary Education Data System (IPEDS:2003).

For example, excluded public 2-year institutions reported average tuition charges of \$1,881 while included institutions reported charges of \$1,998. However, excluded institutions appeared smaller than included institutions in terms of average enrollment (1,019 and 9,039, respectively). In addition, excluded public 2-year institutions had higher average proportions of first-time

beginning students, students receiving federal grants, and full-time instruction staff. Finally, average faculty salaries appeared lower.

Included and excluded not-for-profit 2-year institutions enrolled an average of 395 and 297 students, respectively. Excluded institutions reported lower tuition charges (\$5,096) than not-for-profit institutions that were included in the final universe (\$7,291). In addition, excluded not-for-profit institutions had higher average proportions of first-time beginning students and students receiving federal grant aid. Average faculty salaries were higher for not-for-profit institutions that were included in the final universe.

Excluded for-profit 2-year institutions did not differ substantially from the for-profit institutions included in the final universe. For example, on average, excluded for-profits reported that 75 percent of the entering class were first-time, full-time, degree/certificate-seeking students, while included for-profit institutions reported on average that 77 percent of the entering class were first-time, full-time, degree/certificate-seeking students. The average percentage of students receiving grant aid, and average percentage of instructional faculty that was full-time did not differ. However, average tuition charges were higher at included institutions (\$10,640) than at excluded institutions (\$9,152). Moreover, included for-profits had more students enrolled (593 students compared to 392) than excluded institutions.

Schools with high proportions of low-income students

Schools with high proportions of low-income students were identified as those at which 50 percent or more of the first-time full-time degree/certificate-seeking students received federal Pell grants. A recent NCES report used federal Pell grant data to identify low-income serving institutions at which more than one-third of the total student body receives a federal Pell grant. The definition used here differs as those data are not available publicly, although the basic premise remains the same (Horn 2006).