



National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report “statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education.”

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications appears in the Winter issue (published each January). Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to

nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

TABLE OF CONTENTS

Note From NCES

- C. Dennis Carroll, Associate Commissioner, Postsecondary Studies Division* 5
Outlines methods used in the National Postsecondary Student Aid Study (NPSAS) to help us learn how students and their families pay for college.

Featured Topic: Paying for College

How Families of Low- and Middle-Income Undergraduates Pay for College: Full-Time Dependent Students in 1999–2000

- Susan P. Choy and Ali M. Berker* 7
Provides data on how much students and their families pay for college, where the money comes from, and how students' methods of payment vary by type of institution and level of family income.

What Colleges Contribute: Institutional Aid to Full-Time Undergraduates Attending 4-Year Colleges and Universities

- Laura Horn and Katharin Peter* 14
Presents information about trends in institutional aid from 1992–93 to 1999–2000 and explores the relationships among institutional grant aid, academic merit, financial need, and the selectivity of institutions.

Invited Commentary: Federal Efforts to Help Low-Income Students Pay for College

- Sally L. Stroup, Assistant Secretary of Postsecondary Education, U.S. Department of Education* 24

Invited Commentary: The Gap Between College Costs and Student Resources

- Kenneth E. Redd, Director of Research and Policy Analysis, National Association of Student Financial Aid Administrators* 25

Elementary and Secondary Education

The Nation's Report Card: Reading 2002

- Wendy S. Grigg, Mary C. Daane, Ying Jin, and Jay R. Campbell* 29
Reports on the National Assessment of Educational Progress (NAEP) 2002 Reading Assessment of fourth-, eighth-, and twelfth-graders and compares results with those of previous years. Also presents results for states and other jurisdictions at grades 4 and 8.

Trends in the Use of School Choice

- Stacey Bielick and Chris Chapman* 41
Discusses 1993, 1996, and 1999 data on the percentages of students attending assigned public schools, public schools chosen by parents, and private schools; student characteristics; and outcomes such as parent satisfaction and students' plans for postsecondary education.

Trends in High School Vocational/Technical Coursetaking: 1982–1998

- Karen Levesque* 43
Examines public high school students' overall vocational/technical coursetaking, introductory technology and computer-related coursetaking, and ways of combining vocational/technical and academic coursetaking.

Public School Student, Staff, and Graduate Counts by State: School Year 2001–02

- Beth Aronstamm Young* 52
Provides national and state data on the number of students enrolled in public elementary and secondary schools, number of staff by type, number of high school graduates, and race/ethnicity of students and graduates.

Overview of Public Elementary and Secondary Schools and Districts: School Year 2001–02

- Lee M. Hoffman* 69
Presents national and state data on the number, type, size, and location of schools and districts. Also includes data on the numbers of students in programs for migrant education, limited English proficiency, and special education.

Effects of Energy Needs and Expenditures on U.S. Public Schools

- Timothy Smith, Rebecca Porch, Elizabeth Farris, and William Fowler* 93
Examines actual and budgeted energy expenditures, efforts to reduce energy consumption, characteristics of districts with sufficient and insufficient energy budgets, and experiences of districts with energy budget shortfalls.

Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2000–01

- Elise St. John* 98
Presents national and state data on public education finances, including revenues by source, expenditures per student, and expenditures for instruction.

Revenues and Expenditures by Public School Districts: School Year 1999–2000

- Frank Johnson* 108
Reports on public school district revenues and expenditures per student. Presents national and state values for the median school district and for districts at the 10th and 90th percentiles.

School District Revenues for Elementary and Secondary Education: 1997–98

- Joel D. Sherman, Barbara Gregory, and Jeffrey M. Poirier* 116
Examines differences in public school district revenues by geographic region, school district size, and district fiscal and demographic characteristics. Also ranks states on interdistrict variation.



Postsecondary Education

Community College Students: Goals, Academic Preparation, and Outcomes

Gary Hoachlander, Anna C. Sikora, and Laura Horn 121
Provides data on goals, persistence, transfer to 4-year institutions, degree attainment, and relationship of academic performance in high school to college outcomes.

Racial/Ethnic Differences in the Path to a Postsecondary Credential

Lisa Hudson 129
Examines where racial/ethnic differences arise in the path from high school to a postsecondary credential. Presents data on student achievement of traditional and less stringent milestones of progress along this path.

A Study of Higher Education Instructional Expenditures: The Delaware Study of Instructional Costs and Productivity

Michael F. Middaugh, Rosalinda Graham, and Abdus Shahid 134
Analyzes factors associated with the cost of delivering instruction, particularly the relative importance of an institution's Carnegie classification (research, doctoral, comprehensive, or baccalaureate) and the configuration of disciplines within the institution.

Postsecondary Institutions in the United States: Fall 2001 and Degrees and Other Awards Conferred: 2000–01

Laura G. Knapp, Janice E. Kelly, Roy W. Whitmore, Shiyong Wu, and Lorraine M. Gallego 140
Presents data on institutional characteristics as well as on the numbers of degrees conferred by control of institution, gender and race/ethnicity of recipients, and degree level.

Libraries

Public Libraries in the United States: Fiscal Year 2001

Adrienne Chute, P. Elaine Kroe, Patricia O'Shea, Maria Polcari, and Cynthia Jo Ramsey 147
Reports information on public libraries, including number of service outlets, population of service area, Internet access, children's and other services, operating income and expenditures, staffing, and size of collection.

International Statistics

International Comparisons in Fourth-Grade Reading Literacy: Findings From the Progress in International Reading Literacy Study (PIRLS) of 2001

Laurence T. Ogle, Anindita Sen, Erin Pahlke, Leslie Jocelyn, David Kastberg, Stephen Roey, and Trevor Williams 151
Provides comparative information on the reading literacy of fourth-graders in 36 countries and examines factors that may be associated with the acquisition of reading literacy in young children.

Comparative Indicators of Education in the United States and Other G-8 Countries: 2002

Joel D. Sherman, Steven D. Honegger, and Jennifer L. McGivern 166
Compares the U.S. education system to the education systems of several other economically developed countries. Covers numerous topics, such as access, achievement, attainment, and expenditures at various levels of education, as well as labor market outcomes.

Crosscutting Statistics

The Condition of Education 2003

National Center for Education Statistics 171
Focuses on indicators of the condition and progress of education in the United States, including participation and persistence, student performance, and societal support. Also includes this year's special analysis of reading achievement in kindergarten and first grade.

Digest of Education Statistics 2002

Thomas D. Snyder and Charlene M. Hoffman 181
Provides a compilation of statistical information covering the broad field of education from prekindergarten through graduate school.

Status and Trends in the Education of Hispanics

Charmaine Llagas 185
Presents a selection of indicators illustrating the educational gains made by Hispanics in recent years, as well as the gaps that remain between Hispanics and non-Hispanic Whites at different levels of education.

Data Products, Other Publications, and Funding Opportunities

Data Products

Data File: CCD Public Elementary/Secondary School Universe Survey: School Year 2001–02 191

Data File: CCD Local Education Agency Universe Survey: School Year 2001–02 191

Data File: CCD State Nonfiscal Survey of Public Elementary/Secondary Education: School Year 2001–02 191

Data File: CCD National Public Education Financial Survey: Fiscal Year 2001 192

National Student Service-Learning and Community Service Survey (FRSS 71): Public-Use Data Files 192

District Survey of Alternative Schools and Programs (FRSS 76): Public-Use Data Files 193

(Continued on next page)

TABLE OF CONTENTS

Data Products (continued)

Internet Access in Public Schools, Fall 1999 (FRSS 75) and Fall 2000 (FRSS 79): Public-Use Data Files 193

Advanced Telecommunications in U.S. Private Schools, 1998–1999 (FRSS 68): Public-Use Data Files 193

Condition of Public School Facilities, 1999 (FRSS 73): Public-Use Data Files 194

Occupational Programs and the Use of Skill Competencies at the Secondary and Postsecondary Levels, 1999 (FRSS 72 and PEQIS 11): Public-Use Data Files 194

Distance Education at Postsecondary Education Institutions, 1997–98 (PEQIS 9): Public-Use Data Files 194

Data File, Public-Use: Public Libraries Survey: Fiscal Year 2001 195

Other Publications

The Nation's Report Card: Reading Highlights 2002
National Center for Education Statistics 195

The Nation's Report Card: State Reading 2002 Reports
Laura Jerry and Anthony Lutkus 195

Developments in School Finance: 2001–02
William J. Fowler, Jr. (editor) 196

The Condition of Education 2003 in Brief
John Wirt and Andrea Livingston 196

Mini-Digest of Education Statistics 2002
Charlene Hoffman 196

Facilities Information Management: A Guide for State and Local Education Agencies
Education Facilities Data Task Force, National Forum on Education Statistics 197

NCES Handbook of Survey Methods
Lori Thurgood, Elizabeth Walter, George Carter, Susan Henn, Gary Huang, Daniel Nooter, Wray Smith, R. William Cash, and Sameena Salvucci 197

Funding Opportunities

The AERA Grants Program 197

The NAEP Secondary Analysis Grant Program 198

AIR Grants Program 199

NPEC/AIR Focused Grants 199

C. Dennis Carroll, Associate Commissioner, Postsecondary Studies Division

Finding Out How Students Pay for College

Learning how students pay for college is the primary purpose of the National Postsecondary Student Aid Study (NPSAS), which was conducted first in 1986–87 and repeated in 1989–90, 1992–93, 1995–96, and 1999–2000. The next NPSAS data collection is scheduled for 2003–04. NPSAS collects detailed enrollment, financial, and demographic information about a nationally representative sample of students enrolled at all types of public and private postsecondary institutions. This information is used to find out how much students pay for college and where they get the money needed to cover their expenses.

Actual Expenses Versus Student Budgets

To determine how much they paid, students responding in 1986–87, 1989–90, and 1992–93 were asked to report their actual expenses in a number of categories, such as tuition and fees, books, rent, food, transportation, and personal expenses. This approach may produce a reasonable approximation of the education expenses of students who live on campus and attend full time, because these students typically receive bills from their institution for tuition and room and board, which are their major expenses. However, it does not work nearly as well for older, part-time, or commuting students, whose non-tuition expenses are less clearly related to their education. Neither the student respondent nor the NPSAS analyst can easily calculate the education-related housing expenses of a 35-year-old part-time student who owns a house, for example, or of a younger student who lives at home.

Starting in 1995–96, NPSAS has relied on the student budgets determined by institutions, rather than on the expenditures reported by students, to measure how much students pay. An institutional budget represents the institution's best judgment about how much a student would need to spend on tuition and books as well as living expenses. Institutions develop a series of budgets to reflect different circumstances (such as living on campus or at home and attending full time or part time) and assign one of these budgets to each aid applicant. NPSAS assigns budgets to nonaided students in the same way. These budgets appear to be the best way to estimate expenses fairly and consistently, even though they may not accurately represent what any particular student spends. (To permit trend analyses, budgets have been added to the NPSAS analysis files for 1989–90 and 1992–93.)

Personal Financial Resources and Financial Aid

Understanding how students pay for college also involves identifying the sources of funds—either personal financial resources or financial aid—and how much students obtain from each source. Personal resources may include earnings from work while enrolled, savings, and contributions from parents, relatives, or friends. Just over half (55 percent) of all undergraduates received some type of financial aid in 1999–2000. The major forms of aid are grants and scholarships, which do not have to be repaid; loans, which must be repaid after the student graduates or leaves school; and work-study, which pays the student a stipend in return for work.

NPSAS obtains accurate financial aid information by merging several databases. The U.S. Department of Education databases provide detailed information about all Pell Grant awards and federal student loans. Institutional financial aid offices provide records of other federal aid, state aid, and institutional aid. They also provide records of scholarships from private organizations, such as foundations or unions, if the scholarship funds are disbursed to the student through the financial aid office. In the NPSAS telephone interview, students report on aid not administered by the financial aid office, such as employer assistance or grants from private organizations paid directly to the student. Because these types of aid come in discrete chunks, and typically only once a year or term, student reports are probably reasonably accurate.

The real challenge is learning about students' own financial resources. In contrast to the multiple sources of information about financial aid, the only source of information about personal financial resources is the telephone interview. The limited time available on the telephone and the reluctance of individuals to disclose the details of their financial circumstances constitute one set of barriers to obtaining accurate information. But even when students are willing to provide the information, they are likely to find it difficult to recall exactly how much they earned, saved, or were given by their parents or others over the course of a full academic year.

The parental contribution is the most elusive piece of the puzzle. When students receive a monthly allowance from their parents, they may be able to estimate the parental contribution reasonably accurately, but family financial arrangements are often less formal. Parents may pay some bills directly—tuition, room and board, or credit card bills, for example—and students may not know or remember the exact amounts. In addition, many parents routinely make in-kind contributions such as groceries, clothing, cars, and household items, which students may either forget or be unable to value, or which may not really be education-related. While policymakers want to know not only how much parents are contributing, but also where they are getting the money—from current income, savings, or borrowing, for example—students usually do not know the answer.

To learn about parental contributions in 1999–2000, students under 30 years of age were asked whether their parents or someone else paid some or all of their tuition, how much their parents gave them for school-related expenses other than tuition, and if they lived with their parents while enrolled. However, the numbers these students reported seem unrealistically low, especially for high-income students. For example, the average high-income dependent student attending a private not-for-profit institution full time—and having a nontuition budget of \$9,100—reported earnings while enrolled of \$2,000 and a parental contribution for nontuition expenses of just \$1,000.

A Picture of Education Expenses and Resources

Although we may never be able to assemble a completely accurate picture of either education expenses or financial resources, each successive round of NPSAS has produced more reliable and consistent information about how much students pay for college and where the money comes from. This issue of the *Quarterly* features two reports that draw on NPSAS data to illuminate various aspects of this complex picture.

FEATURED TOPIC: PAYING FOR COLLEGE

How Families of Low- and Middle-Income Undergraduates Pay for College: Full-Time Dependent Students in 1999–2000 <i>Susan P. Choy and Ali M. Berker</i>	7
What Colleges Contribute: Institutional Aid to Full-Time Undergraduates Attending 4-Year Colleges and Universities <i>Laura Horn and Katharin Peter</i>	14
Invited Commentary: Federal Efforts to Help Low-Income Students Pay for College <i>Sally L. Stroup, Assistant Secretary of Postsecondary Education, U.S. Department of Education</i>	24
Invited Commentary: The Gap Between College Costs and Student Resources <i>Kenneth E. Redd, Director of Research and Policy Analysis, National Association of Student Financial Aid Administrators</i>	25

How Families Pay

How Families of Low- and Middle-Income Undergraduates Pay for College: Full-Time Dependent Students in 1999–2000

— Susan P. Choy and Ali M. Berker

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the National Postsecondary Student Aid Study (NPSAS).

Paying for College

Paying for college has always been considered primarily a family responsibility, to be met to the extent possible through some combination of income, savings, and borrowing. However, a variety of government, institutional, and private programs exist to help students who lack the necessary financial resources or whose academic or other achievements qualify them for scholarships. This aid may take the form of grants or scholarships, which do not have to be repaid; loans, which must be repaid; or work-study, which provides aid in exchange for work, usually in the form of campus-based employment. In 1999–2000, more than half (55 percent) of all undergraduates received some type of financial aid to help pay for college (Berkner et al. 2002).

Originally, the goal of federal student aid policy was to increase college access for students from low-income families, but as tuition increased, this objective was expanded to make college more affordable for students from middle-income families as well (Spencer 1999). Federal grant aid is targeted to low-income students, while subsidized loans are available to both low- and middle-income students. In the 1992 Amendments to the Higher Education Act of 1965, Congress made it easier for students to qualify for financial aid, raised loan limits, and made unsubsidized loans available to students regardless of need. In the past decade, the federal government has increasingly relied on the tax code as a tool to assist students. The Taxpayer Relief Act of 1997 and the 2001 Economic Growth and Tax Relief

Reconciliation Act include a number of provisions designed to help individuals and families to save for, repay, or meet current higher education expenses by reducing their federal income tax liability. Some of these benefits phase out as income increases, but they are broadly available (U.S. General Accounting Office 2002). In addition to federal aid, students may have access to state- or institution-sponsored aid (Berkner et al. 2002). Income restrictions for these programs vary. Finally, most states offer prepaid tuition or college savings plans to help students at all income levels pay for college (The College Board 2003).

As debates continue over who should get what kinds of aid and how much, it is important to know what students and their families are actually paying for college, where the money is coming from, and how students' methods of paying vary with their family income and the type of institution they attend. To inform these debates, this report uses data from the 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000) to describe how the families of dependent students¹ used financial aid and their own resources to pay for college, emphasizing variation by family income and type of institution attended. The study covers students who were dependent undergraduates attending a public 2-year college or a public or private not-for-profit 4-year institution full time, full year during the 1999–2000 academic year.² Approximately one-quarter of all undergraduates met the criteria for inclusion in the analysis.³

The tables in this report show many aspects of student financing at five types of institutions, and within each type, at five levels of family income. The categories of institutions were chosen to group institutions that are similar in terms of mission, characteristics of students, and, especially, levels of price and availability of institutionally funded student aid. They include public 2-year; public 4-year nondoctoral; public 4-year doctoral; private not-for-profit 4-year non-

doctoral (except liberal arts); and private not-for-profit 4-year doctoral and liberal arts institutions.⁴ The family income levels were chosen to correspond roughly to levels of financial need and eligibility for certain types of federal grants and loans.

Low-income students have a greater need for financial aid than middle-income students within each type of institution, and students at both income levels need more financial aid at higher priced institutions than at lower priced ones. By reporting data by income within type of institution, the tables show both of these patterns. Differences between public and private not-for-profit institutions reflect their different prices of attending. Although data are presented separately in the tables for the five income groups, the discussion focuses on students from low-income (less than \$30,000) or middle-income (\$45,000–\$74,999) families.

Financial Need

For aid purposes, a student's financial need is defined as the difference between the price of attending and the expected family contribution (EFC). A student budget, which represents the price of attending the institution selected, is calculated for each student. It takes into account the amounts needed to cover tuition and fees, books and materials, and reasonable living expenses in that area. The amount allocated for living expenses depends on whether the student lives on campus, independently off campus, or with parents or relatives. The EFC is calculated using a formula based primarily on family income and assets (with some adjustments for circumstances, such as the number of siblings in college), and is not related to the price of attending. Thus, a student would be expected to contribute the same amount regardless of the institution selected but would have greater financial need at an institution with a high price of attending than at an institution with a low one.

In 1999–2000, average tuition and fees for full-time dependent students ranged from \$1,600 at public 2-year institutions to \$19,900 at private not-for-profit doctoral and liberal arts institutions, and the average student budget (i.e., price of attending) ranged from \$8,600 to \$28,800. The average EFC for low-income students (calculated including those with a zero EFC) was between \$1,000 and \$1,500, but many low-income students (between 31 and 45 percent, depending on the type of institution attended), had a zero

¹Undergraduates under 24 years of age are generally considered financially dependent for the purposes of determining financial aid eligibility unless they are married, have legal dependents, are veterans, or are orphans or wards of the court. However, financial aid officers are permitted to use their professional judgment to declare students to be independent under unusual circumstances.

²Students who attended more than one institution were excluded from the analysis because of the confounding effects of attending different-priced institutions and receiving different financial aid awards at each institution. Students who were not U.S. citizens or permanent residents were also excluded because they are not eligible for federal financial aid. Students who attended private for-profit institutions or less-than-4-year institutions other than public 2-year were excluded because there were not enough full-time dependent students at those types of institutions to make meaningful comparisons.

³About one-half of all undergraduates are independent, and about one-half of dependent students do not enroll full time, full year at one institution.

⁴On several key measures related to paying for college, including tuition, institutional and other forms of aid, and students' highest degree expectations, students at private not-for-profit liberal arts institutions appear to be more like their counterparts at doctoral than at nondoctoral institutions. Therefore, they were grouped with doctoral institutions for this analysis.

EFC. Because EFC depends on the families' financial circumstances and is not affected by where students enroll, variation across institution types reflects variation in the financial circumstances of the students who chose those types of institutions. Virtually all middle-income students had a positive EFC (at least 99 percent at each type of institution), which averaged between \$8,300 and \$9,000.

Virtually all low-income students (99 percent or more) had financial need, regardless of where they enrolled. Among those with need, the average amount ranged from \$7,400 at public 2-year institutions to \$26,000 at private not-for-profit doctoral and liberal arts institutions. The percentage of middle-income students with financial need varied, depending on where they enrolled. At public 2-year institutions, 48 percent of middle-income students had financial need, but at private not-for-profit doctoral and liberal arts institutions, 97 percent had need. The average amount for middle-income students with need ranged from \$2,600 at public 2-year institutions to \$20,900 at private not-for-profit doctoral and liberal arts institutions.

Financial Aid

Most low-income students received financial aid: 78 percent at public 2-year institutions and 86 to 98 percent at 4-year institutions. Among middle-income students, less than half received aid at public 2-year institutions (40 percent), but 71 to 93 percent did so at 4-year institutions. Students from both income groups were more likely to receive aid at private not-for-profit nondoctoral institutions than at any other type of institution.

Types and amounts of aid

To illustrate the relative importance of the different types of aid for low- and middle-income students across institution types, figure A shows the average amounts of each type of aid computed using all students as the base (i.e., including unaided students). It shows several patterns: more aid for low-income students, more aid as price goes up, more grant aid for low-income students than middle-income students at most types of institutions, and more loans than grants for middle-income students at public institutions.

Relative importance of grants and loans

For aided low-income students, aid covered almost half (48 percent) of the student budget, on average, at public 2-year institutions. At both types of public 4-year institutions and at private not-for-profit nondoctoral institutions, aid covered 64 to 68 percent of the student budget, and at private not-for-profit doctoral and liberal arts institutions, it

covered 75 percent. For aided middle-income students, aid covered 29 percent of the student budget, on average, at public 2-year institutions, 46 to 50 percent at public 4-year institutions, and 62 to 63 percent at private not-for-profit 4-year institutions.

At each type of institution, low-income students had more of their budget covered by financial aid than middle-income students, on average, and a greater proportion was covered by grants. For low-income students, 39 to 49 percent of their student budget was covered by grants, on average, depending on the type of institution they attended. For middle-income students, the percentage of their student budget covered by grants did not exceed 16 percent at public institutions, but in the private not-for-profit sector, it was higher: 32 percent at nondoctoral institutions and 37 percent at doctoral and liberal arts institutions. The percentage of the total student budget covered by loans was greater for middle-income students than for low-income students except at private not-for-profit doctoral and liberal arts institutions, where no difference was detected.

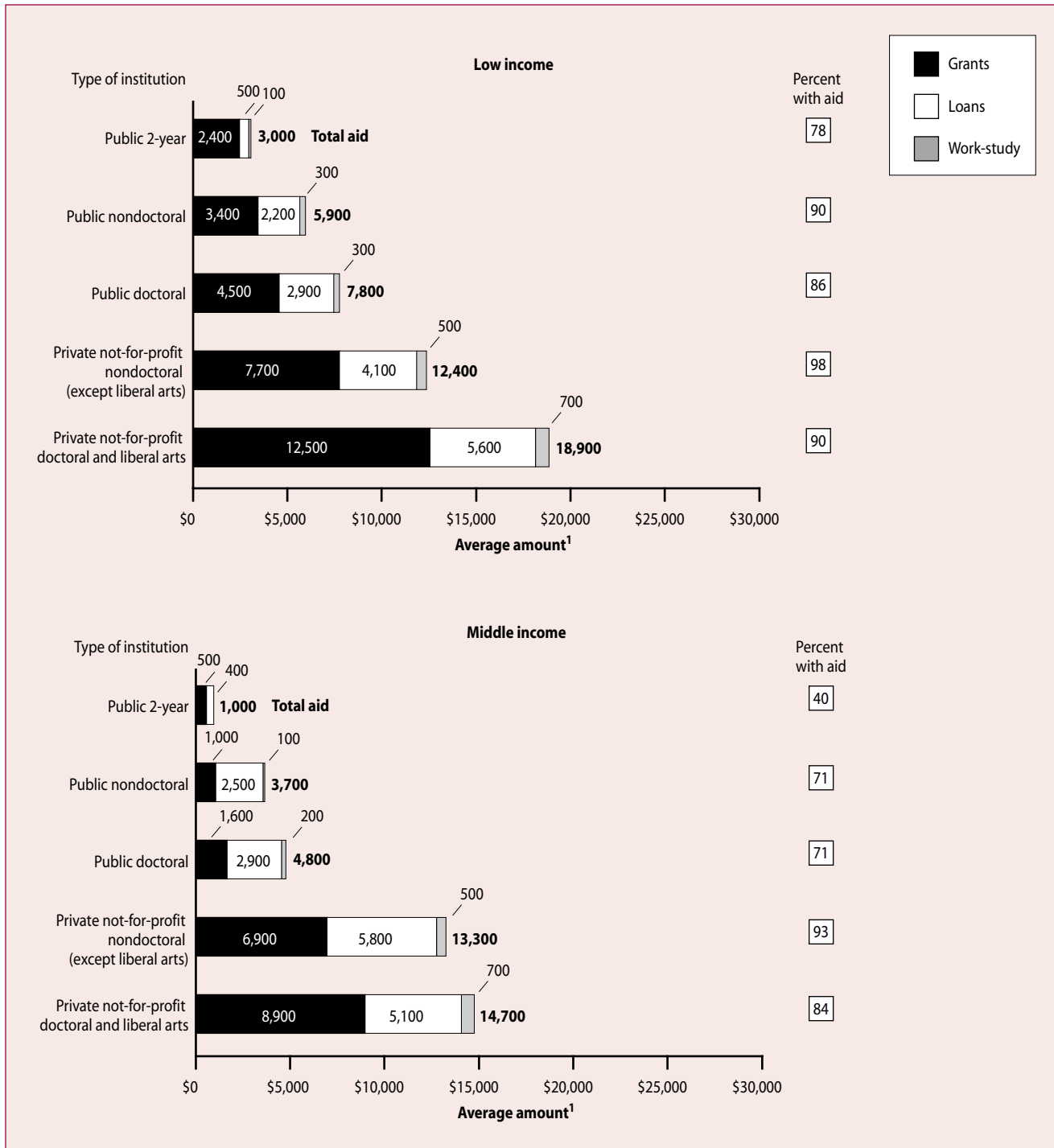
Sources of aid

For low-income students who received financial aid, federal aid (including grants and loans) constituted from 46 to 73 percent of total aid, on average, depending on the type of institution attended. For aided middle-income students, it ranged from 30 to 61 percent. The relative contribution of state grants to total aid was also higher, on average, for low-income students than for middle-income students except at public 2-year institutions, where no difference was detected. At each type of institution, institutional aid made up a greater proportion of total aid, on average, for middle-income students than for low-income students.

Remaining (unmet) need

Remaining, or unmet, need represents the amount of the total budget not covered by either the EFC or financial aid. In 1999–2000, about one-half of all full-time dependent students had a calculated unmet need. Depending on the type of institution attended, 74 to 92 percent of low-income students and 38 to 65 percent of middle-income students had unmet need. At each type of institution, low-income students were more likely than middle-income students to have unmet need. Among students with unmet need, the average amount ranged from \$4,000 to \$9,300 for low-income students and from \$2,100 to \$10,700 for middle-income students. At public institutions, low-income students with unmet need averaged higher amounts than their middle-income counterparts. At private not-for-profit

Figure A. Average amount of aid received by all full-time, full-year dependent low- and middle-income undergraduates, by type of aid and type of institution, and percentage with aid: 1999–2000



¹Averages computed using both aided and unaided students.

NOTE: Limited to undergraduates who attended only one institution and who were U.S. citizens or permanent residents. Detail may not sum to totals because types of aid other than grants, loans, and work-study are not shown. Average "other" aid did not exceed \$200 at any institution type. The average amount of work-study aid received by middle-income students at public 2-year institutions rounds to zero.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

4-year nondoctoral institutions, no difference was detected between the two groups, and at private not-for-profit doctoral and liberal arts institutions, the apparent difference was not statistically significant.

After Financial Aid

The amount of money that students and their families have to pay (after financial aid) during a given year to allow the students to enroll is called the “net price.” For this analysis, net price was computed as total price minus all financial aid *except* work-study (i.e., total price minus grants and loans).⁵ Because work-study programs provide wage subsidies to institutions and other employers, they help students obtain jobs. From the perspective of students, however, work-study earnings are still earnings from work and therefore they would have reported them in the telephone interview when asked about work. If work-study earnings were included in aid, they would be double-counted later in this analysis when the relative contributions of aid and work are examined.

Among low-income students, those at public nondoctoral institutions appeared to have the lowest average net price (\$4,600). No differences were detected in the average net prices of low-income students at public 2-year, public doctoral, and private not-for-profit nondoctoral institutions (\$5,400 to \$6,000). Because there were differences in the average prices paid at these types of institutions (as discussed earlier), more financial aid compensated for the higher prices. Low-income students at private not-for-profit doctoral and liberal arts institutions had the highest average net price (\$9,100).

Among middle-income students, those at public 2-year and public 4-year nondoctoral institutions had the lowest net prices (\$7,700 and \$7,400, respectively). Their counterparts at public doctoral and private not-for-profit nondoctoral institutions had the next highest net prices (\$8,700 and \$9,400, respectively). Middle-income students at private not-for-profit doctoral and liberal arts institutions had the highest average net price (\$14,600).

Work

Working during the school year is the norm, even for full-time students. In 1999–2000, 76 percent of all full-time dependent students worked while enrolled (including

students with work-study jobs). Those who worked put in an average of 22 hours per week and earned an average of \$5,100, including hours and earnings from work-study programs. At each institution type, no difference was detected between the percentages of low-income and middle-income students who worked, the amount they worked, and the average amount they earned.

Help from parents

Reflecting the greater financial resources of their families, middle-income students were more likely than their low-income peers to report that they received help from parents paying their tuition at each type of institution. With respect to nontuition expenses, middle-income students were more likely than low-income students to report receiving help at public doctoral institutions (34 percent vs. 28 percent), but no differences between the two groups were detected at other types of institutions.

Paying for College: A Summary

Figure B shows data for low- and middle-income students separately, with two horizontal bars for each institution type. The top bar in each set represents the average student budget and its two components: financial aid (excluding work-study) and what students and their families must pay (net price). The lower bar shows the known family effort: loans (including PLUS loans) and student earnings from work while enrolled (assuming that these earnings are used entirely for educational expenses). The averages shown include both aided and unaided students in order to indicate the relative contributions of the different amounts to the totals.

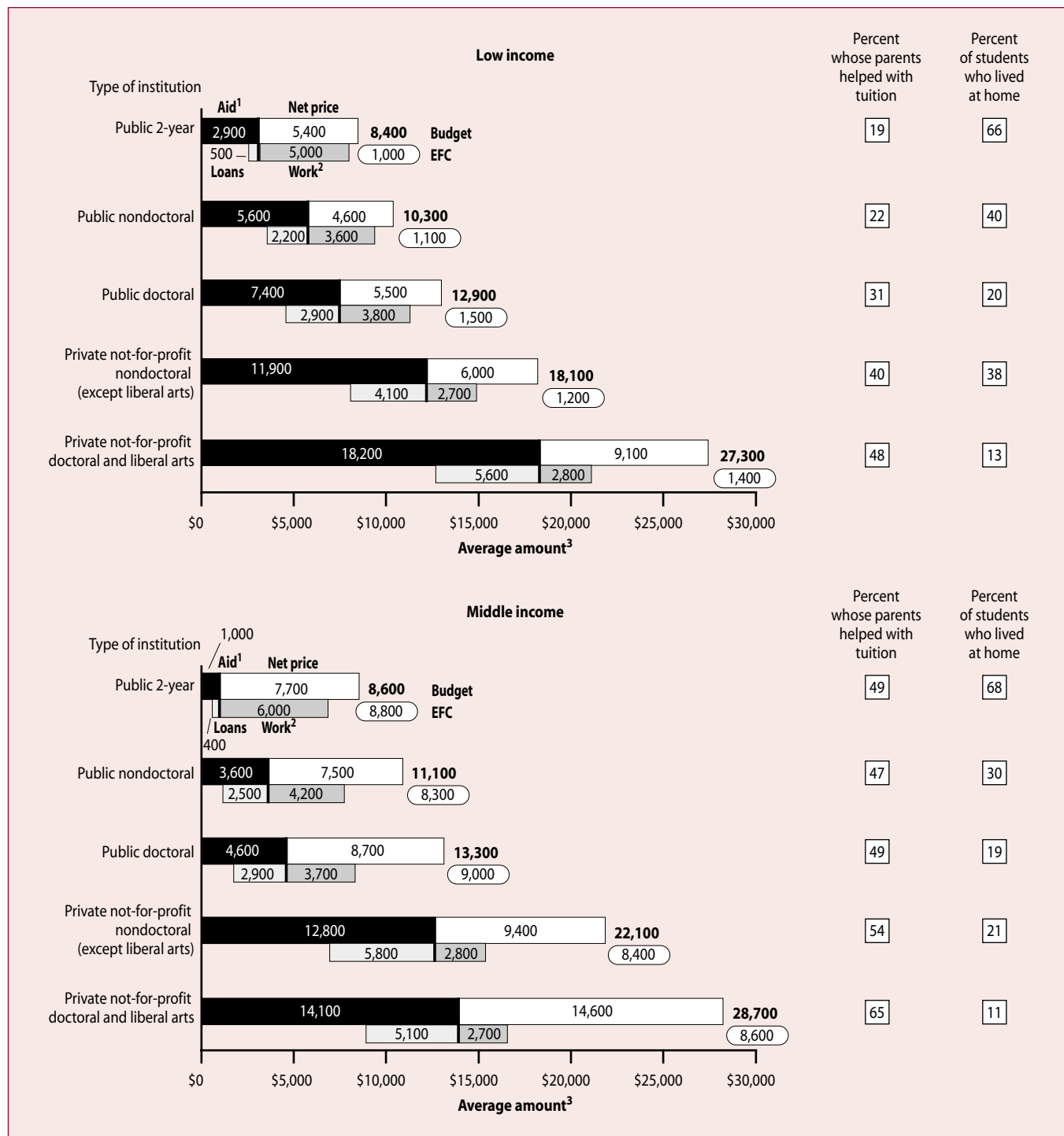
The circled numbers represent the expected family contribution (EFC). When the net price is greater than the EFC—that is, when the amount students and their families must pay is greater than the amount they are expected to pay—students have unmet financial need. A comparison of the EFC to work specifies how much of the family contribution theoretically could have come from student work while enrolled.⁶ The boxes on the right show the percentages of students whose parents (or others) helped pay their tuition and the percentages who lived at home.

For low-income students at each type of institution, the EFC fell short of the price students had to pay, even after financial aid. At public 2-year institutions, low-income students appeared to cover their educational expenses by

⁵The calculation of net price does not include the future cost of repaying loans. For students with loans as part of their financial aid package, the total amount they pay for their education includes the amounts they borrow, plus interest, in addition to the amounts paid while enrolled.

⁶There is no way of knowing what sources of funds families actually use.

Figure B. Average amounts for selected components of the average student budget for full-time, full-year dependent low- and middle-income undergraduates, sources of funds, and percentage of students who received support from their parents, by type of institution: 1999–2000



HOW TO READ THIS FIGURE: The top bar in each set represents the average student budget with its two components: financial aid (excluding work-study) and what students and their families must pay (net price). The lower bar shows the known family effort: loans and student earnings from work while enrolled (assuming that these earnings are used entirely for educational expenses). The circled numbers represent the expected family contribution (EFC). When the net price is greater than the EFC—that is, when the amount students and their families must pay is greater than the amount they are expected to pay—students have unmet financial need.

¹Aid includes grants/scholarships, loans, and “other” aid (such as ROTC, aid for veterans’ dependents and survivors, and other unidentified types of aid), but excludes work-study aid. Earnings from work-study participation are included in “work.” Therefore, this average amount of aid differs from the total shown in figure A.

²Includes work-study earnings.

³Average amounts include unaided as well as aided students.

NOTE: Limited to undergraduates who attended only one institution and who were U.S. citizens or permanent residents. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

receiving aid (primarily grants), living at home, and working while enrolled. At public 4-year institutions, they appeared to depend primarily on aid (both grants and loans) and their own earnings, with some help from their parents. While low-income students at private not-for-profit 4-year institutions received substantial amounts of aid, it is difficult to understand how they covered their educational expenses given the gap between the net price and EFC and the amount these students reported earning on their own, especially at private not-for-profit doctoral and liberal arts institutions where relatively few students lived at home. To meet their expenses, low-income students at private not-for-profit 4-year institutions may have reduced their standard of living below the institutionally determined budget; acquired additional funds through gifts or loans from grandparents, noncustodial parents, or others whose financial resources are not considered in the EFC formula; or used more of their income or savings than required by the EFC formula, to name some possible strategies.

At public institutions and private not-for-profit nondoctoral institutions, middle-income students and their families were in a better position than their low-income counterparts to cover their expenses. With access to student loans (and substantial grants at private not-for-profit nondoctoral institutions), these families, on average, generally appeared able to bring the net price into line with the EFC. At private not-for-profit doctoral institutions, however, despite grants

and loans, there remained a relatively large unexplained amount of the net price to cover beyond the EFC.

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Data source: The NCES 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

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Author affiliations: S.P. Choy and A.M. Berker, MPR Associates, Inc.

For questions about content, contact Aurora D'Amico (aurora.d'amico@ed.gov).

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Institutional Aid

What Colleges Contribute: Institutional Aid to Full-Time Undergraduates Attending 4-Year Colleges and Universities

—Laura Horn and Katharin Peter

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the National Postsecondary Student Aid Study (NPSAS) and the Beginning Postsecondary Students Longitudinal Study (BPS).

Introduction

Many colleges and universities, both public and private, provide grant aid to undergraduates to help them pay for all or part of the tuition and fees charged by the institution. This practice, often referred to as “tuition discounting,” has grown rapidly in recent years (Redd 2000; Cunningham et al. 2001; Hubbell and Lapovsky 2002). Depending on the type and selectivity of the institution, institutional aid is awarded for different reasons. Some institutions aim to promote access to low-income and otherwise disadvantaged students, others use institutional aid to increase the enrollment of meritorious students, and still others use it to increase tuition revenues (Allan 1999; Redd 2000). Many institutions are trying to accomplish more than one of these goals simultaneously (Redd 2000). Through the packaging of need-based and merit-based aid, different institutions use different strategies. For example, a need-within-merit strategy uses merit criteria, but prioritizes the recipients on the basis of need, whereas a merit-within-need strategy awards aid on the basis of need, but prioritizes the recipients on the basis of merit.

This study provides information about recent trends in institutional aid receipt and then examines the relationship between such aid and the likelihood of recipients staying enrolled in the awarding institution relative to comparable unaided students. The trend analysis is based on data gathered from three administrations of the National Postsecondary Student Aid Study, conducted in 1992–93, 1995–96, and 1999–2000 (NPSAS:93, NPSAS:96, and NPSAS:2000), and the retention analysis is based on data from the first and second follow-ups to the 1995–96 Beginning Postsecondary Students Longitudinal Study (BPS:96/01). BPS followed a cohort of students who first enrolled in college in 1995–96 and were last surveyed in 2001, about 6 years after their initial enrollment. Only full-time students attending 4-year public and private not-for-profit institutions were included in these analyses.

Trends in Institutional Aid: 1992–93 to 1999–2000

Consistent with earlier studies reporting large increases in spending on institutional aid by 4-year colleges and univer-

sities (e.g., Cunningham et al. 2001), this study found that the percentage of full-time undergraduates in 4-year colleges and universities who received institutional aid increased over the last decade, both in the public and private not-for-profit sectors (figure A).¹ In 1992–93, 17 percent of undergraduates in public institutions received institutional aid, averaging about \$2,200 (after adjusting for inflation to 1999 dollars). By 1999–2000, 23 percent received such aid, averaging about \$2,700. In private not-for-profit institutions, 47 percent received institutional aid, averaging about \$5,900 in 1992–93, while 58 percent did so in 1999–2000, averaging about \$7,000.

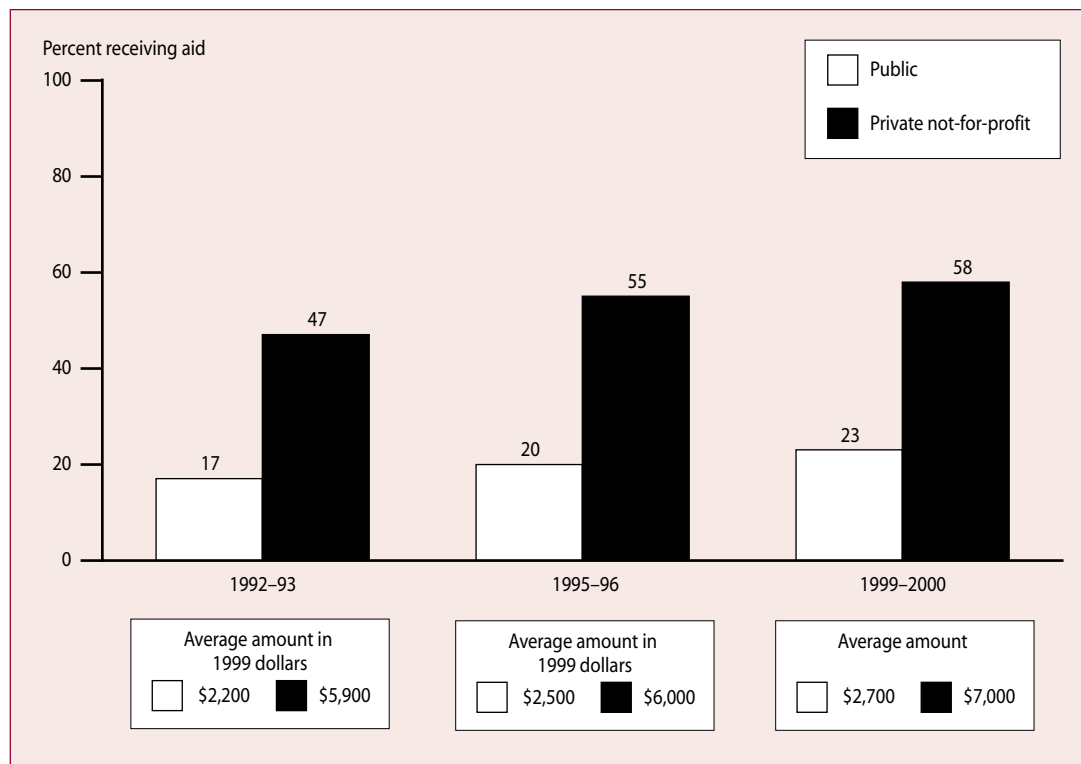
Over the same period, there was a notable increase in the percentage of undergraduates in the highest income quartile who received institutional aid, especially between 1995–96 and 1999–2000 (figure B). In private not-for-profit institutions, the percentage of undergraduates in the highest income quartile who received institutional aid increased from 41 to 51 percent between 1995–96 and 1999–2000. In public institutions, the percentage of high-income students receiving such aid increased from 13 to 18 percent. In contrast, in both the public and private sectors, no corresponding increase was observed during that time for those in the lowest income quartiles; and in private institutions, no increase was observed for middle-income students.

Much of the increase in institutional grant aid awarded between 1995–96 and 1999–2000 was in the form of aid based entirely on merit.² The percentage of full-time undergraduates who received merit aid increased from 7 to 10 percent in public institutions and from 21 to 29 percent in private not-for-profit institutions (figure C). In contrast, between 1992–93 and 1995–96, no differences in the percentages of undergraduates receiving merit aid were observed in either public institutions or private not-for-profit institutions.

¹Institutional aid includes both need-based and merit-based aid.

²In addition to academic scholarships, merit aid includes athletic and other merit scholarships. Merit aid is included in the total aid awards previously discussed and shown in figure B.

Figure A. Percentage of full-time undergraduates enrolled in 4-year institutions who received institutional aid and among recipients, the average amount received in constant 1999 dollars, by institution control: 1992–93, 1995–96, and 1999–2000



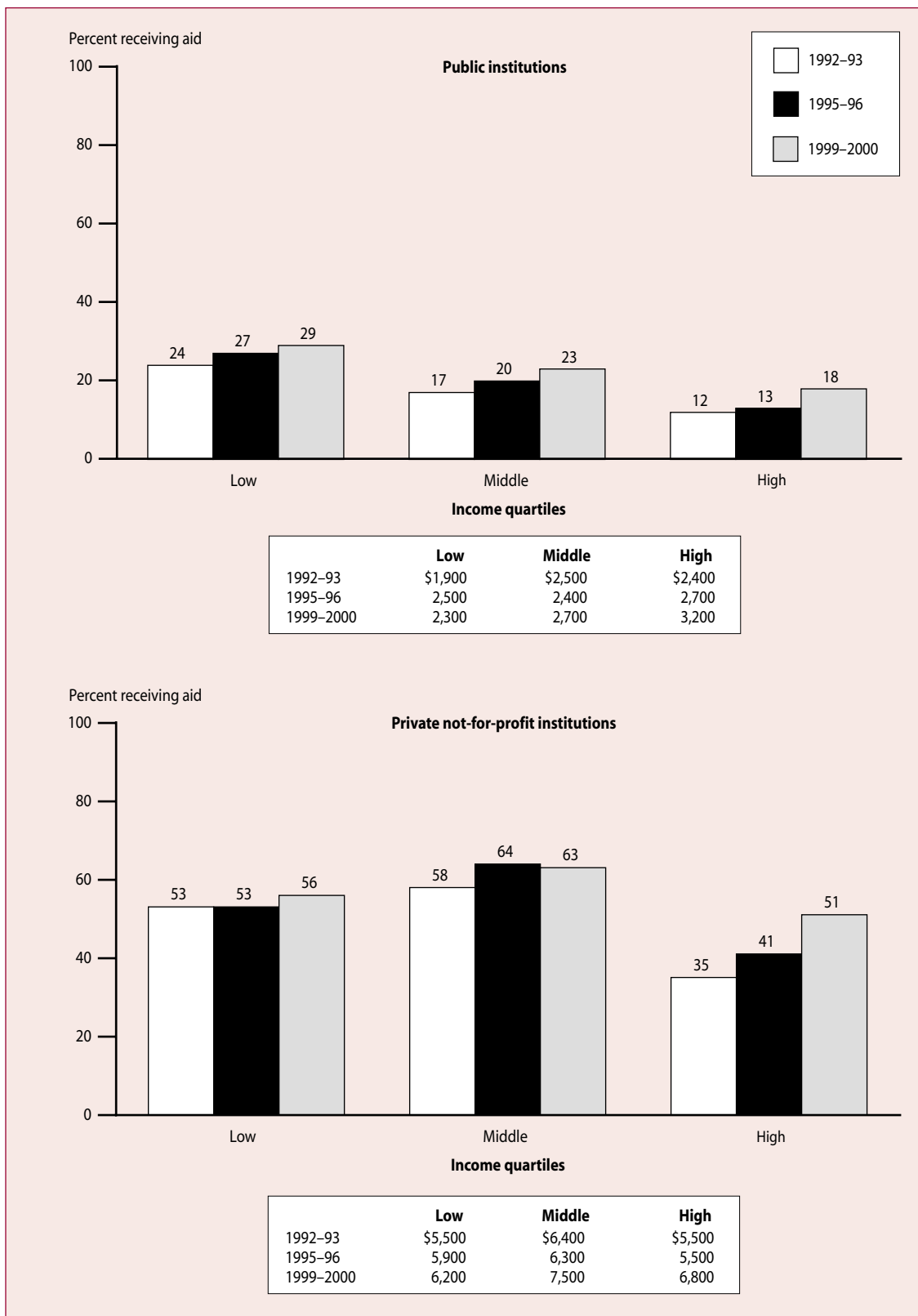
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93, 1995–96, and 1999–2000 National Postsecondary Student Aid Study (NPSAS: 93, NPSAS: 96, and NPSAS: 2000).

A relationship between the likelihood of receiving institutional merit aid and family income could not be detected in public institutions. That is, in all three NPSAS survey years, no differences were observed in the percentages of full-time undergraduates who received institutional merit aid among low-, middle-, or high-income students. In private not-for-profit institutions, on the other hand, differences by income were evident (figure D). In both 1992–93 and 1995–96, undergraduates in the middle-income quartiles were more likely than students in either the highest or lowest income quartiles to receive merit aid. By 1999–2000, however, no difference could be detected between the percentages of middle- and high-income students receiving merit aid (roughly 30 percent in each group did so), and students in both these income groups were more likely than low-income students (23 percent) to receive such aid. In other words, in private not-for-profit institutions, in the early to mid-1990s, middle-income students appeared to be favored over both high-income and low-income students in terms of receiving institutional merit aid. Institutions might award institutional aid in such a manner because low-income students are more eligible for need-based aid and high-

income students have more discretionary income. However, by 1999–2000, no difference could be detected between those in the middle- and high-income quartiles, and students in both income groups were more likely to receive merit aid than their low-income peers.

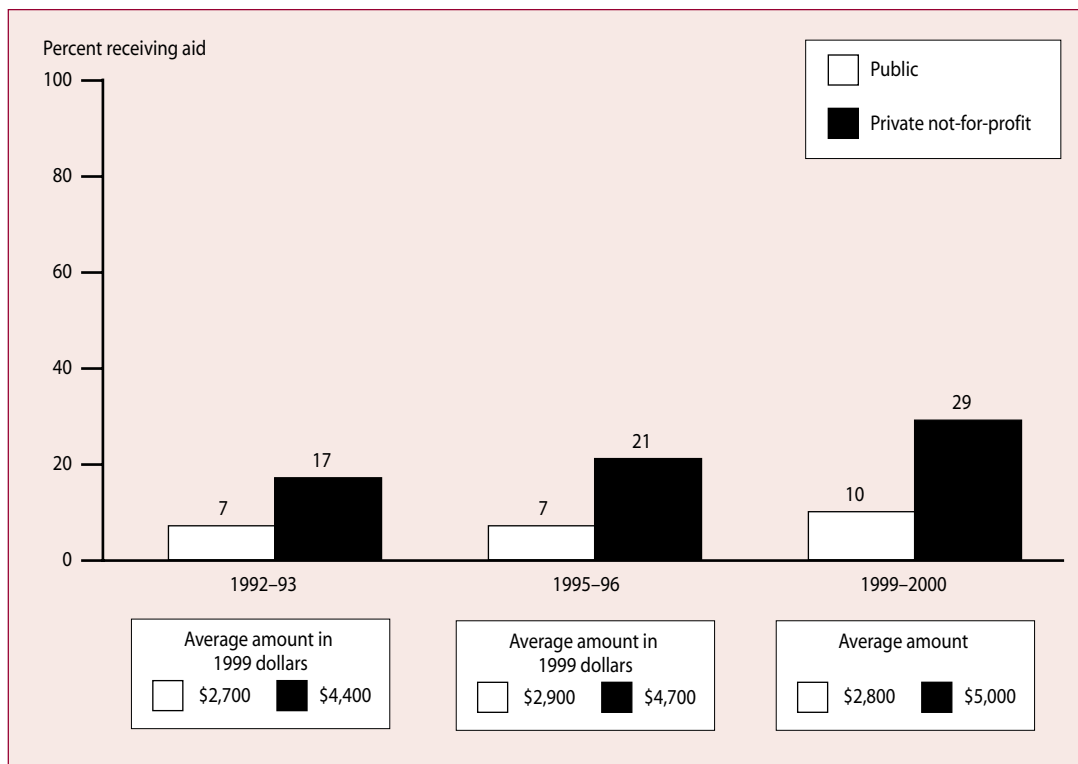
As shown in figure E, need-based and merit-based institutional aid awards are often packaged together. In private not-for-profit institutions, where merit aid is most likely to be awarded, among full-time undergraduates, 44 percent of those who received need-based aid in 1999–2000 also received merit-based aid; among students who received merit-based aid, about one-third also received need-based aid. Taking into account the various need-within-merit and merit-within-need award strategies that institutions might use to increase institutional aid across income levels, if the trend in increased aid was aimed at all students, the notable increase in merit aid awards to high-income students in private not-for-profit institutions that occurred between 1995–96 and 1999–2000 would have been accompanied by a corresponding increase in total aid to low-income and most middle-income students, who are eligible for

Figure B. Percentage of full-time undergraduates enrolled in 4-year institutions who received institutional aid and among recipients, the average amount received in constant 1999 dollars, by income quartile: 1992–93, 1995–96, and 1999–2000



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93, 1995–96, and 1999–2000 National Postsecondary Student Aid Study (NPSAS: 93, NPSAS: 96, and NPSAS: 2000).

Figure C. Percentage of full-time undergraduates enrolled in 4-year institutions who received merit-based institutional aid and among recipients, the average amount received in constant 1999 dollars, by institution control: 1992–93, 1995–96, and 1999–2000



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93, 1995–96, and 1999–2000 National Postsecondary Student Aid Study (NPSAS: 93, NPSAS: 96, and NPSAS: 2000).

need-based aid. However, as is shown in figure B, this does not appear to be the case. Looking at total institutional aid, which includes both need and merit aid, no increase was observed in the percentage of either low- or middle-income students receiving aid between 1995–96 and 1999–2000, while awards to high-income students increased from 41 to 51 percent.

Academic Merit, Financial Need, and Institutional Grant Aid Among First-Year Students

Among undergraduates who enrolled in a 4-year college or university for the first time in 1995–96, about 38 percent of full-time students received institutional grant aid, including about one-quarter (24 percent) in public institutions and nearly two-thirds (62 percent) in private not-for-profit institutions.

Institutional aid can be awarded on the basis of financial need, academic merit, or both need and merit. In addition,

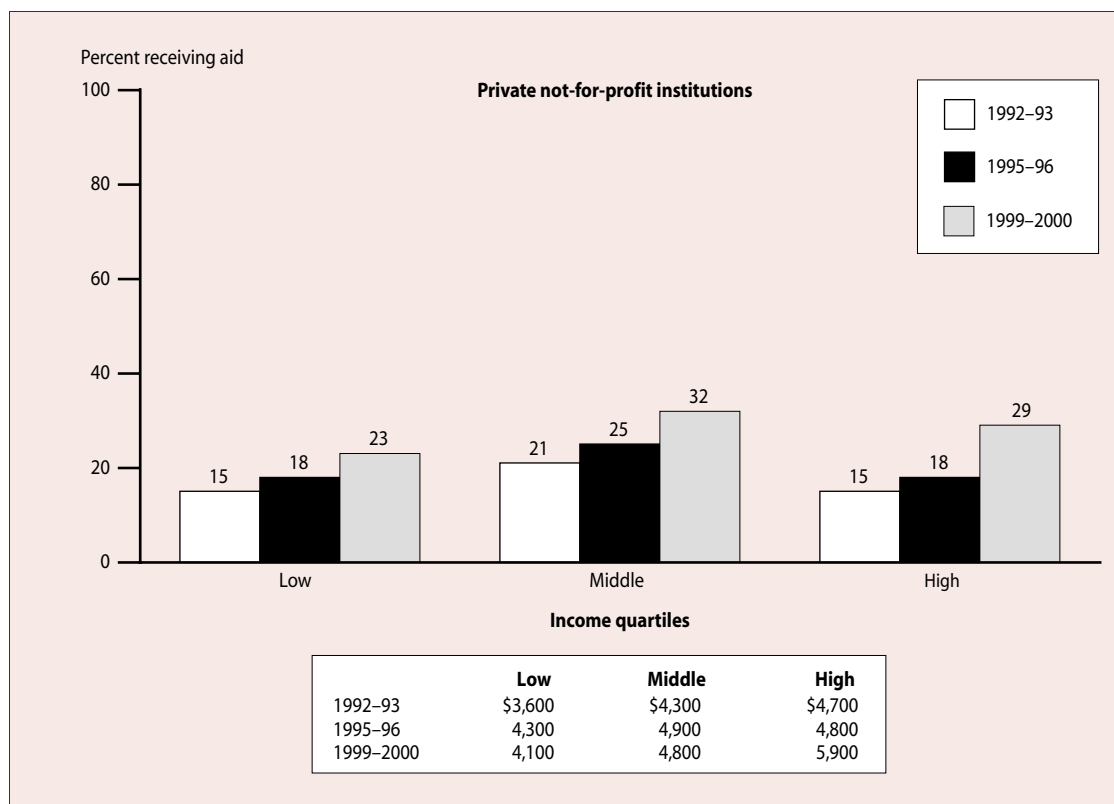
depending on the selectivity of the institution, institutional aid packages and amounts may vary. Therefore, in this analysis, students' high school academic merit,³ their financial need,⁴ and the selectivity of institutions⁵ were taken into account when examining patterns of receipt of institutional grant aid.

³Levels of academic merit were based on an index incorporating three academic measures: college entrance exam scores, degree of high school curriculum difficulty, and high school grade-point average (GPA).

⁴Levels of financial need were based on the student budget reported by the institution (which includes the cost of tuition, books, and transportation, plus living expenses) after subtracting the expected family contribution (EFC) and government grant aid (both federal and state). This is the amount that institutions typically take into account before committing their own funds. This definition differs from the federal need definition, which is student budget minus EFC.

⁵Institution selectivity was based on the SAT or equivalent ACT scores of entering students. Institutions where at least 75 percent of entering students scored above 1000 on the SAT were considered "very selective." All others were identified as "less selective." (See appendix A in the full report for detailed descriptions of variables.)

Figure D. Percentage of full-time undergraduates enrolled in private not-for-profit 4-year institutions who received merit-based institutional aid and among recipients, the average amount received in constant 1999 dollars, by income quartile: 1992–93, 1995–96, and 1999–2000



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93, 1995–96, and 1999–2000 National Postsecondary Student Aid Study (NPSAS:93, NPSAS:96, and NPSAS:2000).

Institution selectivity

Many of the differences observed in institutional grant aid awards were related to the selectivity of the institution. For example, in both public and private not-for-profit institutions, the likelihood of awarding institutional aid in very selective institutions did not vary significantly with students’ academic merit, whereas in less selective institutions, it did. In less selective institutions, as students’ high school academic merit increased, so did their likelihood of receiving institutional grant aid.

Differences by institution selectivity were also evident when examining the relationship between institutional aid awards and students’ financial need, especially in the private sector. In very selective private not-for-profit institutions, as students’ financial need rose, so did their likelihood of receiving institutional grant aid, from 21 percent of those with low financial need, to 59 percent with moderate need, to 66 percent with high need. In less selective institutions,

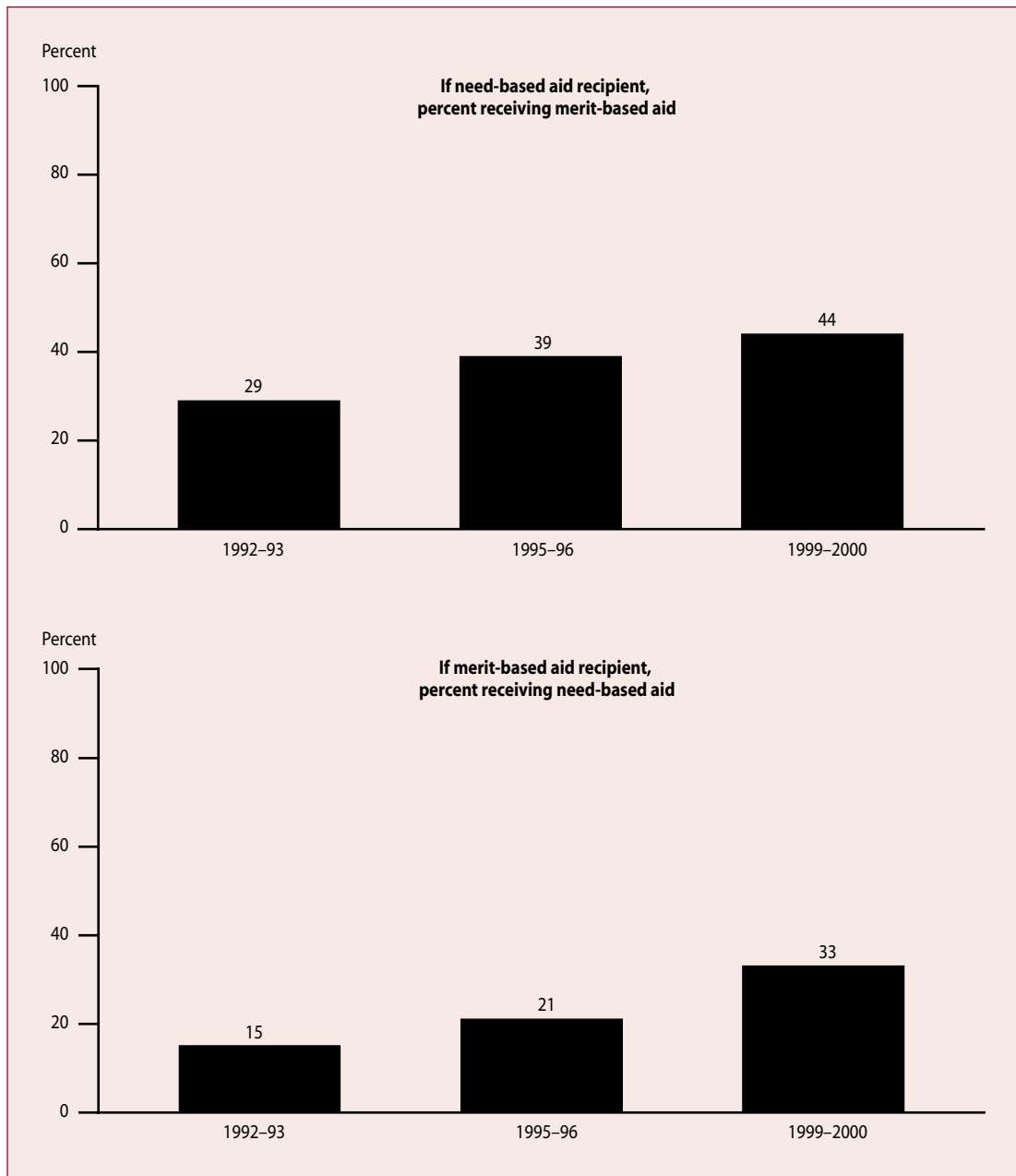
on the other hand, while there was an association between institutional aid awards and financial need, fully one-half (51 percent) of students with low financial need received institutional grant aid, as did 71 percent of both those with moderate and high need.

Financial need

In both less selective and very selective public institutions, students’ likelihood of receiving institutional grant aid was clearly associated with their financial need. Students with no financial need were less likely to receive institutional grant aid than their counterparts with high need. However, students with no financial need were more likely to receive institutional grant aid in less selective institutions than in very selective institutions, whereas those with high need were more likely to receive aid in very selective institutions.

When looking at students’ financial need in relation to their high school academic merit, positive associations between

Figure E. Among full-time undergraduates in private not-for-profit 4-year institutions who received institutional aid, the percentage of need-based aid recipients who also received merit-based aid and the percentage of merit-based aid recipients who also received need-based aid: 1992–93, 1995–96, and 1999–2000



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93, 1995–96, and 1999–2000 National Postsecondary Student Aid Study (NPSAS: 93, NPSAS: 96, and NPSAS: 2000).

students’ financial need and the likelihood of receiving institutional aid awards remained for those who had achieved no higher than moderate levels of high school academic merit. This was observed for all institution types, including less selective private not-for-profit institutions: at such institutions, among those who had achieved moderate

levels of academic merit, 69 percent with high need received institutional grant aid, compared with 47 percent with low need. However, as discussed below, for students who had achieved high levels of academic merit, whether or not they received institutional grant aid in less selective institutions did not vary significantly with their financial need.

Students with high academic merit

As shown in figures F and G, students enrolled in less selective institutions who had achieved high academic merit in high school were more likely to receive institutional grant aid than their high-merit counterparts in very selective institutions. This was observed for both public institutions (52 vs. 27 percent) (figure F) and private not-for-profit institutions (87 vs. 51 percent) (figure G).

However, in less selective institutions, no association could be detected between the likelihood of high-merit students receiving institutional grant aid and their financial need.⁶ In private not-for-profit less selective institutions, for example, roughly 9 in 10 high-merit students received institutional grant aid regardless of their financial need (figure G). In very selective institutions, on the other hand, high-merit students with high financial need were more likely to receive institutional aid than their counterparts with low (or no) need.

For high-merit students who received institutional grant aid, the average amount received as a percentage of tuition varied by institution selectivity in private not-for-profit institutions (figure H): those in very selective institutions received about 58 percent of their tuition amounts, compared with 46 percent in less selective institutions. However, in the same sector, only in very selective institutions did the amount of institutional aid received vary by aid recipients' financial need. Specifically, in very selective institutions, high-merit recipients with high financial need received enough institutional grant aid to pay for about two-thirds of their tuition, compared with about one-half of tuition for high-merit recipients with moderate or low need. In less selective private not-for-profit institutions, on the other hand, no difference in the average amounts received by high-merit recipients could be detected among students in terms of their financial need.⁷

Tuition in public institutions is typically much lower than it is in comparable private not-for-profit institutions. Due to large variations in the amounts received, in particular for students with no financial need, statistical differences in aid amounts could be detected only for high-merit aid recipients in less selective public institutions. Among such

⁶In public less selective institutions, the difference between the percentages of students with no need and high need who received institutional grant aid appeared to be different (44 vs. 66 percent), but because of large standard errors for high-merit students with high need, there was not enough statistical evidence to confirm the difference.

⁷The aid amounts for high-merit students with high need and low need appear to be different (51 vs. 41 percent of tuition), but there was not enough statistical evidence to confirm the difference.

students, those with high need received enough aid to pay 96 percent of their tuition, compared with recipients with moderate need, who received only enough aid to pay 64 percent of their tuition.

Institutional Grant Aid and Retention at Awarding Institution

How did the award of institutional grant aid relate to students' likelihood of staying enrolled in the awarding institution? The analysis addressed this question at two different points in time, 1 year and 6 years after students first enrolled.

One year later

Some groups of students who received institutional grant aid in their first year were more likely than their unaided counterparts to re-enroll in their second year and less likely to transfer to another institution. But findings differed by sector and selectivity of institutions. In particular, differences in 1-year retention rates were observed for middle-merit students in less selective institutions, both public and private not-for-profit. Specifically, among middle-merit students, 87 percent of aided students in less selective public institutions returned in their second year, compared with 75 percent of unaided students; similarly, in less selective private not-for-profit institutions, 87 percent of aided students returned, compared with 70 percent of unaided students. A difference was also observed for high-merit students in very selective public institutions, where 97 percent of aided students returned, compared with 90 percent of unaided students. Due in part to small sample sizes and uniformly high retention rates, 1-year retention rate differences could not be detected for any merit group in very selective private not-for-profit institutions.⁸

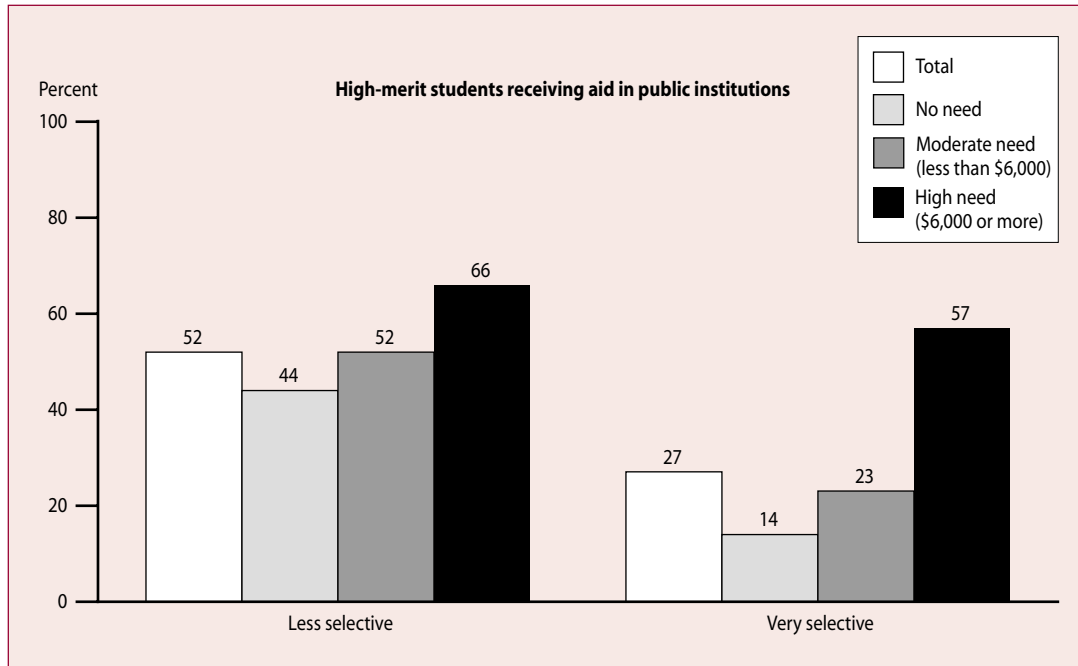
Six years later

Six years after their first enrollment, differences between aided and unaided students were only observed in public institutions. Students who had been awarded institutional grant aid in their first year were more likely than their unaided counterparts to have either attained a degree from or still be enrolled at the awarding institution.⁹ In less selective public institutions, this trend was found across all merit groups, while in very selective public institutions, a

⁸For example, 88 percent of high-merit aided students in very selective private not-for-profit institutions were still enrolled, as were 81 percent of comparable unaided students, a difference that is not statistically significant.

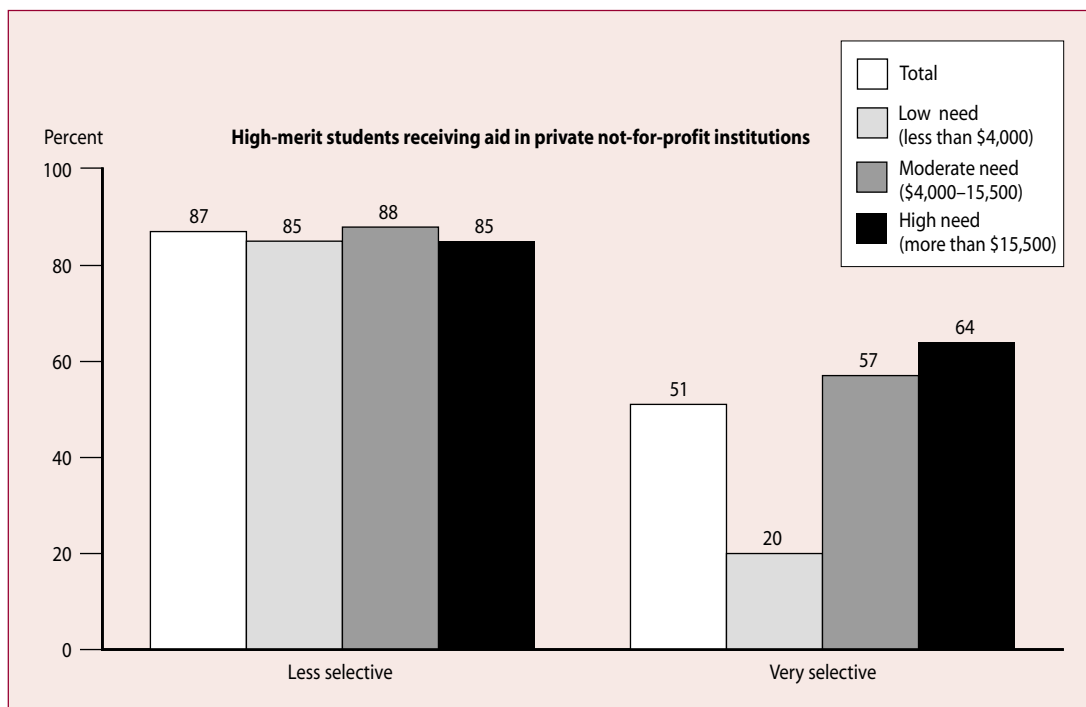
⁹Institutional grant aid receipt was only known for the first year of enrollment. The relationship discussed here is whether students received institutional aid in their first year and then persisted in the awarding institution for 6 years.

Figure F. Among 1995–96 beginning full-time students enrolled in public 4-year institutions who had achieved high academic merit in high school, the percentage receiving institutional grant aid, by institution selectivity and financial need



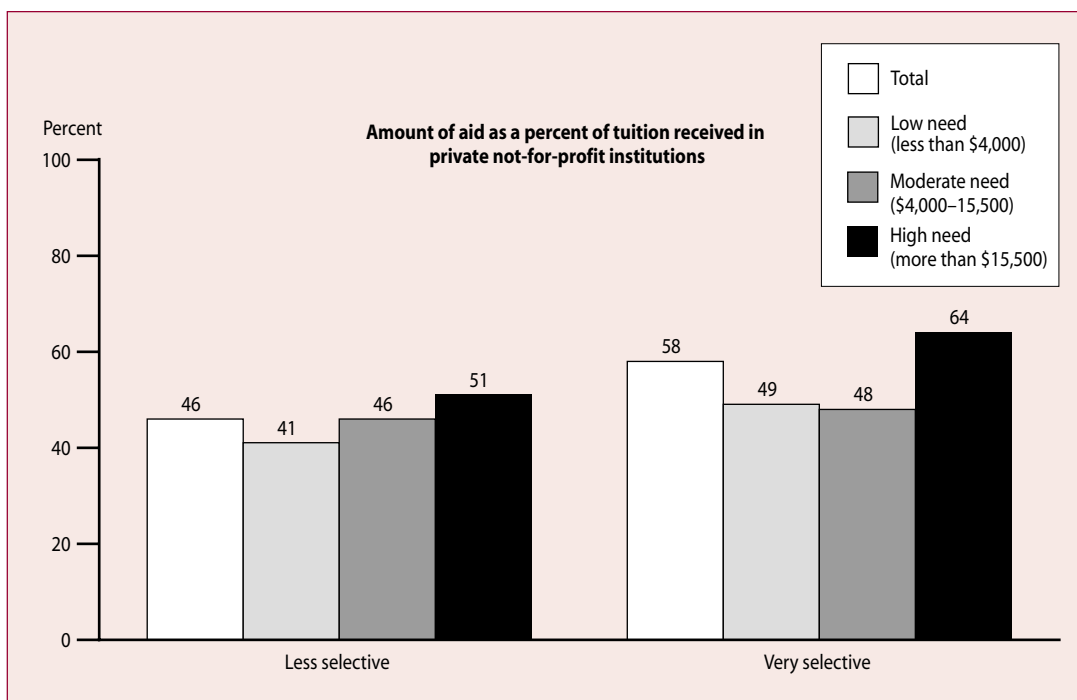
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996/98 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

Figure G. Among 1995–96 beginning full-time students enrolled in private not-for-profit 4-year institutions who had achieved high academic merit in high school, the percentage receiving institutional grant aid, by institution selectivity and financial need



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996/98 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

Figure H. Among 1995–96 beginning full-time students enrolled in private not-for-profit 4-year institutions who had achieved high academic merit in high school and had received institutional grant aid, the average amount received as a percent of tuition, by institution selectivity and financial need



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996/98 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

difference in retention between aided and unaided students was detected only for high-merit students (88 percent of aided students maintained their enrollment vs. 78 percent of unaided students).

In private not-for-profit institutions, whether they were less selective or very selective institutions, no differences could be detected between the 6-year retention rates of students who received institutional grant aid in their first year and those who did not.

These results held in a subsequent multivariate analysis after taking into account students' academic merit and financial need, the selectivity of institutions, and a number of other variables related to retention.¹⁰ Full-time undergraduates who received institutional grant aid in public institutions were more likely than their unaided counter-

parts to earn a degree from or still be enrolled at the awarding institution 6 years after they had first enrolled. However, the same pattern was not observed for those enrolled in private not-for-profit institutions. While it appears as though receiving high amounts of institutional grant aid in private not-for-profit institutions (covering 75 percent or more of tuition) was associated with higher retention, there was not enough statistical evidence to confirm a difference once the multivariate analysis was applied.

Conclusions

This study found that the percentage of full-time students receiving institutional grant aid increased measurably between the early and late 1990s. Increases in aid were especially apparent for students in the highest income quartile, and much of the increase was awarded in the form of merit aid.

The study also found that students who achieved high academic merit in high school were more likely to receive institutional grant aid if they attended less selective rather

¹⁰While the analysis controlled for observable student characteristics that might be related to persistence, it is possible that unobservable characteristics are related both to the receipt of institutional aid and persistence. For example, an institution might be more likely to give aid to students it perceives as more likely to succeed over students with comparable merit and need.

than very selective institutions (in both the public and private not-for-profit sectors). However, an association between high-merit students receiving such aid and their financial need was not readily apparent in less selective private not-for-profit institutions, whereas in very selective institutions (both public and private not-for-profit), the likelihood of high-merit students receiving institutional grant aid increased with their financial need.

There was evidence that receiving institutional grant aid as freshmen was related to higher 1-year retention rates for certain groups of students, namely, those who had achieved moderate levels of academic merit and had enrolled in less selective institutions (both public and private not-for-profit), as well as those who had achieved high academic merit and enrolled in very selective public institutions. However, an association between institutional grant aid receipt in the first year and 6-year institutional retention (or degree attainment) was only evident among students in public institutions.

Taken together, the results are consistent with those of other studies reporting higher spending by 4-year colleges and universities on institutional aid (e.g., Cunningham et al. 2001), especially by less selective private institutions (Redd 2000; and Hubbell and Lapovsky 2002). Also, as discussed in Duffy and Goldberg (1998), the findings revealed that in the late 1990s, the percentage of high-income students receiving institutional grant aid (in particular, merit aid) increased, as did the average amount they received. This study could not address whether institutional grant aid awards had increased the enrollment of the types of students that institutions sought. However, the findings did indicate that in private not-for-profit institutions, where most institutional grant aid is awarded, no measurable association could be detected between students' receipt of institutional grant aid as freshmen and

their graduating from the awarding institution (compared to unaided students), once other factors such as students' academic merit, students' financial need, and institutional selectivity were taken into consideration.

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Data sources: The NCES 1992–93, 1995–96, and 1999–2000 National Postsecondary Student Aid Study (NPSAS:93, NPSAS:96, and NPSAS:2000); and the 1996/98 and 1996/2001 Beginning Postsecondary Students Longitudinal Study, “First Follow-up” (BPS:96/98) and “Second Follow-up” (BPS:96/01).

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Author affiliations: L. Horn and K. Peter, MPR Associates, Inc.

For questions about content, contact Aurora D’Amico (aurora.d’amico@ed.gov).

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Helping Low-Income Students

Invited Commentary: Federal Efforts to Help Low-Income Students Pay for College

Sally L. Stroup, Assistant Secretary of Postsecondary Education,
U.S. Department of Education

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

How do low-income families pay for postsecondary education? This is a critical question to answer as we look to the upcoming reauthorization of the Higher Education Act (HEA). Through the HEA, the U.S. Department of Education will deliver or cause to be delivered more than \$60 billion in financial aid—primarily to low-income students—during the 2003–04 academic year.

The National Center for Education Statistics (NCES) report *How Families of Low- and Middle-Income Undergraduates Pay for College: Full-Time Dependent Students in 1999–2000* highlights the significant role that federal student financial aid programs play as the primary mode of support to low-income students enrolled in a public 2-year, public 4-year, or private not-for-profit 4-year college or university. It also highlights the fact that middle-income students' reliance on financial aid is greatest when they are attending 4-year institutions.

The report documents the fact that low-income students attending public 2-year colleges in 1999–2000 were able to meet their education expenses by combining federal grants with their earnings from work. Typically, they were also aided by their families by living at home while enrolled, and they borrowed little. Low-income students attending public 4-year colleges and universities, particularly those attending doctoral degree-granting universities, were likely to receive more grant support, including institutional grants, and to spend no more out-of-pocket than their peers at public 2-year colleges. They were, however, more likely to take out subsidized Stafford loans.

Three significant changes have occurred since 1999–2000:

- The federal Pell Grant maximum award increased from \$3,125 for the 1999–2000 academic year to

\$4,000 for the 2002–03 academic year—an increase of nearly 30 percent in just 4 years. This increase continued the trend begun in 1995–96.

- The average tuition and fees charged by colleges and universities increased dramatically between 1999–2000 and 2002–03. The average tuition and fees charged by public 4-year colleges and universities increased by \$720, or 22 percent, while the average tuition and fees charged by private 4-year colleges and universities increased by \$2,800, or 18 percent. These increases offset the gains achieved by the federal investment of \$4.4 billion in the Pell Grant Program for 2002–03—a 60 percent increase since 1999–2000.
- Student loan interest rates have fallen to historic lows. Students leaving postsecondary education in the summer of 2000 were looking at entering repayment with interest rates of 7.72 percent on their subsidized Stafford loans. Students leaving postsecondary education today—in the summer of 2003—are facing interest rates of 3.42 percent. This reduction in the student loan interest rate will result in monthly savings of more than \$20 on \$10,000 in debt and 10-year savings of nearly \$2,600.

Over the last several years, the federal government has been doing its part to reduce the economic barriers to low-income individuals enrolling in postsecondary education by substantially increasing funds for the Pell Grant Program and supporting policies that have reduced student loan costs to borrowers. However, despite these strong efforts, significant increases in tuition and fees continue to hamper the federal government's attempts to increase access to postsecondary education for many students from low-income families.

Examining Unmet Need

Invited Commentary: The Gap Between College Costs and Student Resources

Kenneth E. Redd, Director of Research and Policy Analysis, National Association of Student Financial Aid Administrators

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

One of the biggest concerns for many families is how they are going to pay their children's college expenses. In academic year 2002–03, the average total price for full-time undergraduates to attend 4-year institutions—including tuition, fees, room, board, books, supplies, and other education expenses, as estimated by the institutions—was more than \$12,800 at public institutions and almost \$28,000 at private institutions (College Board 2003a). Over the past decade, inflation-adjusted tuition prices at public and private 4-year colleges and universities jumped nearly 40 percent, while the median income of families with a head of household 45 to 54 years old (those families most likely to have traditional college-age children) rose only 8 percent (College Board 2003b). Such price increases have made it much more difficult for families from nearly all income levels to pay for college. Researchers have, for many years, wondered how low- and middle-income families manage to put together enough funds from financial aid and their own resources to pay for their children's postsecondary education. A recent report from the National Center for Education Statistics (NCES), *How Families of Low- and Middle-Income Undergraduates Pay for College: Full-Time Dependent Students in 1999–2000*, provides much-needed information on the resources students and their families use to bear the burden of college costs.

As the report explains, paying for college is considered to be primarily a family responsibility, with students and families from all income backgrounds expected to contribute at least some portion of their resources toward postsecondary expenses. However, with the advent of federal student financial aid, as authorized by the Higher Education Act of 1965, the federal government committed itself to at least partially assisting students with these costs. Since then, federal and state governments, along with the postsecondary institutions themselves, have distributed billions of dollars in grants, loans, and work-study awards to help students pay college expenses. In 1999–2000 alone, these entities awarded nearly \$66 billion in direct financial assistance to students (College Board 2003b). Unfortunately, as the NCES report shows, these funds often are not enough to offset the total cost of education for many low- and middle-income undergraduates, and students and their

families often must make up the difference through work, private credit, or other means.

Access Versus Affordability: A Changing Role for Financial Aid

Originally, financial aid was designed to provide educational access to low-income families—those families who can least afford to pay college costs. As such, most aid was distributed to students based on their demonstrated financial need (Heller and Rasmussen 2002). But as college prices have risen, financial aid has taken on the role of preserving college affordability for the middle class. To deliver more aid to middle-income families, policymakers have instituted aid and other programs based on academic merit and other criteria rather than need. Implied in the NCES report, but not directly stated, is the inherent tension between these two goals: As more public dollars are devoted to the preservation of affordability for the middle class, is less funding available to support college access for the poor?

Recent trends suggest that aid to the middle class has become increasingly important. During the 1990s, appropriations for the Pell Grant Program—the largest federal program that provides grant assistance to financially needy students at postsecondary institutions—rose only 23 percent (College Board 2001). At the same time, institutional aid (which is often provided to middle-income students through merit-based and other “non-need” scholarships) grew 84 percent (College Board 2001; Davis 2003; Heller 2001). Similarly, from 1990 to 2000, state spending for merit scholarships tripled, while need-based state aid grew 62 percent (NASSGAP 2001).

Despite these trends, *How Families of Low- and Middle-Income Undergraduates Pay for College* makes a convincing case that low-income students continue to receive the lion's share of aid and that college access remains the primary goal of financial aid. The authors use data from the NCES 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000) to show the college financing experiences of full-time, full-year, dependent undergraduates who attended public 2-year, public 4-year, and

private not-for-profit 4-year institutions during the 1999–2000 academic year. These students constitute just one-quarter of all undergraduates; the aid and other resources used by the vast majority of students (such as part-time and other “nontraditional” undergraduates) are not discussed. However, as the authors suggest, much of the policy debate on college financing focuses on full-time undergraduates; it is therefore important that their financial aid and other resources are better understood by policymakers.

At public 2-year institutions, 78 percent of low-income undergraduates (those from families with less than \$30,000 in adjusted gross income) received financial assistance in 1999–2000, and their average aid amount was \$3,000. This compares with 40 percent of middle-income undergraduates (those with a family income between \$45,000 and \$74,999), who received an average of \$1,000. Grants accounted for approximately 80 percent of the total aid for low-income students, compared with 50 percent for students from middle-income families.

At private not-for-profit doctoral and liberal arts colleges, 90 percent of low-income undergraduates received aid, compared with 84 percent of middle-income undergraduates. The average award for low-income students was \$18,900, of which about two-thirds came from grants. The average aid amount for middle-income students was \$14,700, with about 60 percent coming from grants.

Unmet Financial Need

Despite these large awards, the report also indicates that for many low- and middle-income families, financial aid awards are often not large enough to meet students’ full demonstrated financial need. Financial need is defined as the difference between students’ total cost of education and the amount they and their families are expected to contribute toward this cost—more commonly referred to as the expected family contribution (EFC). Unmet, or remaining, financial need is the difference between the students’ demonstrated financial need and the amount they receive in financial aid.

Unmet need appears to be a serious problem, particularly for low-income undergraduates. In 1999–2000, the proportion of low-income students with unmet need ranged from 74 percent at public doctoral institutions to 92 percent at public 2-year institutions, and their average amount of unmet need ranged from \$4,000 at public 4-year non-doctoral schools to \$9,300 at private not-for-profit doctoral and liberal arts colleges. Among middle-income students,

the proportion with unmet need ranged from 38 percent at public 2-year institutions to 65 percent at private not-for-profit doctoral and liberal arts colleges, with average remaining need ranging from \$2,100 at public 2-year institutions to \$10,700 at private not-for-profit doctoral and liberal arts colleges.

However, it is not clear what effect these high unmet need levels have on students, particularly given that the report covers only students who actually enrolled in higher education. No information is available on the number of prospective students who could not enroll due to remaining need. The report also does not discuss unmet need’s influence on students’ college choices. Other research (Advisory Committee on Student Financial Assistance 2001) has suggested that unmet need limits low-income students’ ability to choose public and private 4-year colleges.

Another weakness in the NCES report is that, while it provides some clues, it leaves largely unanswered a number of questions regarding unmet need: If unmet need is so large, how can low-income students afford to attend college? Does unmet need occur because aid amounts are too low, or because budgeted amounts for living and other “indirect” education costs are too high? Can unmet need be attributed to the financial aid system’s failure to estimate accurately students’ and families’ ability to pay college costs? This last question is especially important given a number of changes that have been made in the methodology used to determine the EFC. Under the Higher Education Amendments of 1992, the aid formula was altered so that parents were allowed to exclude home equity from the EFC calculations. The law also lowered the proportion of income and assets that parents were required to contribute toward their children’s college expenses (Redd 1999). These changes essentially lowered the EFC amounts for some families at a time when college costs were rising, thus increasing financial need. Therefore, rather than truly indicating families’ inability to pay college costs, higher unmet need amounts might result from the changes in the aid formula. This issue is given relatively little attention in the NCES report. Nonetheless, the report expands our knowledge of this important subject and brings up an issue that warrants further research.

After Financial Aid: Students’ Use of Other Resources

Given the high levels of unmet need, what other resources do students and families rely on to pay college costs? There

are a number of possible strategies students can use to fill their remaining need. *How Families of Low- and Middle-Income Undergraduates Pay for College* provides valuable new information on three of these methods: working while enrolled, using credit cards, and relying on parents for additional support.

Much prior research exists on students working. King (2002), for example, has found that nearly all undergraduates work at least part time while enrolled, and many work 20 hours per week or more. The NCES report takes this research one step further by showing that working is not influenced by income—that is, middle-income students were just as likely as their lower-income classmates to work similar hours and to have similar employment earnings, even after adjusting for institution type. King (2002) has also shown that working more than 20 hours per week negatively affects students' academic performance, and the NCES report confirms this finding as well.

Most students at all income levels also had credit cards, and while it is not clear whether the credit cards were used to pay education expenses, the results indicate that credit card debt has caused some financial stress for low- and middle-income students. As might be expected, low-income students were less likely than their middle-income peers to receive help from parents with tuition and other expenses. However, for students from both income groups, it appears that employment and credit cards play a much larger role in providing added support than additional parental contributions.

Conclusion: A Broken Financial Aid System?

How Families of Low- and Middle-Income Undergraduates Pay for College concludes by comparing students' net price of college (the amount families have to pay after financial aid is deducted from total price of attendance) and the EFC. For many students, there is a sizable gap between net price and EFC. At private not-for-profit doctoral and liberal arts colleges, for instance, the average net price for low-income undergraduates was \$9,100, compared with \$14,600 for middle-income undergraduates. The EFC—\$1,400 for low-income undergraduates and \$8,600 for their middle-income peers—fell far short of covering the net price. In fact, even after including employment earnings as well as the EFC, low-income students at these institutions still had an average net price gap of \$4,900, and middle-income students had a gap of \$3,300. How did these students manage to cover these expenses? Unfortunately, while the

report mentions some possibilities (e.g., changes in living arrangements, receiving funds from family members other than parents), NPSAS:2000 does not provide enough information to answer this question completely. Certainly, this is an area that cries out for additional research.

The report implies, but does not ask directly, the following questions: Is the financial aid system broken? If so, what is the solution for fixing it? Clearly, it is a system that leaves many students from low- and middle-income backgrounds without enough funding to cover the full price of attending college. The burden of covering the net price gap appears to rest largely on the shoulders of students, who are compelled to work or use credit cards. As a result, paying for college appears to be increasingly a responsibility of students rather than government or parents. *How Families of Low- and Middle-Income Undergraduates Pay for College* takes us a long way toward understanding these complex issues. It also demonstrates that there are no easy solutions to these problems.

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