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National Postsecondary Student Aid Study, 1989–90

Student Financing of Graduate and First-Professional Education

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Highlights

- In 1989–90, 2 million students were enrolled in master's degree, doctoral degree, or other graduate programs, and an additional 300,000 students were enrolled in first-professional degree programs.

- Approximately one-half of these students were 30 years or older, 41 percent attended full time, and 96 percent were financially independent. Fifty-six percent were female, and the overwhelming majority of students were white, non-Hispanic (82 percent).

- Fifty-eight percent of all postbaccalaureate students were enrolled in master's degree programs; another 11 percent were enrolled in doctoral programs, 13 percent in first-professional programs, and 18 percent in other graduate programs.

- Average total expenses for 1989–90 for full-time graduate and first-professional students were $15,920, of which 38 percent was for food and housing, 32 percent for tuition and fees, 6 percent for books and supplies, and 25 percent for other expenses such as commuting costs, transportation to the student's permanent home, child care, and personal expenses. For students who attended full time, full year, their average expenses were $17,106. Expenses were greater for first-professional students than for master's or doctoral students, primarily because of higher tuition and fees.

- Overall, 45 percent of all graduate and first-professional students received some type of financial aid, including 70 percent of first-professional students, 60 percent of doctoral students, and 40 percent of master's students.

- Institutions were the most important source of aid: 25 percent of all graduate and first-professional students received institutional aid. Federal aid was awarded to 18 percent, and state aid to 3 percent. Ten percent of students received aid from their employers.

- The average award to aided full-time students was $10,703. Doctoral and first-professional students received larger awards, on average ($13,395 and $12,310, respectively), than did master's students ($8,736). At each degree level, full-time students who attended private not-for-profit institutions received larger amounts of financial aid, on average, than did those who attended public institutions. For aided students who attended full time, full year, the average aid award was $12,213.

- Among all graduate and first-professional students, 29 percent received grants (including tuition waivers), 17 percent received loans, and 10 percent received assistantships.

- The type of aid awarded varied by degree program. Doctoral and first-professional students were more likely than master's students to receive grants (40 percent and 35 percent, respectively, compared with 28 percent). Doctoral students were the most likely to receive assistantships (29 percent compared with 9 percent of master's students and 3 percent of first-professional students). First-professional students relied much more heavily on loans (60 percent had loans) than did master's or doctoral students (12 percent of each had loans).

- Almost one-half of all aided graduate and first-professional students (48 percent) received grants only, and another 20 percent received loans only; 15 percent received grants and loans, and 13 percent received other types of aid only (primarily assistantships).

- Overall, 6 percent of all graduate and first-professional students were supported by financial aid only, 46 percent by themselves and their families only, and 31 percent by a combination of financial aid and family support (including self-support). Information on how the remaining 17 percent supported themselves was not available.

- Of students with family support (including their own savings and earnings), 23 percent received financial support from their parents or other relatives, and 13 percent from a spouse.

Foreword

Student financial aid programs play an important role in postsecondary education. To provide policymakers at the federal, state, and institutional levels with information on how students finance their postsecondary education, how financial aid is distributed, and how it impacts students, parents, and postsecondary institutions, the National Center for Education Statistics instituted the National Postsecondary Student Aid Study. It was conducted first in 1986–87 (NPSAS:87) and again in 1989–90 (NPSAS:90).

This report profiles graduate and first-professional students enrolled in postsecondary institutions in 1989-90 and describes their education expenses, the sources and types of financial aid they received, the composition of their aid awards, and the availability of other sources of financial support, such as their own and spouse's earnings and savings and assistance from parents and friends. The students included in this study are representative of students enrolled in postsecondary institutions throughout the entire 1989-90 academic year, not just the fall, as was the case in NPSAS:87. Because of the difference in the student samples, the data presented in this report are not directly comparable to the data reported in *Student Financing of Graduate and Professional Education: A Report of the 1987 National Postsecondary Student Aid Study* (U.S. Department of Education, National Center for Education Statistics, 1989).

Most of the estimates presented in this report were produced using the NPSAS:90 Encrypted Table Generation System (ETGS) for graduate and first-professional students. The ETGS software offers users the capability of specifying and generating their own tables from the NPSAS data and of obtaining the standard errors associated with the estimates produced. (For a more detailed description of the ETGS, see appendix B of this report.)

We hope that readers will find this report informative and useful and that it will stimulate further analyses of the NPSAS data. We welcome recommendations for improving the format, content, or analysis to make subsequent reports even more informative and accessible.

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Chapter 1

Introduction and Overview

Introduction

Student financial aid programs have a variety of objectives, including removing financial barriers to postsecondary education, reducing labor shortages in specific areas, promoting a wider choice of institutions, and attracting and rewarding talented students. They are funded by the federal and state governments, institutions, private donors, and employers. Aid takes the form of grants, loans, and work (the latter often in the form of teaching or research assistantships in the case of graduate students). In 1981–82, $17.6 million were awarded to undergraduate and graduate students from federal, state, and institutional sources. After a decrease to $16.4 million the following year, the amount awarded increased each year. In 1990–91, $27.9 billion in financial aid were awarded, an increase of 11 percent in constant dollars[1] from 1981–82.

Because of the magnitude and importance of financial aid programs, it is important to know who receives financial aid, from what sources, and how much is awarded; how the different types of financial aid are distributed among students at various types of institutions and among students with different demographic and socioeconomic characteristics; and what proportion of educational costs are covered by financial aid. In order to obtain data to address these and other issues related to the financing of postsecondary education, the U.S. Department of Education established the National Postsecondary Student Aid Study (NPSAS). The NPSAS sample includes full- and part-time students enrolled in public, private not-for-profit, and proprietary postsecondary institutions. Data are collected from institutions, students, and parents on demographic and socioeconomic characteristics, enrollment characteristics, financial aid awards, and cost of attendance.

The first NPSAS data collection took place during the 1986–87 school year, and was based on a sample representative of students enrolled in fall 1986. The sample for the 1989–90 survey was more comprehensive, and was representative of all students enrolled at any time during the entire 1989–90 academic year. NPSAS surveys will be repeated every 3 years to allow examination of trends in the distribution of financial aid over time. Appendix A contains more information on the sample design, survey methodology, and response rates.

This report focuses on student financing of graduate and first-professional education.[2] It is one in a series of three descriptive reports issued using the NPSAS:90 data; the others profile undergraduates and examine student financing of undergraduate education. The organization of this report on student financing

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[1]The Washington Office of the College Board, *Trends in Student Aid: 1981–1991, August 1991,* 3. This report notes that separate numbers for undergraduates and graduates could not be obtained, and that the impact of changes over time may have been different for the two groups. The College Board obtained the data from a variety of sources, including the U.S. Department of Education, the National Association of State Scholarship and Grant Programs, and agencies that sponsor programs. Sources of aid included were federally supported grant, loan, and work-study programs; state grant programs; and institutional and other grants (which include grants from government and private programs that allow the institution to select the recipient).

[2]This report excluded a small number of students pursuing postbaccalaureate studies in proprietary institutions. These students represented 0.3 percent of all graduate and first-professional students.

of graduate and first-professional education parallels that of a similar report based on NPSAS:87.[3] The findings are not strictly comparable, because the NPSAS:87 report was based on a fall sample of students, while the current report is based on a full-year sample. However, approximately 80 percent of the students enrolled in 1989–90 were enrolled in the fall.

Each chapter of this report provides information on a particular aspect of the financing of graduate and first-professional education. Chapter 2 profiles graduate and first-professional students, describing the institutions they attended and selected personal characteristics. In chapter 3, costs related to enrollment in a graduate or first-professional program are examined. Chapter 4 discusses the various sources and types of financial assistance used by graduate and first-professional students. Chapter 5 provides information on the composition of student financial aid awards, and chapter 6 looks at sources of student financial support beyond financial aid.

The tables with percentages all show row percentages. For example, in table 2.1, the second row, first column shows the percentage of master's degree students who attended public, 4-year, non-doctoral-granting institutions (22.4 percent). In table 2.2, the second row, first column shows the percentage of students enrolled in public, 4-year, non-doctoral-granting institutions who were enrolled in master's degree programs (72.7 percent).

All differences cited in this report are statistically significant at the 0.05 level. Differences were evaluated using a two-tailed *t* test adjusted for multiple pairwise comparisons using a Bonferroni adjustment (see appendix A for an explanation of this procedure). It should be noted that not all significant differences are discussed.

Overview of Findings

Graduate and first-professional students are a diverse group in terms of their personal characteristics, enrollment status, and their fields of study (chapter 2). In 1989–90, at the master's degree level, 59 percent of the students were female, 53 percent were 30 years or older, and 32 percent were enrolled full time. More than half of master's students were enrolled in two fields: 27 percent were working toward a degree in education, and another 24 percent toward a degree in business. Doctoral students were more likely than master's students to be male (57 percent) and to be enrolled full time (57 percent), and they were enrolled in a much wider range of fields. First-professional students were also more likely than master's students to be male (60 percent). They were less likely than either master's or doctoral students to be 30 years or older. The vast majority of first-professional students were enrolled full time (90 percent), and most were in law (45 percent) or medicine (45 percent).

Average total expenses in 1989–90 for full-time graduate and first-professional students were $15,920, of which 38 percent was for food and housing, 32 percent for tuition and fees, 6 percent for books and supplies, and 25 percent for other expenses such as commuting costs, transportation to the student's permanent home, child care, and personal expenses (chapter 3). Expenses were greater for first-professional students than for master's or doctoral students, primarily because of higher tuition and fees. Average tuition and fees for all full-time students were $4,354 at the master's level, $5,191 at the doctoral level, and $6,774 at the first-professional level. For full-time, full-year students, their average tuition and fees were $5,372 at the master's level, $5,709 at the doctoral level, and $6,934 at the first-professional

[3]Roslyn Korb, Nancy Schantz, and Linda Zimbler, *Student Financing of Graduate and Professional Education, U.S. Department of Education*, National Center for Education Statistics, March 1989.

level. At each degree level, average expenses were higher at private not-for-profit institutions than at public ones.

Overall, 45 percent of all graduate and first-professional students received some type of financial aid in 1989–90, including 64 percent of full-time students and 33 percent of part-time students (chapter 4). When only the students who were enrolled full time in the fall term are considered, 67 percent received financial aid in 1989–90, down from 74 percent in 1986–87.

Patterns of financial aid varied by degree level, with first-professional students receiving the most aid (70 percent), followed by doctoral students (60 percent), and then master's students (40 percent) (chapter 4). Master's students were the least likely to receive aid in part because they were the least likely to be full time. First-professional students, who were the most likely to receive financial aid, had the highest tuition and fees and were also the most likely to be full time.

For master's students, the most important source of financial aid was institutional aid, which 20 percent received (chapter 4). Among aided master's students, 30 percent received institutional aid only. Master's students were more likely than doctoral students to receive aid from their employers (12 percent compared with 8 percent). Institutional aid was also the most important source for doctoral students, with 50 percent receiving it. Among aided doctoral students, 52 percent received institutional aid only. First-professional students, on the other hand, relied most heavily on federal aid, which was awarded to 59 percent. However, institutional aid was important to them as well: among aided first-professional students, 35 percent received federal aid only, but 25 percent received both federal and institutional aid.

Full-time doctoral and first-professional students received larger awards, on average ($13,395 and $12,310, respectively), than did master's students ($8,736) (chapter 4). In both the public and private sectors, master's students who attended doctoral-granting institutions had greater average financial aid awards than did those who attended non-doctoral-granting institutions. As would be expected because of cost differences, full-time students received more aid than part-time students, on average, and full-time students who attended private not-for-profit institutions received larger amounts of financial aid, on average, than did those who attended public institutions.

Doctoral and first-professional students were more likely to receive grants (40 percent and 35 percent, respectively) than were master's students (28 percent) (chapter 4). Doctoral students were the most likely to receive assistantships (29 percent compared with 9 percent of master's students and 3 percent of first-professional students). First-professional students relied much more heavily on loans (60 percent had loans) than did master's or doctoral students (12 percent of each had loans).

Among full-time students, doctoral students received larger grants, on average, than did master's or first-professional students ($6,599 compared with $3,802 and $3,834, respectively) (chapter 4). First-professional students assumed the largest average loans: they received $11,166, compared with $6,362 for doctoral students and $6,828 for master's students.

Although many combinations of types of financial aid are theoretically possible, relatively few represented most of those actually awarded (chapter 5). Almost one-half of aided students received grants only (48 percent). Another 20 percent received loans only, 15 percent received grants and loans, and 13 percent received other types of aid only (primarily assistantships).

Graduate and first-professional students relied on their own earnings and savings and on support from their spouses, families, and other relatives, as well as financial aid (chapter 6). While 6 percent of all graduate and first-professional students received financial aid only, 46 percent relied on themselves or their families only, and 31 percent were supported by a combination of self and family support and financial aid.[4] Of those with self/family support, 23 percent received financial support from their parents or other relatives, and 13 percent from a spouse.

The data presented in this report demonstrate the importance of financial aid in student financing of graduate education. Full-time graduate and first-professional students had average expenses of $15,920, and received an average financial aid package of $10,703. Forty-five percent of graduate and first-professional students received financial aid. Institutional aid was especially important to these students: 25 percent received institutional aid. However, self-family support was as important as financial aid: 46 percent relied solely on their own earnings and savings or help from their spouse, family, or other relatives.

[4]For 17 percent of all graduate and first-professional students, the source of support was unknown.

Chapter 2

Graduate and First-Professional Enrollment

In 1989–90, 2 million students were enrolled in master's, doctoral, or other graduate programs, and an additional 300,000 students in first-professional degree programs.[5] These students came from a variety of backgrounds and attended a number of different types of institutions. Moreover, they were enrolled in many different fields of study, some on a full-time and others on a part-time basis.

As a prelude to examining the cost and financing of graduate education, this chapter profiles graduate enrollment in some detail, looking at who was enrolled in graduate education, what they were studying, and where they studied. The description focuses on those characteristics of students and institutions that are closely related to the cost and financing of graduate education and to students' eligibility and need for financial aid. Cost depends primarily on the type of institution attended and the degree program (master's, doctoral, or first-professional) in which the student is enrolled. Field of study is sometimes a factor as well, especially in first-professional degree programs. A student's eligibility and need for financial aid depend on the student's financial dependency status, attendance status, citizenship, income, and residence. Because student access to graduate education is an important national issue and access often depends on the availability of financial aid, demographic characteristics are also discussed in this chapter.

The first section of this chapter provides an overview of where graduate and first-professional students were enrolled and what they were studying. The second section examines the demographic characteristics of students, emphasizing how they varied by degree program, and within degree program by institution type. The third section focuses on student characteristics that affect eligibility and need for financial aid, and the fourth section, on those that affect student income. The final section looks at field of study.

Type of Institution and Degree Program

Four major types of institutions enroll graduate and first-professional students: public and private not-for-profit 4-year non-doctoral-granting institutions and public and private not-for-profit 4-year doctoral-granting institutions. Non-doctoral institutions confer at least a baccalaureate or master's degree in one or more programs, but none of these institutions award higher than a master's degree. Doctoral institutions confer at least a doctoral or first-professional degree in one or more programs. Thus, all institutions attended by first-professional students are in the doctoral degree-granting category. Some private for-profit 4-year institutions enroll graduate or first-professional students, but in 1989–90, only about 7,700 out of 2.3 million graduate or first-professional students attended this type of institution. Because of their small numbers, they were not included in this report.[6]

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[5]A first-professional student is one who is enrolled in one of the following degree programs: chiropractic (D.C. or D.C.M.), dentistry (D.D.S. or D.M.D.), medicine (M.D.), optometry (O.D.), osteopathic medicine (D.O.), pharmacy (D.Pharm.), podiatry (Pod.D. or D.P.), veterinary medicine (D.V.M.), law (L.L.B. or J.D.), or theology (M.Div. or M.H.L. or B.D.).

[6]The NPSAS sample included only five 4-year private for-profit institutions and 106 students in this type of institution.

The type of institution that students attend affects their need for financial aid, with private institutions typically being more costly than public ones.[7] The length of program is a factor as well. A master's degree, for example, typically takes less time to complete than a doctoral degree, and if so, may require a smaller financial commitment.

Almost one-half (44 percent) of all graduate and first-professional students attended public 4-year doctoral institutions (table 2.1). Next, they most frequently chose private 4-year doctoral institutions, which were selected by 29 percent of all graduate and first-professional students. A smaller proportion of the students attended public 4-year non-doctoral institutions (18 percent), and an even smaller proportion attended private 4-year non-doctoral institutions (9 percent).

Table 2.1— Percentage distribution of graduate and first-professional students by institution type and control, by degree program, income and dependency status, and field of study: 1989–90

	Public 4-year non-doctoral-granting	Public 4-year doctoral-granting	Private 4-year non-doctoral-granting	Private 4-year doctoral-granting
Total*	18.0	44.3	9.1	28.6
Degree program				
Master's degree	22.4	42.1	12.3	23.2
Doctoral degree	0.0	68.0	0.0	32.0
First-professional degree	0.0	39.7	0.0	60.3
Other graduate program	27.4	40.3	10.8	21.5
Income and dependency				
Dependent student				
Less than $50,000	11.5	53.3	5.5	29.7
$50,000 or more	13.1	40.0	9.6	37.2
Independent student				
Less than $20,000	13.8	48.4	6.3	31.5
$20,000–29,999	19.8	39.8	11.2	29.2
$30,000–49,000	23.5	42.1	11.3	23.1
$50,000 or more	21.8	39.9	12.0	26.4
Field of study				
Arts and humanities	12.5	40.7	11.3	35.6
Natural sciences	12.1	61.3	2.8	23.8
Social sciences	15.6	45.6	7.0	31.7
Engineering	11.8	48.9	5.4	33.9
Law	0.5	32.2	0.0	67.3
Business	16.0	34.0	15.3	34.8
Education	30.3	45.0	13.9	10.9
Medicine	5.3	53.2	5.5	36.0
Other	9.5	62.1	4.5	23.9

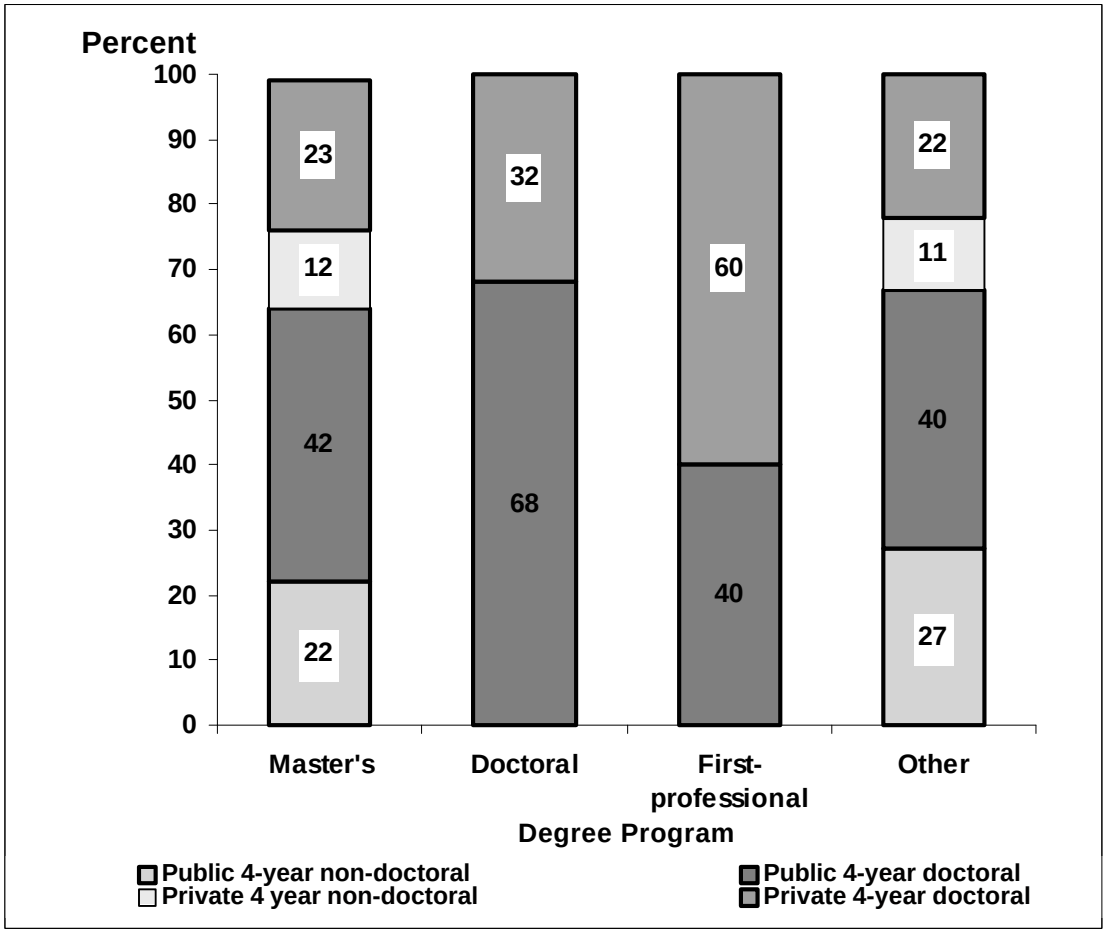
*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

[7]Chapter 3 examines the relationship between costs and type of institution in detail.

Enrollment patterns varied by degree level. Both master's and doctoral degree students were more likely to enroll in public 4-year doctoral institutions than in any other type of institution. Forty-two percent and 68 percent, respectively, chose this type of institution (figure 2.1). In contrast, first-professional students were more likely to enroll in private than in public 4-year doctoral institutions (60 percent compared with 40 percent).

Figure 2.1—Percentage distribution of graduate and first-professional students by institution type and control, by degree program: 1989–90



NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Thirty percent of the graduate students in education enrolled in public 4-year non-doctoral institutions, a proportion that was much greater than that in any other field of study. In other fields, the percentages of students who enrolled in public 4-year non-doctoral institutions were in the 10 to 16 percent range, except in law and medicine, where the students were primarily first-professional, and therefore were concentrated in doctoral institutions. More law students (67 percent) selected private 4-year doctoral institutions than did students in any other field.

Master's degree programs were the most popular choice, enrolling 58 percent of all postbaccalaureate students (table 2.2 and figure 2.2). Another 18 percent of students were enrolled in non-degree programs.[8] The rest of the students were about evenly divided between doctoral (11 percent) and first-professional (13 percent) degree programs.

Table 2.2— Percentage distribution of graduate and first-professional students by degree program, by institution type and control and field of study: 1989–90

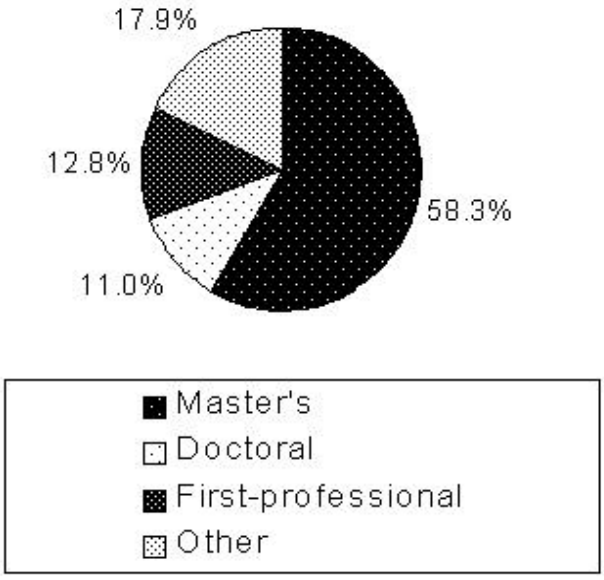
	Master's degree	Doctoral degree	First-professional degree	Other graduate program
Total*	58.3	11.0	12.8	17.9
Institution type and control				
Public				
4-year non-doctoral	72.7	0.0	0.0	27.3
4-year doctoral	55.3	16.9	11.4	16.3
Private not-for-profit				
4-year non-doctoral	78.7	0.0	0.0	21.3
4-year doctoral	47.2	12.3	27.0	13.5
Field of study				
Arts and humanities	54.9	19.3	11.4	14.4
Natural sciences	52.7	34.5	1.2	11.6
Social sciences	63.7	20.8	0.4	15.1
Engineering	69.5	17.0	0.6	12.9
Law 1.3	2.2	95.5	1.0	
Business	83.0	5.1	0.2	11.7
Education	74.3	7.8	0.0	18.0
Medicine	33.2	6.0	52.8	8.1
Other	69.8	17.5	0.6	12.1

*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

[8]Included in this category are programs and courses at the postbaccalaureate level that do not necessarily lead to a graduate or first-professional degree. Education programs that lead to a certificate, for example, are in this category.

Figure 2.2—Percentage distribution of graduate and first-professional students by degree program: 1989–90



NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Every type of institution had more students enrolled in master's degree programs than in any other degree program. Private 4-year doctoral institutions had a much greater concentration of first-professional students (27 percent of all their postbaccalaureate students were first-professional) than did their public counterparts (where 11 percent were first-professional).

The natural sciences had a greater proportion of students enrolled in doctoral programs (35 percent) than did any other field. Business students were heavily concentrated in master's degree programs (83 percent), while law students were almost exclusively in first-professional degree programs (96 percent). Approximately one-half (53 percent) of the students in medicine were enrolled in first-professional degree programs; another 33 percent were enrolled in master's degree programs, such as nursing.

Student Demographic Characteristics

A description of the demographic characteristics of graduate and first-professional students provides an indication of the access of various groups to postbaccalaureate education, and thus to financial aid programs. In terms of their demographic characteristics, graduate and first-professional students were a heterogeneous group, with their major differences appearing by degree program rather than institution type.

The majority of graduate and first-professional students were female (56 percent) (table 2.3), but there were differences by degree program. At the master's level, there were more females (59 percent), but at the doctoral and first-professional levels, the majority of students were male (57 percent and 60 percent, respectively).

Table 2.3—Percentage distribution of graduate and first-professional students by demographic characteristics, by degree program and institution type and control: 1989–90

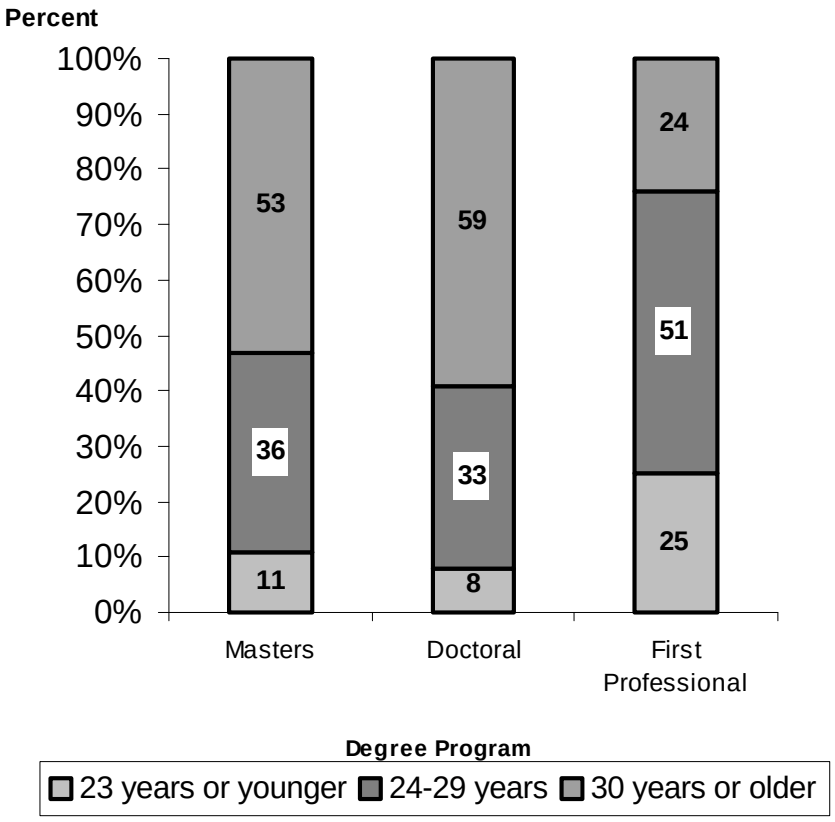
	Sex		Age			Marital status		
	Male	Female	23 or younger	24–29	30 or older	Not married	Married	Separated
Total*	44.5	55.5	11.9	36.7	51.4	49.7	49.0	1.2
Master's degree	40.7	59.3	10.9	36.3	52.7	47.9	50.8	1.3
Public								
4-year non-doctoral	35.4	64.6	9.0	31.6	59.4	42.5	56.3	1.2
4-year doctoral	39.9	60.1	11.8	36.6	51.6	47.2	51.8	1.0
Private not-for-profit								
4-year non-doctoral	39.2	60.8	9.3	31.8	59.0	42.4	55.3	2.3
4-year doctoral	47.9	52.1	12.2	42.9	44.9	57.4	41.4	1.2
Doctoral degree	56.6	43.4	7.6	33.2	59.2	45.1	53.8	1.1
Public	54.9	45.1	7.2	29.3	63.5	43.2	55.5	1.3
Private not-for-profit	60.1	39.9	8.6	41.5	50.0	49.2	50.2	0.6
First-professional degree	60.0	40.0	24.7	50.9	24.4	70.3	29.1	0.6
Public	59.6	40.4	26.5	53.6	19.9	71.1	28.2	0.7
Private not-for-profit	60.3	39.7	23.5	49.1	27.4	69.7	29.7	0.6

*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Approximately one-half (51 percent) of all graduate and first-professional students were 30 years or older (table 2.3). First-professional students tended to be younger than other graduate students. For example, 25 percent of first-professional students were 23 years or younger, compared with 11 percent of master's degree students and 8 percent of doctoral students (figure 2.3). Another 51 percent of first-professional students were in the next age group, 24 through 29 years, compared with 36 percent of master's degree students and 33 percent of doctoral degree students.

Figure 2.3—Percentage distribution of graduate and first-professional students by age, by degree program: 1989–90



NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Approximately one-half (49 percent) of the graduate and first-professional students were married. As would be expected because of their younger age, first-professional students were also much less likely than master's or doctoral students to be married (29 percent compared with 51 percent and 54 percent, respectively).

The overwhelming majority (82 percent) of graduate and first-professional students were white, non-Hispanic (table 2.4). There were more Asian students than those of any other minority group: 8 percent of the students were Asian; 5 percent were black, non-Hispanic; 4 percent were Hispanic; and less than 1 percent were Native American. Asian students were particularly well represented in doctoral degree programs; they accounted for 18 percent of all doctoral students.

Table 2.4—Percentage distribution of graduate and first-professional students by race–ethnicity and citizenship, by degree program and institution type and control: 1989–90

	Race–ethnicity					Citizenship		
	Native American	Asian	Black, non-Hispanic	Hispanic	White, non-Hispanic	U.S. citizen	Eligible non-citizen	Other
Total*	0.3	8.3	5.2	4.4	81.8	90.9	3.3	5.8
Master's degree	0.3	7.6	5.7	4.3	82.1	91.3	3.1	5.6
Public								
4-year non-doc	0.3	6.3	5.6	4.8	83.1	95.0	2.1	2.9
4-year doc	0.4	7.6	5.6	3.9	82.4	90.5	3.2	6.3
Private not-for-profit								
4-year non-doc	0.1	4.9	4.5	3.9	86.6	94.7	1.5	3.8
4-year doc	0.3	10.3	6.6	4.7	78.2	87.6	4.7	7.8
Doctoral degree	0.6	17.5	4.1	3.5	74.4	77.9	6.9	15.2
Public	0.7	17.4	3.5	3.0	75.3	78.7	7.0	14.3
Private not-for-profit	0.3	17.6	5.2	4.5	72.4	76.1	6.8	17.1
First-professional degree	0.5	7.4	4.5	5.0	82.6	95.7	2.1	2.2
Public	0.6	8.7	3.8	5.6	81.3	96.6	2.1	1.3
Private not-for-profit	0.3	6.6	4.9	4.7	83.5	95.1	2.1	2.8

*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study NPSAS:90).

Overall, 91 percent of all graduate and first-professional students were U.S. citizens, and therefore were eligible for federal financial aid (table 2.4). Another 3 percent were eligible noncitizens,[9] and 6 percent were noncitizens who were not eligible for many types of financial aid, including all direct federal aid. Doctoral degree programs had a relatively large percentage of noneligible foreign students. In fact, 15 percent of all doctoral students were in this category, compared with 6 percent of master's students and 2 percent of first-professional students.

Financial Aid-Related Characteristics

This section describes graduate and first-professional students in terms of the characteristics that are important to their eligibility and need for financial aid: attendance status, financial dependency, residence, and income. Attention is also paid to how these characteristics vary across institution type.

[9]This category includes permanent residents and others who can provide documentation from the Immigration and Naturalization Service that they intend to become a citizen or permanent resident.

Attendance Status

Eligibility for many financial aid programs (and all federal ones) requires at least half-time enrollment, and some financial aid requires full-time enrollment. Students' need for aid is also affected by their attendance status: students who enroll less than full time tend to have lower education-related expenses and have more time to work. Conversely, students who enroll full time tend to have higher education-related expenses and less time to work.

Students were classified as full time, at least half time, or less than half time based on their attendance status in the term in which they were sampled.[10] During the 1989–90 academic year, 41 percent of all graduate and first-professional students attended full time, 26 percent attended at least half time (but not full time), and 33 percent attended less than half time (table 2.5). There were marked differences by degree program, however. First-professional students were the most likely to attend full time (90 percent) (figure 2.4). In contrast, 57 percent of doctoral degree students attended full time, and an even smaller percentage of master's degree students did so (32 percent).

Table 2.5—Percentage distribution of graduate and first-professional students by attendance status, dependency status, and housing status, by degree program and institution type and control: 1989–90

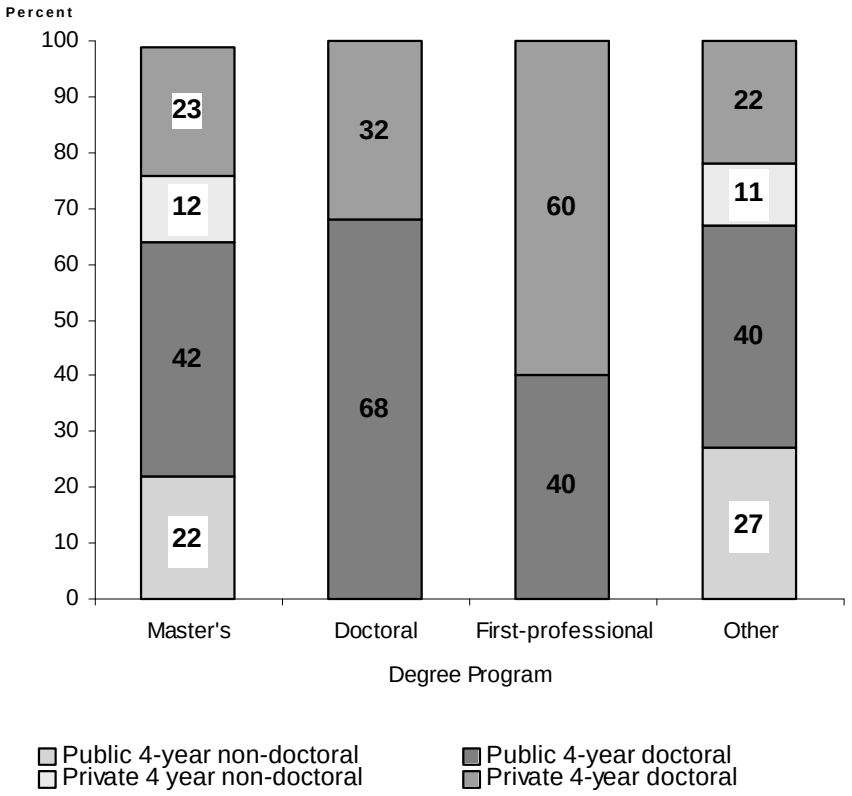
	Attendance status			Dependency status		Housing status		
	Full-time	At least half-time	Less than half-time	Dependent	Independent	Campus housing	Off campus	With parents
Total*	41.4	25.5	33.0	3.8	96.2	7.7	84.0	8.3
Master's degree	32.4	31.6	36.0	4.6	95.4	5.9	84.8	2.3
Public								
4-year non-doctoral	22.7	34.7	42.6	3.5	96.5	2.5	87.5	10.0
4-year doctoral	36.2	28.9	34.9	5.1	94.9	8.0	84.9	7.2
Private not-for-profit								
4-year non-doctoral	23.8	36.0	40.1	3.9	96.1	4.6	85.2	10.2
4-year doctoral	39.2	31.1	29.7	5.1	94.9	6.0	82.0	11.9
Doctoral degree	56.6	19.8	23.6	1.1	98.9	14.6	83.0	2.3
Public	50.9	23.3	25.8	1.2	98.8	13.5	84.4	2.1
Private not-for-profit	69.9	11.8	18.3	0.9	99.1	17.1	80.1	2.7
First-professional degree	89.8	7.6	2.5	6.7	93.3	12.1	79.7	8.2
Public	93.4	4.7	1.9	7.2	92.8	10.0	82.4	7.6
Private not-for-profit	87.3	9.7	3.0	6.4	93.6	13.4	78.0	8.6

*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

[10]Their institutions' definitions of attendance status were used. Thus, a student taking 12 units, for example, might be classified as a full-time student in one institution but not at another.

Figure 2.4—Percentage distribution of graduate and first-professional students by attendance status, by degree program: 1989–90



NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Within degree programs there were further differences by institutional type. In both the public and private sectors, master's degree students at 4-year doctoral institutions were more likely than those at 4-year non-doctoral institutions to be enrolled full time (36 percent compared with 23 percent in public institutions, and 39 percent compared with 24 percent in private institutions). At the doctoral level, students at private 4-year institutions were more likely to be full time (70 percent) than were their counterparts enrolled in the public 4-year institutions (51 percent). This pattern was reversed for first-professional students: 93 percent of those in public 4-year doctoral institutions attended full time, compared with 87 percent in private 4-year doctoral institutions.

Financial Dependency

Financial dependency is an important factor in determining a student's eligibility and need for financial aid. For financially dependent students, the income and assets of the family as well as the student are considered. For financially independent students, only the income and assets of the student and the student's spouse are included in calculating financial need. A graduate or first-professional student is considered financially independent by meeting at least one of the following criteria:

- 24 years old by December 31 of the academic year; or
- a veteran; or
- a ward of the court or both parents are dead; or
- have legal dependents other than a spouse; or
- married or not claimed as a tax exemption for the calendar year coinciding with the beginning of the academic year.

Almost all graduate and first-professional students were financially independent (96 percent) (table 2.5). In fact, most would have qualified by age alone: only 12 percent were 23 years or younger as of December 31, 1989, and therefore potentially financially dependent (table 2.3). Across all degree programs and institutional types, the percentage of independent students ranged from 93 percent to 99 percent (table 2.5).

Residence

Where a student lives has no effect on their eligibility for financial aid, but it can affect the cost of attending an institution, and therefore the student's need for financial aid. For example, living at home with parents can save a student a considerable amount in housing and food expenses, although relatively few graduate and first-professional students decided to do so (8 percent). The relative cost of living off campus or in campus housing depends upon housing costs in the area. The vast majority (84 percent) of graduate and first-professional students lived on their own off campus. Doctoral and first-professional students were more likely than master's students to live in campus housing (15 percent and 12 percent, respectively, compared with 6 percent of master's degree students).

Income

A student's income is a key factor in determining their need for financial aid. The incomes of financially independent graduate and first-professional students covered a wide range (table 2.6). The relatively large proportions of students in the highest income categories reflected the fact that many students were enrolled less than full time and presumably were employed. Fourteen percent of all students had annual incomes of $50,000 or more, and another 23 percent had incomes between $30,000 and $49,999.

Table 2.6—Percentage distribution of financially independent graduate and first-professional students by income, by degree program and institution type and control: 1989–90

	Less than $5,000	$5,000–9,999	$10,000–19,999	$20,000–29,999	$30,000–49,999	$50,000 or more
Total*	13.9	11.9	19.2	17.9	22.7	14.3
Master's degree	10.3	10.4	18.9	19.7	25.2	15.5
Public						
4-year non-doctoral	9.1	8.5	18.6	19.6	29.5	14.7
4-year doctoral	12.2	12.9	20.2	17.3	23.9	13.5
Private not-for-profit						
4-year non-doctoral	6.5	6.7	17.0	23.5	27.6	18.6
4-year doctoral	10.1	9.7	17.7	22.3	22.1	18.1
Doctoral degree	12.5	17.1	24.0	15.6	17.9	12.8
Public	11.3	18.0	21.9	16.9	18.5	13.3
Private not-for-profit	15.0	15.4	28.4	12.9	16.5	11.8
First-professional degree	36.5	19.3	18.0	10.8	10.1	5.5
Public	42.2	19.4	17.0	8.4	8.9	4.2
Private not-for-profit	32.7	19.2	18.5	12.3	10.9	6.3

*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

First-professional students, who were also the most likely to be enrolled full time and to be younger, had the lowest incomes. Thirty-seven percent of financially independent first-professional students had incomes of less than $5,000 per year, compared with 10 percent of master's students and 13 percent of doctoral students. First-professional students at public 4-year doctoral institutions were more likely to have annual incomes of less than $5,000 than were those at private institutions of the same level (42 percent compared with 33 percent).

Fields of Study

To round out this profile of graduate and first-professional students, this last section describes what graduate students were studying and how their fields of study varied by degree level, institutional type, and citizenship status. This section also addresses how graduate and first-professional students in various fields differ in terms of sex, race–ethnicity, and citizenship.

Proportionately more students were enrolled in education and business (22 percent and 18 percent of the total, respectively) than in any other field of study (table 2.7). At the master's level, 27 percent of the students were enrolled in education and 24 percent in business, again more students concentrated in these fields than in any of the others. A full 40 percent of the master's students at public 4-year non-doctoral institutions were enrolled in education. At the doctoral level, about equal percentages of all students were enrolled in the arts and humanities, natural sciences, social sciences, engineering, and education (ranging from 13 percent to 18 percent). First-professional students were concentrated in the fields of law (45 percent) and medicine (45 percent), with another 8 percent studying arts and humanities (theology).

Table 2.7—Percentage distribution of graduate and first-professional students by field of study, by degree program and institution type and control: 1989–90

	Arts & humanities	Natural sciences	Social sciences	Engineering	Law	Business	Education	Medicine	Other
Total*	10.1	6.1	10.3	9.4	7.1	17.8	22.0	12.7	4.6
Master's degree	9.2	5.3	10.8	10.8	0.2	24.4	27.0	7.0	5.3
Public									
4-year non-doctoral	8.5	4.7	12.1	7.1	0.0	19.9	40.0	4.5	3.1
4-year doctoral	9.6	7.1	11.1	11.1	0.3	18.6	26.8	7.8	7.5
Private not-for-profit									
4-year non-doctoral	9.7	1.4	8.1	6.0	0.0	31.5	33.0	7.9	2.3
4-year doctoral	8.8	4.8	10.6	15.7	0.2	35.1	13.0	7.1	4.7
Doctoral degree	16.2	17.4	17.6	13.1	1.3	7.5	14.1	6.3	6.6
Public	13.7	18.0	15.4	13.4	1.3	6.4	18.6	6.4	6.8
Private not-for-profit	21.5	16.3	22.3	12.4	1.2	9.9	4.4	5.9	6.2
First-professional degree	7.8	0.5	0.3	0.4	45.4	0.2	0.0	45.3	0.2
Public	0.3	0.9	0.2	0.8	35.7	0.2	0.0	61.9	0.1
Private not-for-profit	12.8	0.2	0.4	0.1	51.8	0.3	0.0	34.3	0.2

*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Many foreign students came to this country to study technical fields. Twenty-six percent of eligible noncitizens and 30 percent of other noncitizens were studying engineering, compared with only 7 percent of U.S. citizens (table 2.8). Another 14 percent of eligible noncitizens and 13 percent of other noncitizens were studying natural sciences, compared with 5 percent of U.S. citizens.

Table 2.8—Percentage distribution of graduate and first professional students by field of study, by citizenship: 1989–90

	Arts & humanities	Natural sciences	Social sciences	Engineering	Law	Business	Education	Medicine	Other
Total*	10.1	6.1	10.3	9.4	7.1	17.8	22.0	12.7	4.6
Citizenship									
U.S. citizen	10.1	5.3	10.4	7.2	7.8	18.1	23.7	13.4	4.2
Eligible noncitizen	8.9	14.0	10.1	25.7	1.7	13.2	8.4	10.8	7.2
Other	11.9	12.5	9.6	29.6	1.8	15.6	5.5	6.3	7.0

*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Males constituted a majority in some fields and females in others, although the patterns were different at the various degree levels (table 2.9). Engineering and natural sciences had more males than females enrolled overall: 74 percent of engineering students and 61 percent of natural sciences students were male. This pattern held at both the master's and doctoral degree levels. Law and business also had more males enrolled than females (57 percent were male in both fields).

Students in education, on the other hand, were predominantly female (78 percent), especially at the master's level, where 81 percent of the students were female. At the doctoral level, there were still more females enrolled than males, but the proportions of males were much higher than they were at the master's level: 41 percent of the education students were male at the doctoral level, compared with 19 percent at the master's level. The social sciences also had more females enrolled overall (60 percent were female), and at the master's level (59 percent). At the doctoral level, however, the proportions of males and females did not differ significantly.

Overall, only arts and humanities had about equal proportions of males and females enrolled. In contrast, at the master's level, this field had proportionately more females (62 percent). Medicine also had roughly equal proportions of males and females enrolled overall. However, at the master's level, there were many more females (76 percent), and at the first- professional level, more males (62 percent).

The vast majority (82 percent) of graduate students were white, non-Hispanic (table 2.9). This was true in all fields, but engineering and natural sciences had much greater proportions of Asian students (30 percent and 20 percent, respectively) than did all the remaining fields (except, in the case of natural sciences, the "other" category). At the doctoral level, 48 percent of all engineering students were Asian. At the doctoral level in engineering, 46 percent of the students were U.S. citizens, 15 percent were noncitizens eligible for financial aid, and 39 percent were other noncitizens.

Summary

Of the 2.3 million students who were enrolled in graduate or first-professional programs, approximately 51 percent were 30 years or older, 41 percent attended full time, and 96 percent were financially independent. Females outnumbered males (56 percent were female), and the overwhelming majority (82 percent) were white, non-Hispanic.

As might be expected, student characteristics varied by degree type. For example, among master's degree students, 41 percent were male, 53 percent were 30 years or older, and 32 percent were enrolled full time. Twenty-seven percent of the students were working toward a degree in education, and 24 percent toward a degree in business. Doctoral students were more likely to be male (57 percent) and to be enrolled full time (57 percent). About equal proportions of doctoral students were enrolled in the arts and humanities, natural sciences, social sciences, engineering, and education. First-professional students were also more likely than master's students to be male (60 percent); were less likely than either master's or doctoral students to be 30 years or older (24 percent); and were more likely to be enrolled full time (90 percent). First-professional students were primarily studying law (45 percent) and medicine (45 percent).

Table 2.9—Percentage distribution of graduate and first-professional students by sex, race–ethnicity, and citizenship, by field of study and degree program: 1989–90

	Sex		Race–ethnicity					Citizenship		
	Male	Female	Native Amer.	Asian	Black, non-Hisp.	Hisp.	White, non-Hisp.	U.S. citizen	Eligible non-citizen	Other non-citizen
Total*	44.5	55.5	0.3	8.3	5.2	4.4	81.8	90.9	3.3	5.8
Field of study										
Arts & humanities	47.9	52.1	0.4	8.1	3.4	4.2	84.0	89.2	3.1	7.7
Natural sciences	61.3	38.7	0.7	19.7	2.2	3.7	73.7	78.3	8.2	13.5
Social sciences	39.8	60.2	0.1	5.0	7.3	4.9	82.7	90.4	3.5	6.1
Engineering	73.9	26.1	0.4	29.7	3.7	3.5	62.6	69.4	9.8	20.8
Law	57.1	42.9	0.4	3.1	4.6	6.3	85.5	97.5	0.8	1.6
Business	56.9	43.1	0.5	7.7	5.2	3.9	82.8	91.6	2.6	5.7
Education	22.1	77.9	0.2	2.4	6.6	4.4	86.5	97.0	1.4	1.6
Medicine	46.6	53.4	0.7	9.5	4.3	4.7	80.8	93.8	3.0	3.2
Other	39.3	60.8	0.2	10.6	6.5	4.6	78.0	84.3	5.7	10.1
Master's degree	40.7	59.3	0.3	7.6	5.7	4.3	82.1	91.3	3.1	5.6
Field of study										
Arts & humanities	38.3	61.7	0.4	6.7	3.1	5.3	84.5	90.2	3.4	6.4
Natural sciences	60.3	39.7	0.5	15.5	3.3	3.4	77.3	83.0	7.3	9.7
Social sciences	40.6	59.4	0.2	4.2	8.6	6.2	80.9	93.0	3.1	3.9
Engineering	71.1	28.9	0.0	25.3	4.1	3.8	66.8	73.4	8.8	17.8
Law	—	—	—	—	—	—	—	—	—	—
Business	6.8	43.2	0.6	7.7	5.9	4.0	81.8	91.6	2.4	6.0
Education	19.2	80.8	0.1	2.3	6.3	3.8	87.5	98.0	0.8	1.3
Medicine	24.4	75.6	0.7	5.1	5.7	3.9	84.6	93.6	2.6	3.8
Other	35.9	64.1	0.3	10.1	5.6	2.6	81.4	85.8	5.5	8.6
Doctoral degree	56.6	43.4	0.6	17.5	4.1	3.5	74.4	77.9	6.9	15.2
Field of study										
Arts & humanities	59.1	40.9	0.0	12.3	3.9	1.4	82.4	83.7	3.0	13.3
Natural sciences	65.1	35.0	1.2	26.1	0.5	2.5	69.7	72.8	9.2	18.0
Social sciences	46.0	54.0	0.0	8.7	4.4	1.0	85.9	79.5	4.9	15.5
Engineering	83.6	16.4	1.5	48.4	3.5	2.4	44.3	45.6	15.4	39.0
Law	63.2	36.8	0.0	0.0	0.0	19.9	80.1	100.0	0.0	0.0
Business	59.8	40.2	0.0	14.1	0.0	0.0	85.9	84.8	5.8	9.4
Education	40.8	59.2	0.0	2.2	10.7	4.9	82.2	91.6	4.1	4.3
Medicine	59.1	40.9	3.7	17.4	3.8	2.3	72.9	84.8	6.6	8.6
Other	53.6	46.4	0.0	15.9	8.9	12.4	62.8	77.4	6.6	16.0
First-professional degree	60.0	40.0	0.5	7.4	4.5	5.0	82.6	95.7	2.1	2.2
Field of study										
Arts & humanities	67.0	33.0	0.6	8.1	6.9	0.9	83.6	92.4	1.7	5.9
Law	57.0	43.0	0.4	2.8	4.8	6.2	85.8	97.9	0.9	1.3
Medicine	62.0	38.0	0.5	11.3	3.8	4.6	79.8	94.9	2.8	2.2

—Sample size too small for a reliable estimate.
*Includes students in graduate programs other than master's, doctoral, and first-professional.
NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

This chapter has provided an overview of the characteristics of the entire population of graduate and first-professional students. These data provide the context for the examination of education costs and financing that follows. In some of the subsequent chapters, the sample is restricted, however. For example, the discussion of student expenses for education in the next chapter is restricted to full-time students (who represent 41 percent of all graduate and first-professional students). The analysis in chapter 5, which examines the composition of aid awards, is limited to aided students (45 percent of all graduate and first-professional students).

Chapter 3

Education Expenses for Full-Time Graduate and First-Professional Students

To provide a more complete understanding of the cost of postbaccalaureate education to students and of the components of those costs, NPSAS collected information from institutions and students on various types of expenses. This chapter reports on total expenses for full-time students and on four major categories of expenses: tuition and fees; food and housing; books and supplies; and "other" expenses such as commuting costs, transportation to and from the student's permanent home, child care, and personal expenses. At the conclusion of this report, the glossary describes the construction of these variables in detail.

Tuition and fees were obtained from institutional records or, if unavailable from that source, from the student. Information on other expenses was collected from the students, who were asked how much they had spent in various categories while they were enrolled during the 1989–90 academic year. The data reported in this chapter are for full-time students only. As indicated in chapter 2, 41 percent of all graduate and first-professional students were enrolled full time during all or part of 1989–90, including 32 percent of master's students, 57 percent of doctoral students, and 90 percent of first-professional students. Part-time students were not included in this discussion because part-time status covers a wide range in terms of level of participation in postsecondary education, and certain types of expenses (especially food and housing and "other" expenses) cannot easily be compared for part-time students.

Tables 3.1 and 3.3 show full-time students' expenses for all the terms in which they were enrolled in 1989–90. That is, they reflect full-year expenses for those who enrolled for the full year (which could include periods of both full- and part-time enrollment), and part-year expenses for those who enrolled for less than the full year. A total of 83 percent of the students who were enrolled full time during the term in which they were sampled were enrolled full time for the full year. The remaining 17 percent were enrolled full time for only part of the year. For the rest of the year, these students may have been enrolled part time, or they may not have been enrolled at all. For comparative purposes, table 3.2 shows expenses for full-time students who were enrolled full time for the entire academic year.

Table 3.1—Average annual expenses for full-time graduate and first-professional students, by type of expense, degree program, and institution type and control: 1989–90

	All expenses		Tuition and fees		Food and housing		Books and supplies		Other expenses	
	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total
Total*	$15,920	100.0	$5,137	31.6	$6,090	38.1	$837	5.7	$3,856	24.7
Master's degree	14,944	100.0	4,354	29.0	5,992	39.1	737	5.3	3,862	26.5
Public	12,445	100.0	2,547	22.7	5,571	42.4	659	5.7	3,668	29.3
4-year non-doc	11,546	100.0	1,586	17.0	5,652	44.7	593	5.4	3,715	33.0
4-year doc	12,743	100.0	2,865	24.5	5,544	41.6	681	5.8	3,653	28.1
Private not-for-profit	19,274	100.0	7,484	40.1	6,721	33.5	871	4.7	4,197	21.8
4-year non-doc	16,216	100.0	5,487	38.3	6,401	35.2	706	4.5	3,622	22.1
4-year doc	20,240	100.0	8,115	40.6	6,822	33.0	924	4.7	4,379	21.7
Doctoral degree	15,580	100.0	5,191	32.4	6,006	39.4	834	5.7	3,549	22.4
Public	13,468	100.0	3,079	25.0	6,049	43.9	805	6.4	3,536	24.7
Private not-for-profit	19,244	100.0	8,858	45.3	5,931	31.6	885	4.6	3,570	18.5
First-profess degree	17,920	100.0	6,774	36.8	6,177	34.8	1,045	6.6	3,925	21.8
Public	14,091	100.0	3,301	25.1	5,975	41.4	1,046	8.1	3,769	25.4
Private not-for-profit	20,830	100.0	9,412	45.7	6,330	29.8	1,045	5.5	4,043	19.1

*Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Table 3.2—Average annual expenses for full-time, full-year graduate and first-professional students, by type of expense, degree program, and institution type and control: 1989–90

	All expenses		Tuition and fees		Food and housing		Books and supplies		Other expenses	
	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total
Total*	$17,106	100.0	$5,981	34.4	$6,244	36.6	$ 985	6.3	$3,896	22.7
Master's degree	16,268	100.0	5,372	33.3	6,044	36.5	911	5.9	3,941	24.3
Public	13,415	100.0	3,134	26.1	5,737	40.6	805	6.2	3,738	27.0
4-year non-doc	13,288	100.0	2,088	19.0	6,396	44.0	734	5.9	4,070	31.1
4-year doc	13,443	100.0	3,367	27.7	5,591	39.9	821	6.3	3,664	26.1
Private not-for-profit	21,137	100.0	9,190	45.5	6,568	29.5	1,093	5.3	4,286	19.6
4-year non-doc	18,455	100.0	7,000	43.5	6,808	32.1	900	5.1	3,747	19.3
4-year doc	21,835	100.0	9,760	46.0	6,505	28.9	1,143	5.4	4,427	19.7
Doctoral degree	16,644	100.0	5,709	33.5	6,405	39.6	926	6.0	3,604	20.9
Public	14,351	100.0	3,331	25.3	6,510	44.7	888	6.6	3,622	23.4
Private not-for-profit	20,393	100.0	9,598	46.9	6,232	31.3	988	5.0	3,576	16.8
First-profess degree	18,180	100.0	6,934	36.6	6,232	35.0	1,082	6.7	3,932	21.6
Public	14,123	100.0	3,294	24.8	6,014	41.7	1,073	8.3	3,742	25.2
Private not-for-profit	21,620	100.0	10,021	46.7	6,417	29.3	1,088	5.4	4,094	18.6

*Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Table 3.3—Average annual expenses for full-time graduate and first-professional students, by type of expense, degree program, and field of study: 1989–90

	All expenses		Tuition and fees		Food and housing		Books and supplies		Other expenses	
	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total	Average amount	Percent of total
Total*	$15,920	100.0	$5,137	31.6	$6,090	38.1	$837	5.7	$3,856	24.7
					Graduate*					
Public										
Arts and humanities	11,123	100.0	2,360	22.1	5,426	43.7	581	5.4	3,356	28.8
Natural sciences	13,256	100.0	3,219	26.2	5,970	44.3	761	5.8	3,307	23.8
Social sciences	13,869	100.0	2,890	22.8	5,979	41.9	753	5.8	4,247	29.6
Engineering	11,670	100.0	2,582	24.9	5,425	42.9	744	7.0	2,918	25.2
Law	—	—	—	—	—	—	—	—	—	—
Business	13,476	100.0	2,825	22.4	5,947	42.1	842	6.4	3,862	29.1
Education	12,155	100.0	1,901	19.5	5,759	43.0	516	4.9	3,979	32.6
Medicine	14,357	100.0	2,417	18.8	6,627	45.2	858	6.3	4,456	29.8
Other	12,206	100.0	2,733	25.6	5,388	41.4	688	6.2	3,397	26.8
Private not-for-profit										
Arts and humanities	14,979	100.0	6,173	44.2	5,136	31.7	886	6.8	2,785	17.4
Natural sciences	17,414	100.0	9,119	50.1	4,665	29.4	676	3.8	2,954	16.7
Social sciences	21,193	100.0	8,289	40.9	7,226	32.6	1,001	4.8	4,677	21.7
Engineering	15,628	100.0	5,272	32.8	5,782	36.2	726	4.5	3,848	26.5
Law	—	—	—	—	—	—	—	—	—	—
Business	20,877	100.0	8,486	41.4	7,007	32.4	998	4.7	4,386	21.5
Education	17,032	100.0	4,544	29.8	7,449	40.5	601	4.0	4,438	25.8
Medicine	20,857	100.0	9,087	43.2	6,443	30.4	838	4.3	4,489	22.1
Other	18,635	100.0	6,935	38.5	7,060	36.2	815	4.0	3,825	21.2
					First professional					
Public										
Law	14,572	100.0	3,305	24.9	6,365	41.9	876	6.8	4,027	26.4
Medicine	13,866	100.0	3,305	25.2	5,771	41.1	1,150	8.9	3,641	24.8
Other	—	—	—	—	—	—	—	—	—	—
Private not-for-profit										
Law	20,812	100.0	8,789	43.2	6,868	31.8	950	4.8	4,206	20.2
Medicine	23,558	100.0	11,811	50.6	6,280	26.5	1,242	5.4	4,225	17.6
Other	12,451	100.0	4,682	40.8	4,123	31.4	903	8.8	2,743	19.0

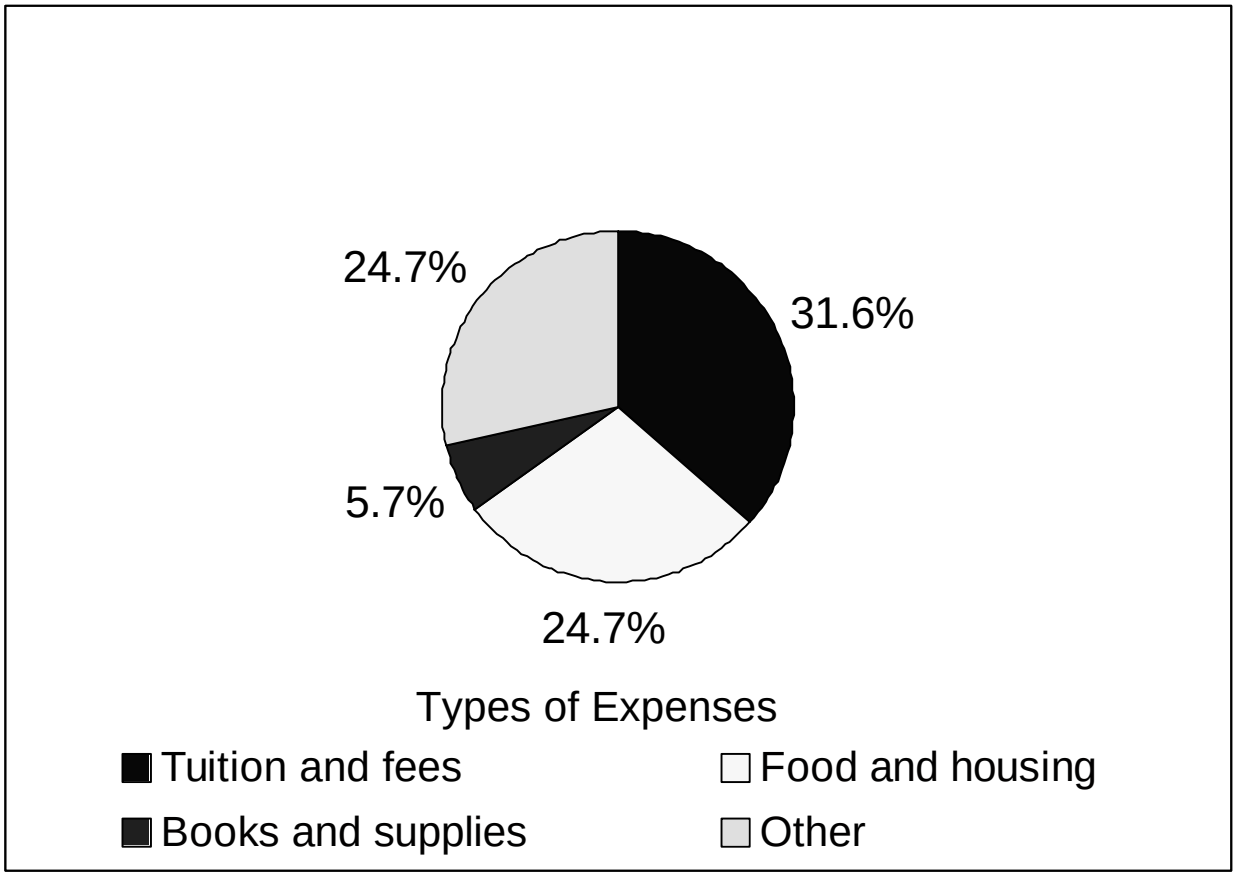
—Sample size too small for a reliable estimate.
*Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Expenses by Type of Institution

Average total expenses for all full-time graduate and first-professional students were $15,920 (table 3.1). The largest proportion of students' total expenses were for food and housing (38 percent), followed by tuition and fees (32 percent) (figure 3.1).[11] Next were "other" expenses such as commuting costs, transportation to the student's permanent home, child care, and personal expenses (25 percent). The remainder (6 percent) was spent on books and supplies (including computers and microscopes).

Figure 3.1—Percentage distribution of expenses for graduate and first-professional students by type of expense: 1989–90



NOTE: Percentages may not sum to 100 percent due to rounding.

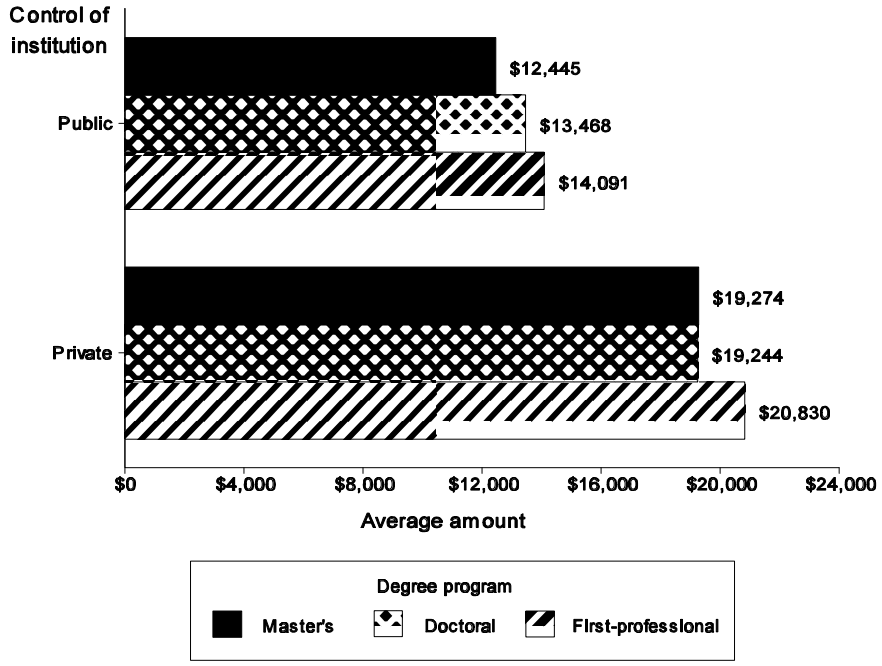
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

[11]Zero values were included in the computation of the average amounts so that the percentages of total expenses allocated to each category would sum to 100 percent.

On average, total expenses were greater for full-time first-professional students ($17,920) than for full-time master's or doctoral students ($14,944 and $15,580, respectively). The major difference was in tuition and fees. First-professional students paid an average of $6,774 in tuition and fees, while master's and doctoral students paid averages of $4,354 and $5,191, respectively. Average expenses for books and supplies were also higher for first-professional students ($1,045) than for master's students ($737) or doctoral students ($834).

Among full-time master's students, average total expenses were higher for those who attended private not-for-profit institutions ($19,274) than for those who attended public institutions ($12,445) (figure 3.2). Although the greatest difference was in average tuition and fees, expenses in all categories were greater for students in private not-for-profit institutions than for those in public institutions.

Figure 3.2—Average expenses for graduate and first-professional students, by degree program and control of institution: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

In both the private and public sectors, full-time master's students who attended doctoral institutions paid more in tuition and fees than those who attended non-doctoral institutions ($2,865 compared with $1,586 in the public sector, and $8,115 compared with $5,487 in the private sector). In the public sector, average expenses in other categories did not differ significantly in doctoral and non-doctoral institutions. In the private sector, average expenses for books and supplies and "other" expenses were greater in doctoral than non-doctoral institutions.

As was true for full-time master's students, full-time doctoral students in private not-for-profit institutions had greater average total expenses and higher tuition and fees than their counterparts in public institutions. Average total expenses were $19,244 in private not-for-profit institutions, compared with $13,468 in public institutions; average tuition and fees were $8,858 in private not-for-profit institutions and $3,079 in public institutions. Expenses in other categories, however, did not differ significantly in public and private not-for-profit institutions.

Like their counterparts in master's and doctoral degree programs, full-time first-professional students in private not-for-profit institutions had greater average total expenses than did those in public institutions ($20,830 compared with $14,091), and greater average tuition and fees ($9,412 compared with $3,301). As was true for doctoral students, expenses related to education in other categories did not differ significantly in public and private not-for-profit institutions.

Average total expenses for full-time, full-year students were $17,106 (table 3.2).[12] As was the case for all full-time students, tuition and fees accounted for roughly one-third of this amount, and housing for just over one-third. Patterns across degree programs and types of institutions were similar to those found for all full-time students.

Expenses by Major Field of Study

Table 3.3 shows average annual expenses by field of study for public and private not-for-profit institutions. Students in master's and doctoral degree programs and in other graduate programs were combined in order to have sufficient data for reporting by major field of study. Among full-time graduate students in public institutions, total expenses did not differ significantly by field of study. Most of the variation in expenses shown in table 3.3 is attributable to differences by institution type, which have already been discussed. In each field, total expenses were higher at private not-for-profit institutions than at public institutions, and tuition and fees accounted for a greater proportion of total expenses in private not-for-profit institutions.[13]

[12]It should be noted that first-professional students may be more likely than master's or doctoral students to be enrolled full time, full year.

[13]Only in engineering, which had a very small sample size, was the difference not statistically significant.

Among first-professional students in public institutions, average tuition and fees were the same for students in law and medicine ($3,305 in both fields). However, in the private sector, average tuition and fees were greater for first-professional students in medicine ($11,811) than for those in law ($8,789).

Chapter 4

Sources and Types of Financial Aid Awarded to Graduate and First-Professional Students

Graduate and first-professional students can receive financial aid from the federal government, state governments, the institutions they attend, and various other sources. The largest other source is their employers, but graduate and first-professional students sometimes receive aid from corporations, unions, or foundations, or from fraternal, community, or other organizations. Financial aid can take a number of forms, including grants, which do not require repayment; loans, which must be repaid under prescribed conditions; and assistantships, which provide part-time employment teaching or doing research on campus. Grants, which include fellowships and scholarships, may come from federal, state, or institutional sources. Although the federal government is the source of most loan funds, some states and institutions have their own programs as well. Assistantships are categorized as institutional aid, but the funding source is often a federal research grant. This chapter describes the various sources and types of financial aid awarded to graduate and first-professional students and examines how the distribution of financial aid varied by degree program, type of institution, and selected student characteristics.

Sources of Financial Aid

This section examines the percentages of students who received aid from each of the four major sources mentioned above (the federal government, state government, postsecondary institutions, and other organizations) and, for those who received aid from a particular source, the average amount they received. It considers each source of aid separately, although many students received aid from more than one source. The various combinations of aid that students were most commonly awarded are discussed in chapter 5.

Overall, 45 percent of all graduate and first-professional students received some type of financial aid in 1989–90 (table 4.1). This represents a decline from 1986–87, when 57 percent of all graduate and first-professional students received aid.[14] Some of this decline may represent a decrease in the availability of student financial aid; however, two other factors also contribute to the difference. First, the samples on which the estimates were based are different. The 1986–87 estimates were based on a sample of students enrolled in the fall, while the 1989–90 estimates were based on samples of students selected from all terms. Because most financial aid is awarded before the start of the fall term, funds available for students who do not enroll until later in the year are sometimes limited (especially grants). Consequently, as a group, students who do not enroll until the winter or spring tend to be less likely than their counterparts who enroll in the fall to receive financial aid. Among the subsample of graduate and first-professional students enrolled in fall 1989, 49 percent received financial aid, compared with 45 percent of the full sample.

[14]R. Korb, N. Schantz, and L. Zimbler, *Student Financing of Graduate and Professional Education,* 19.

Table 4.1—Percentage of graduate and first-professional students who received financial aid, by source of aid, attendance status, degree program, and institution type and control: 1989–90

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
			All students			
Total[3]	45.0	17.5	3.2	24.6	16.1	10.2
Master's degree	39.8	12.0	2.1	20.3	16.4	12.4
Public	35.2	10.3	2.5	20.0	12.9	9.3
4-year non-doctoral	26.6	7.4	2.8	11.3	12.7	9.4
4-year doctoral	39.7	11.8	2.2	24.6	13.0	9.2
Private not-for-profit	48.3	15.2	1.5	21.0	22.9	18.0
4-year non-doctoral	41.2	11.9	2.3	16.3	20.8	15.9
4-year doctoral	52.1	16.9	1.1	23.5	24.0	19.1
Doctoral degree	59.9	12.5	3.8	49.7	16.9	7.6
Public	57.6	11.0	4.6	49.2	16.6	7.0
Private not-for-profit	64.6	15.7	2.0	50.8	17.5	8.7
First-professional degree	70.3	59.3	9.2	33.2	14.4	1.3
Public	70.3	60.6	12.9	33.2	11.0	1.1
Private not-for-profit	70.3	58.5	6.7	33.1	16.6	1.4
			Full-time students			
Total[3]	64.1	34.4	6.1	40.7	13.3	4.5
Master's degree	57.6	25.6	4.7	37.2	12.5	6.4
Public	55.1	22.5	5.8	38.6	9.4	4.6
4-year non-doctoral	39.3	17.9	9.3	20.1	8.2	4.8
4-year doctoral	60.3	24.0	4.6	44.7	9.7	4.5
Private not-for-profit	61.9	30.9	2.7	34.7	17.8	9.4
4-year non-doctoral	56.3	30.5	3.8	28.2	18.2	8.8
4-year doctoral	63.7	31.1	2.4	36.7	17.7	9.6
Doctoral degree	74.4	17.5	6.1	65.9	16.5	6.0
Public	72.9	15.1	7.8	65.0	18.2	7.0
Private not-for-profit	77.0	21.6	3.3	67.5	13.5	4.3
First-professional degree	73.1	62.1	9.4	34.5	14.3	0.8
Public	72.7	62.6	11.9	34.8	11.1	0.8
Private not-for-profit	73.3	61.8	7.5	34.2	16.7	0.7

Table 4.1—Percentage of graduate and first-professional students who received financial aid, by source of aid, attendance status, degree program, and institution type and control: 1989–90—Continued

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
			Part-time students			
Total[3]	32.7	6.0	1.1	14.2	18.0	14.4
Master's degree	32.6	6.2	1.0	13.1	18.5	15.4
Public	27.0	5.3	1.0	12.3	14.4	11.4
4-year non-doctoral	23.6	5.0	1.2	9.5	13.5	10.6
4-year doctoral	29.1	5.5	0.9	14.0	15.1	11.9
Private not-for-profit	43.1	7.9	1.0	14.5	26.1	23.0
4-year non-doctoral	37.7	6.3	1.9	13.0	22.3	18.6
4-year doctoral	46.7	9.0	0.3	15.5	28.6	25.9
Doctoral degree	43.9	5.3	1.6	33.5	16.3	9.7
Public	42.8	5.1	2.0	35.9	14.1	7.4
Private not-for-profit	47.8	6.1	0.0	24.7	24.7	18.4
First-professional degree	47.5	32.3	3.0	18.6	17.4	5.3
Public	37.4	31.5	4.9	14.6	9.5	3.1
Private not-for-profit	51.1	32.6	2.4	20.0	20.2	6.0

[1]Includes all sources of aid other than federal, state, or institutional. Examples of other sources are corporations, unions, foundations, fraternal organizations, and community organizations.
[2]Included in "Other" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

The second factor contributing to the difference between the 1986–87 and 1989–90 estimates is a change in the mix of full- and part-time students. In 1986–87, 61 percent of all graduate and first-professional students were enrolled full time,[15] compared with 41 percent in 1989–90 (table 2.5). Because full-time students are more likely than part-time students to receive financial aid, some of the decline in the overall percentage of graduate and first-professional students receiving aid between 1986–87 and 1989–90 can be attributed to the difference in the mix of full- and part-time students.

These two factors (the nature of the samples and the mix of full- and part-time students) do not fully explain the decline, however. When only full-time, fall-sample students are considered, the percentage receiving financial aid declined from 74 percent in 1986–87 to 67 percent in 1989–90.

[15]Ibid., 7.

Receipt of financial aid varied by attendance status. Overall, 64 percent of all full-time graduate and first-professional students received financial aid, compared with 33 percent of part-time students (table 4.1). Full-time students were more likely than part-time students to receive federal, state, and institutional aid. Part-time students, on the other hand, were more likely than full-time students to receive employer aid.

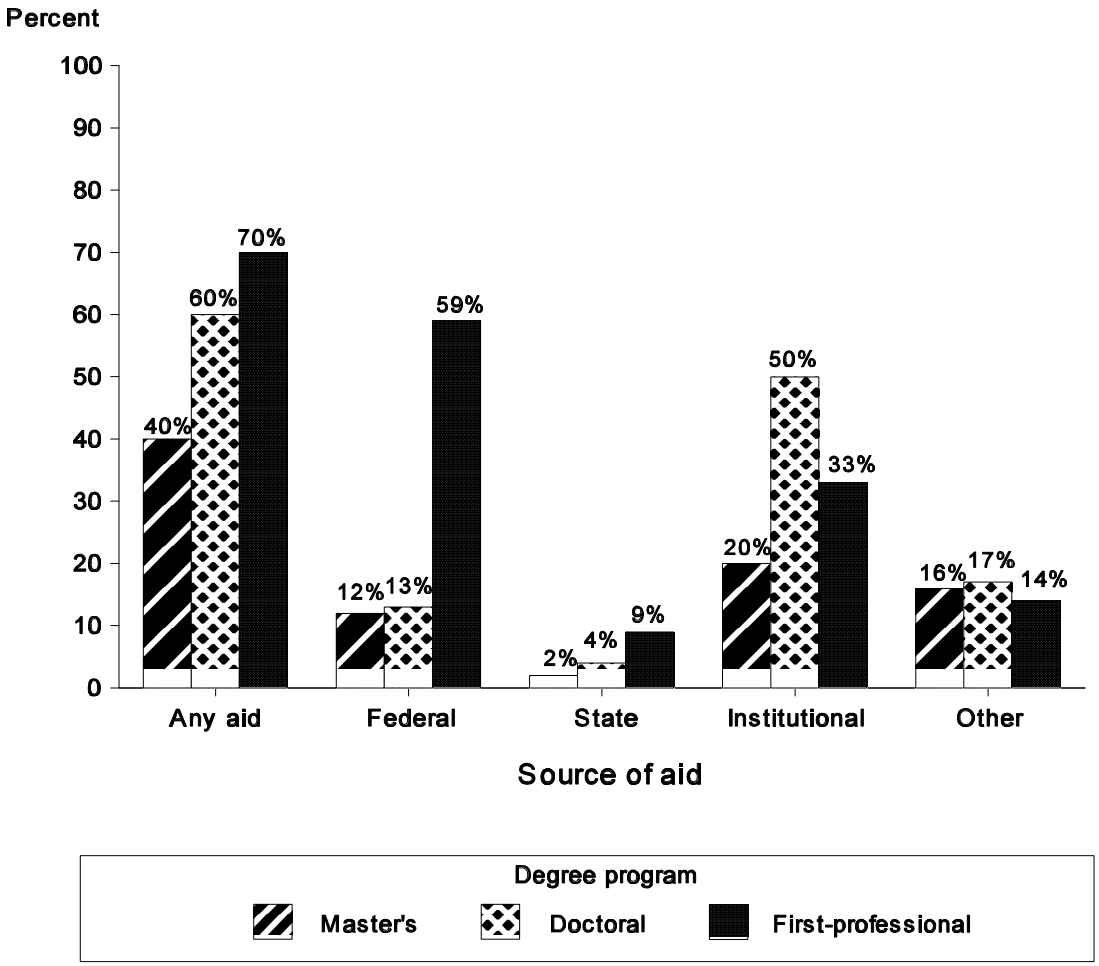
For full-time students, their institutions were the most important source of financial aid, with 41 percent receiving financial aid from the institution they were attending. The next most important source for full-time students was federal aid, which 34 percent received. Thirteen percent received "other" aid (that is, all sources other than federal, state, or institutional), and 6 percent received state aid. For part-time students, on the other hand, "other" aid was the most important (awarded to 18 percent). Employer aid (which is included in "other" aid) was especially important; it was awarded to 14 percent as was institutional aid.

Degree Program and Type of Institution

Students in first-professional degree programs were the most likely to receive some type of financial aid (70 percent), followed by students in doctoral degree programs (60 percent), and finally students in master's degree programs (40 percent). Among full-time students, doctoral and first-professional students were about equally likely to receive aid (74 percent and 73 percent, respectively). However, students at these levels were more likely to receive aid than were master's students (58 percent of whom received aid).

Students in the different degree programs relied to a varying extent on each source of financial aid (figure 4.1). For master's students, the most important source was institutional aid, which 20 percent received. Next in importance was "other" aid, which 16 percent of the students received, and then federal aid, which 12 percent received. The least important source was state aid, which was awarded to only 2 percent of the students. For full-time master's students, institutional aid was the most important source of aid (received by 37 percent), but for part-time students, "other" sources (and especially employer aid) were the most important. Nineteen percent of part-time master's students received "other" aid, and 15 percent received employer aid (which is included in "other").

Figure 4.1—Percentage of graduate and first-professional students who received financial aid, by source of aid and degree program: 1989–90



NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Doctoral students also relied most heavily on institutional aid, and as a group, they were more likely than master's students to receive it (50 percent compared with 20 percent). As indicated above, they were also more likely than master's students to receive any financial aid. The percentages of doctoral students who received federal, state, and other aid were not significantly different from the corresponding percentages for master's students. Within the "other" aid category, however, doctoral students were less likely than master's students to receive employer aid (8 percent compared with 12 percent). Full-time doctoral students were more likely than part-time doctoral students to receive financial aid (74 percent compared with 44 percent), but both groups relied most heavily on institutional aid.

First-professional students relied most heavily on federal aid, which 59 percent of the students received. This percentage was large compared with the percentages of master's and doctoral students who received federal aid (12 percent and 13 percent, respectively). In addition, first-professional students were more likely than master's or doctoral students to receive state aid (9 percent compared with 2 percent and 4 percent). Thirty-three percent of first-professional students received institutional aid, which was more than the percentage of master's students receiving this type of aid (20 percent), but less than the percentage of doctoral students (50 percent). Compared with master's and doctoral students, few first-professional students received employer aid (1 percent compared with 12 percent and 8 percent, respectively). As with master's and doctoral students, full-time first-professional students were more likely than their part-time counterparts to receive financial aid. Both full- and part-time first-professional students relied most heavily on federal aid.

Patterns of aid receipt varied by institutional type, but again, the patterns differed by degree program. At the master's level, students at private not-for-profit institutions were more likely than those at public institutions to receive financial aid (48 percent compared with 35 percent). They were particularly more likely to receive federal and "other" aid, although they were about equally likely to receive institutional aid (21 percent in private not-for-profit and 20 percent in public institutions). Part-time master's students attending private doctoral institutions were particularly likely to receive employer aid (26 percent).

At the doctoral level, students attending private not-for-profit institutions were not significantly more likely than their public-sector counterparts to receive any financial aid or to receive aid from any one source. However, among part-time doctoral students, those attending private institutions were more likely than those attending public institutions to receive employer aid (18 percent compared with 7 percent).

First-professional students attending private not-for-profit and those attending public institutions were equally likely to receive financial aid (70 percent in both cases). However, they were more likely to receive state aid if they attended a public institution, and were more likely to receive "other" aid if they attended a private not-for-profit institution.

Full-time graduate and first-professional students who received financial aid received a total award of $10,703, on average (table 4.2). Average federal and institutional awards were larger ($8,649 and $7,769, respectively) than average awards from state or "other" sources ($2,282 and $4,431, respectively). Full-time doctoral and first-professional students received larger awards, on average, than did full-time master's students ($13,395 and $12,310, compared with $8,736) (figure 4.2).

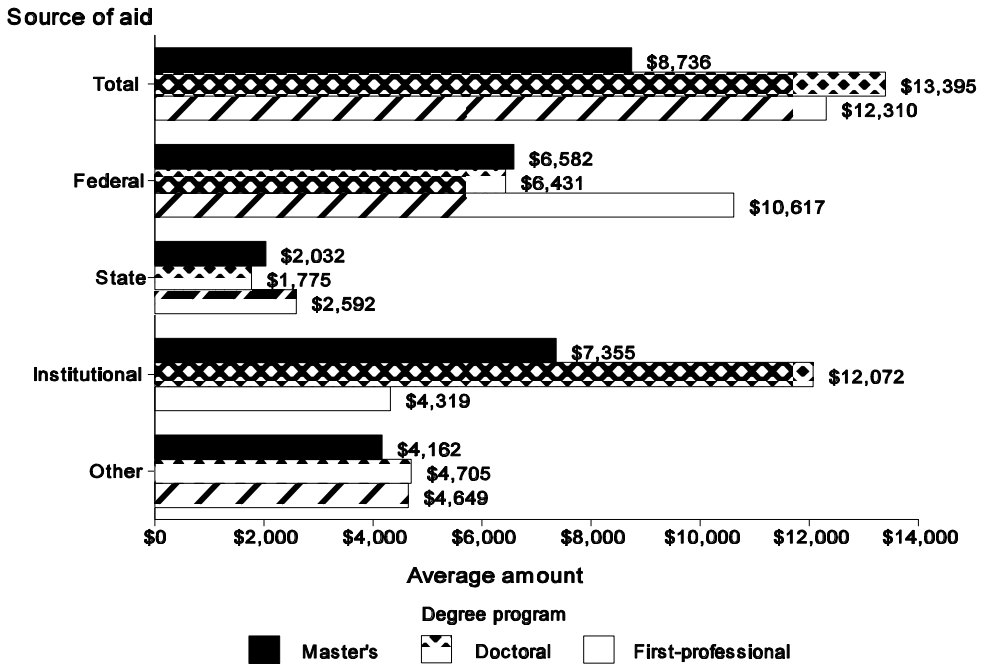
Table 4.2—Average amount of financial aid received by aided graduate and first-professional students, by source of aid, attendance status, degree program, and institution type and control: 1989–90

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
			Full-time students			
Total[3]	$10,703	$8,649	$2,282	$7,769	$4,431	$3,423
Master's degree	8,736	6,582	2,032	7,355	4,162	3,116
Public	7,764	5,440	1,731	6,937	2,957	2,120
4-year non-doctoral	5,474	4,870	1,760	4,797	—	—
4-year doctoral	8,254	5,580	1,712	7,253	3,264	2,276
Private not-for-profit	10,198	7,984	—	8,141	5,229	3,935
4-year non-doctoral	7,089	6,822	—	3,363	5,346	2,633
4-year doctoral	11,084	8,351	—	9,323	—	4,321
Doctoral degree	13,395	6,431	1,775	12,072	4,705	3,206
Public	11,160	5,544	—	9,882	4,160	—
Private not-for-profit	16,982	7,482	—	15,646	5,953	—
First-professional degree	12,310	10,617	2,592	4,319	4,649	—
Public	10,147	8,897	2,503	3,201	3,583	—
Private not-for-profit	13,895	11,903	2,695	5,159	5,172	—
			Part-time students			
Total[3]	$3,893	$5,109	$1,441	$4,277	$1,901	$1,535
Master's degree	3,506	4,849	1,111	3,807	1,808	1,584
Public	3,490	4,448	—	4,124	1,308	938
4-year non-doctoral	2,853	4,360	—	3,108	1,147	574
4-year doctoral	3,818	4,499	—	4,562	1,398	1,144
Private not-for-profit	3,525	5,353	—	3,306	2,327	2,184
4-year non-doctoral	2,235	4,336	—	1,363	1,685	1,617
4-year doctoral	4,216	5,822	—	4,389	2,658	2,454
Doctoral degree	8,961	—	—	8,417	4,739	3,112
Public	8,941	—	—	8,349	3,627	—
Private not-for-profit	9,030	—	—	—	—	—
First-professional degree	8,287	7,679	—	3,721	4,126	—
Public	7,737	7,201	—	—	—	—
Private not-for-profit	8,432	7,845	—	4,114	4,365	—

—Sample size too small for reliable estimate.
[1]Includes all sources of aid other than federal, state, or institutional. Examples of other sources are corporations, unions, foundations, fraternal organizations, and community organizations.
[2]Included in "Other" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Figure 4.2—Average amount of financial aid received by aided full-time graduate and first-professional students, by source of aid and degree program: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Not surprisingly, part-time students received less aid, on average, than did full-time students ($3,893 compared with $10,703), but the patterns were similar. As was the case for full-time students, the largest average awards were from federal and institutional sources. Again like full-time students, part-time doctoral and first-professional students received larger awards, on average, than did master's students ($8,961 and $8,287, compared with $3,506).

The relative amounts full- and part-time students received from the various sources were also different for master's, doctoral, and first-professional students. For example, for full-time master's students who received aid, the average amounts received from federal and institutional sources ($6,582 and $7,355, respectively) did not differ significantly; for part-time students, however, the average federal award was slightly larger than the average institutional award ($4,849 compared with $3,807). At the doctoral level, on the other hand, full-time students received considerably larger amounts of institutional aid than federal

aid, on average ($12,072 compared with $6,431). Among part-time doctoral students, too few received federal aid to provide a reliable estimate of the average amount. At the first-professional level, federal awards were larger than institutional awards, on average, for full-time students ($10,617 compared with $4,319) as well as for part-time students ($7,679 compared with $3,721).

At each degree level, full-time aid recipients who attended private not-for-profit institutions received larger amounts of financial aid, on average, than did those who attended public institutions. For part-time students, however, no significant differences were observed at any degree level.

The average amounts of aid awarded to master's students differed in doctoral and non-doctoral institutions. In particular, in both the public and private sectors, the average amount of institutional aid awarded to full-time master's students attending doctoral institutions was much larger than it was for those attending non-doctoral institutions ($7,253 compared with $4,797 in public institutions, and $9,323 compared with $3,363 in private not-for-profit institutions). For part-time master's students, the average amount of institutional aid was larger at doctoral than at non-doctoral institutions in the private sector ($4,389 compared with $1,363), but not in the public sector.

Table 4.3 shows the average amount of financial aid received by full-time, full-year aid recipients. In 1989–90, the total amount received for all aid was $12,213. The patterns with respect to sources of aid and across degree programs and institution types were very similar to those just described for all full-time students (and shown in table 4.2). As would be expected, the amounts of aid for full-time, full-year students were slightly higher than for all full-time students.

Table 4.3—Average amount of financial aid received by aided full-time, full-year graduate and first-professional students, by source of aid, degree program, and institution type and control: 1989–90

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
Total[3]	$12,213	$9,217	$2,460	$8,648	$5,276	$4,361
Master's degree	10,537	7,167	2,687	8,383	5,303	3,846
Public	8,910	5,701	2,301	7,644	3,867	—
4-year non-doctoral	6,599	5,008	—	5,540	—	—
4-year doctoral	9,295	5,841	—	7,886	4,108	—
Private not-for-profit	13,207	8,937	—	9,732	7,172	—
4-year non-doctoral	9,090	7,764	—	4,407	5,990	—
4-year doctoral	14,075	9,192	—	10,717	7,582	—
Doctoral degree	14,665	6,662	—	13,342	5,712	—
Public	12,068	5,455	—	10,814	4,971	—
Private not-for-profit	18,744	8,256	—	17,286	—	—
First-professional degree	12,842	10,940	2,702	4,492	4,897	—
Public	10,307	8,952	2,377	3,235	3,725	—
Private not-for-profit	14,991	12,687	3,168	5,502	5,585	—

—Sample size too small for reliable estimate.
[1]Includes all sources of aid other than federal, state, or institutional. Examples of other sources are corporations, unions, foundations, fraternal organizations, and community organizations.
[2]Included in "Other" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Student Characteristics

The sources and amounts of financial aid awarded to graduate and first-professional students varied with student demographic and socioeconomic characteristics such as gender, race–ethnicity, age, marital status, citizenship, and income, and with student enrollment characteristics such as attendance status and field of study. In many instances, the patterns also varied by degree program.

It should be noted, however, that need-based financial aid is awarded to eligible students (as determined by attendance status and citizenship status) on the basis of income, cost of attendance, and sometimes field of study. Student characteristics such as sex and race–ethnicity are not criteria. Therefore, some of the variation in the patterns of aid across student characteristics described here reflects the distribution of students in terms of income, type of institution, attendance status, citizenship status, and field of study.

Among master's students, males were more likely than females to receive financial aid (45 percent compared with 37 percent) (table 4.4). The percentages of males receiving federal, state, and institutional aid were not significantly different from those of females receiving similar types of aid. However, males were more likely to receive "other" aid and its major component, employer aid: 15 percent of males received employer aid, compared with 11 percent of females. Among doctoral and first-professional students, the only significant difference according to gender was in institutional aid at the first-professional level: females working for their first-professional degree were more likely than their male counterparts to receive institutional aid (37 percent compared with 31 percent).

Table 4.4—Percentage of graduate and first-professional students who received financial aid, by source of aid, degree program, and selected student characteristics: 1989–90

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
Total[3]	45.0	17.5	3.2	24.6	16.1	10.2
			Master's			
Total	39.8	12.0	2.1	20.3	16.4	12.4
Gender						
Male	44.5	12.5	1.7	22.5	19.4	15.1
Female	36.6	11.6	2.4	19.0	14.6	10.6
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	45.0	5.8	2.1	33.4	13.6	7.9
Black, non-Hispanic	44.0	15.1	2.3	23.3	13.9	8.4
Hispanic	42.0	14.5	3.8	21.5	13.7	8.2
White, non-Hispanic	39.0	12.3	2.0	18.9	17.0	13.3
Age						
23 years or younger	50.6	17.0	3.4	34.5	14.9	8.5
24–29 years	44.5	14.8	2.2	23.0	17.8	13.9
30 years or older	34.1	9.0	1.8	15.4	15.9	12.2
Marital status						
Not married	45.6	17.2	2.6	25.1	15.6	11.3
Married	33.8	7.3	1.6	15.3	17.5	13.9
Attendance status						
Full-time	57.6	25.6	4.7	37.2	12.5	6.4
At least half-time	37.6	10.9	1.2	16.4	18.2	14.6
Less than half-time	28.2	2.0	0.9	10.1	18.8	16.1
Housing status						
Campus housing	61.2	17.9	1.8	50.3	18.3	7.5
Off campus	38.5	11.6	2.1	18.5	16.3	12.7
Citizenship						
U.S. citizen	38.8	12.8	2.2	18.4	16.5	13.1
Eligible noncitizen	52.0	13.7	2.3	32.5	18.1	9.1
Other	48.9	1.1	0.6	42.8	13.6	4.4
Income and dependency						
Dependent student						
Less than $50,000	52.6	13.5	3.4	42.1	14.9	4.6
$50,000 or more	35.3	3.9	4.1	29.8	9.6	2.5
Independent student						
Less than $20,000	49.0	20.1	3.3	30.8	13.0	7.7
$20,000–29,999	37.2	10.9	1.6	15.2	17.8	14.7
$30,000–49,999	31.7	5.7	1.2	10.9	19.3	16.2
$50,000 or more	31.6	4.1	0.8	10.7	19.9	17.8
Major field of study						
Arts and humanities	44.4	13.9	3.2	32.0	10.3	5.9
Natural sciences	52.1	13.9	1.3	39.8	17.3	13.4
Social sciences	51.3	25.1	4.7	30.8	11.0	5.9
Engineering	51.7	8.8	2.0	26.5	25.6	20.0
Law	—	—	—	—	—	—
Business	43.1	12.3	0.7	15.4	23.6	20.8
Education	26.7	6.8	2.0	12.9	11.8	7.9
Medicine	43.3	16.0	3.2	17.6	18.9	15.5
Other	48.1	20.4	3.0	30.0	13.5	7.9

Table 4.4—Percentage of graduate and first-professional students who received financial aid, by source of aid, degree program, and selected student characteristics: 1989–90—Continued

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
			Doctoral			
Total	59.9	12.5	3.8	49.7	16.9	7.6
Gender						
Male	63.6	13.0	2.9	53.4	18.1	8.0
Female	54.8	12.4	4.5	44.9	15.9	7.2
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	78.4	7.3	3.6	72.0	19.5	6.1
Black, non-Hispanic	46.4	10.5	2.4	35.7	12.6	3.1
Hispanic	61.1	14.8	6.5	49.4	20.2	3.3
White, non-Hispanic	56.2	13.9	3.8	45.3	16.4	8.4
Age						
23 years or younger	69.6	22.4	5.1	56.7	23.7	6.4
24–29 years	78.1	17.0	4.5	68.0	19.1	6.8
30 years or older	48.3	9.0	2.9	38.5	15.1	8.3
Marital status						
Not married	69.1	18.6	4.9	57.8	19.3	6.8
Married	50.2	7.2	2.1	40.8	15.6	8.9
Attendance status						
Full-time	74.4	17.5	6.1	65.9	16.5	6.0
At least half-time	56.9	10.4	3.1	45.9	18.4	7.8
Less than half-time	33.0	1.0	0.4	23.2	14.6	11.3
Housing status						
Campus housing	83.0	14.9	2.8	72.3	25.3	8.9
Off campus	55.9	12.1	3.9	45.9	15.4	7.3
Citizenship						
U.S. citizen	54.5	15.7	3.7	43.2	16.0	8.5
Eligible noncitizen	75.7	9.6	5.0	72.6	12.9	1.4
Other	76.8	1.1	2.4	68.6	25.8	7.0
Income and dependency						
Dependent student						
Less than $50,000	—	—	—	—	—	—
$50,000 or more	—	—	—	—	—	—
Independent student						
Less than $20,000	74.1	17.8	4.7	65.2	19.1	5.7
$20,000–29,999	50.3	8.5	3.2	40.2	15.2	10.6
$30,000–49,999	47.0	6.1	2.9	34.2	16.0	11.1
$50,000 or more	33.2	4.9	1.4	21.1	12.4	7.1
Major field of study						
Arts and humanities	55.9	15.4	4.0	44.1	17.4	6.3
Natural sciences	81.4	9.7	2.4	72.8	21.5	9.5
Social sciences	58.9	18.3	6.7	47.3	15.5	5.4
Engineering	79.6	5.0	4.3	74.1	21.7	11.1
Law	53.7	50.0	4.9	28.6	4.2	0.0
Business	50.5	11.8	3.9	32.4	22.0	17.1
Education	29.6	5.4	1.4	20.6	12.6	7.4
Medicine	62.7	28.5	1.5	47.1	13.8	1.4
Other	69.9	12.3	5.9	64.3	13.4	3.1

Table 4.4—Percentage of graduate and first-professional students who received financial aid, by source of aid, degree program, and selected student characteristics: 1989–90—Continued

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
			First-professional			
Total	70.3	59.3	9.2	33.2	14.4	1.3
Gender						
Male	69.4	57.9	9.3	30.8	14.7	1.5
Female	71.4	61.4	9.1	36.7	13.9	1.1
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	64.7	49.2	6.7	36.3	12.2	1.6
Black, non-Hispanic	85.4	73.1	11.5	59.1	20.2	0.4
Hispanic	75.7	68.2	21.1	37.0	10.2	1.0
White, non-Hispanic	69.6	58.9	8.5	31.1	14.5	1.3
Age						
23 years or younger	69.4	59.1	9.5	33.3	12.6	0.4
24–29 years	73.3	64.5	9.7	33.5	13.9	0.9
30 years or older	64.9	49.3	7.6	32.4	15.2	2.9
Marital status						
Not married	72.4	63.4	9.8	34.1	13.6	0.9
Married	65.3	51.5	7.6	30.5	16.4	2.4
Attendance status						
Full-time	73.1	62.1	9.4	34.5	14.3	0.8
At least half-time	52.9	35.8	3.8	20.6	18.8	4.9
Less than half-time	31.3	21.8	0.8	12.5	13.3	6.2
Housing status						
Campus housing	78.5	61.0	7.8	46.7	24.1	0.7
Off campus	69.2	59.1	9.4	31.3	13.1	1.4
Citizenship						
U.S. citizen	71.0	61.0	9.3	32.8	14.4	1.2
Eligible noncitizen	78.9	70.8	15.7	41.5	13.9	0.9
Other	42.8	1.7	0.0	37.7	15.2	1.9
Income and dependency						
Dependent student						
Less than $50,000	93.8	86.4	17.8	47.5	13.0	0.0
$50,000 or more	93.7	80.6	9.5	40.0	16.2	0.8
Independent student						
Less than $20,000	72.5	62.1	10.1	35.6	14.5	0.8
$20,000–29,999	64.5	53.4	5.7	26.2	13.4	2.2
$30,000–49,999	56.5	41.9	4.2	22.8	13.7	3.3
$50,000 or more	47.0	32.9	5.3	18.1	10.6	3.8
Major field of study						
Arts and humanities	63.2	33.2	3.0	46.8	37.8	1.6
Law	66.1	56.8	7.4	30.7	13.9	1.6
Medicine	76.3	67.8	12.1	32.8	11.1	0.7

—Sample size too small for reliable estimate.
[1]Includes all sources of aid other than federal, state, or institutional. Examples of other sources are corporations, unions, foundations, fraternal organizations, and community organizations.
[2]Included in "Other" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Financial aid in the form of institutional support varied by race–ethnicity. At the master's level, Asian students were more likely than white, non-Hispanic students to receive institutional aid (33 percent compared with 19 percent). At the doctoral level, Asian students were more likely than either black, non-Hispanic or than white, non-Hispanic students to receive institutional aid: 72 percent of them received institutional aid, compared with 36 percent of black, non-Hispanic students and 45 percent of white, non-Hispanic students. At the first-professional level, black, non-Hispanic students were more likely than Asian, Hispanic, or white, non-Hispanic students to receive institutional aid. At all degree levels, Asian students were less likely than white, non-Hispanic students to receive federal aid.

Master's and doctoral students who were in the two under 30 age groups were more likely than their counterparts over age 30 to receive financial aid. In the case of first-professional students, only students in the 24- through 29-year-old group were significantly more likely than students over age 30 to receive some type of financial aid. For students in all three degree programs, students in the two younger age groups were more likely than those age 30 or over to receive federal aid.

Possibly because the incomes of the spouses of married students are taken into account when determining the need for financial aid, students in all three degree programs who were not married were more likely than those who were married to receive financial aid.[16] This pattern held for both master's and doctoral students with respect to federal, state, and institutional aid, and for first-professional students with respect to federal aid. In all three degree programs, the proportions of married and not married students who received "other" aid were not significantly different. This is not surprising, because "other" aid, which includes employer aid, is not always need-based.

In each degree program, full-time students were more likely than part-time students to be awarded financial aid. Among full-time students, 58 percent of master's students, 74 percent of doctoral students, and 73 percent of first-professional students received some type of financial aid. The percentages for students in the "at least half-time" and "less than half-time" categories were significantly less. This pattern held for both federal and institutional aid. However, master's students in the part-time categories were more likely than their full-time counterparts to receive "other" aid, especially employer aid.

In the case of master's and doctoral students, eligible noncitizens were more likely to receive financial aid than were U.S. citizens (52 percent compared with 39 percent, and 76 percent compared with 55 percent, respectively). Approximately three-quarters of all doctoral students who were not eligible for federal aid ("other" students in table 4.4) received some financial aid, with 69 percent receiving institutional aid and 26 percent receiving "other" aid.

In all degree programs, financially independent students in the lowest income group (less than $20,000 per year) were more likely than those in the highest income group to receive financial aid from some source. This pattern held for federal and institutional aid at all degree levels.

The percentages of students receiving aid varied with field of study. At the master's and doctoral levels, education students were significantly less likely to be aided than students in almost any other field, with the exception of law and business students at the doctoral level. Education students were not significantly less likely to be aided than these students, but the standard errors for estimates of the percentages of law and business students who received aid were very large because of the relatively few doctoral students in these fields. At the first-professional level, greater percentages of medical students

[16]Married students may also be more likely to attend part time and not be eligible for financial aid.

than law students received financial aid.

There was relatively little variation by student characteristics (other than income) in the average amounts of financial aid awarded to all full-time aided students (table 4.5). A few important differences are worth noting, however. At the master's level, males received more total aid, on average, than did females ($9,526 compared with $8,074). The difference was primarily in institutional aid: males received an average of $8,232, compared with $6,519 for females. At the first-professional level, black, non-Hispanic students received a larger amount of any aid, on average, ($16,178) than did Asian ($13,170), Hispanic ($11,997), or white, non-Hispanic students ($12,005).

Table 4.5—Average amount of financial aid received by aided full-time graduate and first-professional students, by source of aid, degree program, and selected student characteristics: 1989–90

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
Total[3]	$10,703	$8,649	$2,282	$7,769	$4,431	$3,423
			Master's			
Total	8,736	6,582	2,032	7,355	4,162	3,116
Gender						
Male	9,526	7,012	2,399	8,232	4,330	3,127
Female	8,074	6,242	1,839	6,519	4,024	3,175
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	9,264	—	—	8,916	—	—
Black, non-Hispanic	8,109	5,532	—	6,729	—	—
Hispanic	9,265	6,291	—	7,616	—	—
White, non-Hispanic	8,667	6,698	1,905	7,099	3,900	3,265
Age						
23 years or younger	9,198	6,624	—	7,798	3,171	—
24–29 years	9,477	6,552	1,994	7,928	4,684	2,845
30 years or older	7,632	6,601	1,950	6,229	4,093	3,477
Marital status						
Not married	9,139	6,588	2,170	7,505	4,226	3,560
Married	8,284	6,606	1,877	7,226	4,152	2,754
Housing status						
Campus housing	11,766	7,610	—	9,448	5,597	—
Off campus	8,294	6,483	2,033	6,936	3,926	3,096
Citizenship						
U.S. citizen	8,515	6,598	2,058	6,876	3,772	3,172
Eligible noncitizen	12,352	—	—	11,020	—	—
Other	9,651	—	—	8,972	—	—
Income and dependency						
Dependent student						
Less than $50,000	7,793	—	—	6,708	—	—
$50,000 or more	9,478	—	—	—	—	—
Independent student						
Less than $20,000	9,280	6,634	2,076	7,512	3,576	2,594
$20,000–29,999	8,688	6,624	—	7,184	4,100	—
$30,000–49,999	7,784	6,772	—	6,679	5,007	3,556
$50,000 or more	6,561	—	—	6,720	5,102	—
Major field of study						
Arts and humanities	8,173	6,336	—	6,571	—	—
Natural sciences	11,081	—	—	10,633	—	—
Social sciences	8,081	6,203	—	6,183	—	—
Engineering	10,247	7,592	—	9,205	4,731	—
Law	—	—	—	—	—	—
Business	9,450	7,139	—	7,764	5,075	4,236
Education	6,009	5,640	—	4,803	—	—
Medicine	8,234	6,809	—	5,953	—	—
Other	8,637	6,505	—	8,125	—	—

Table 4.5—Average amount of financial aid received by aided full-time graduate and first-professional students, by source of aid, degree program, and selected student characteristics: 1989–90—Continued

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
			Doctoral			
Total	$13,395	$6,431	$1,775	$12,072	$4,705	$3,206
Gender						
Male	14,389	6,423	—	13,133	5,119	—
Female	12,190	6,407	—	10,613	4,115	—
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	14,290	—	—	13,161	—	—
Black, non-Hispanic	—	—	—	—	—	—
Hispanic	—	—	—	—	—	—
White, non-Hispanic	12,936	6,665	—	11,398	4,319	—
Age						
23 years or younger	18,353	—	—	16,753	—	—
24–29 years	14,877	7,156	—	13,197	5,897	—
30 years or older	10,745	5,782	—	9,758	3,620	—
Marital status						
Not married	13,996	5,822	—	12,598	4,694	—
Married	12,889	7,442	—	11,766	4,700	—
Housing status						
Campus housing	16,169	—	—	14,327	—	—
Off campus	12,654	6,531	1,876	11,439	3,946	—
Citizenship						
U.S. citizen	13,296	6,520	1,879	11,721	3,819	—
Eligible noncitizen	13,033	—	—	11,849	—	—
Other	15,360	—	—	14,132	—	—
Income and dependency						
Dependent student						
Less than $50,000	—	—	—	—	—	—
$50,000 or more	—	—	—	—	—	—
Independent student						
Less than $20,000	14,624	6,135	—	12,994	5,229	—
$20,000–29,999	10,442	—	—	10,315	—	—
$30,000–49,999	11,326	—	—	10,678	—	—
$50,000 or more	—	—	—	—	—	—
Major field of study						
Arts and humanities	12,699	—	—	10,653	—	—
Natural sciences	14,774	—	—	13,380	—	—
Social sciences	11,689	—	—	10,362	—	—
Engineering	14,974	—	—	14,237	—	—
Law	—	—	—	—	—	—
Business	—	—	—	—	—	—
Education	—	—	—	—	—	—
Medicine	14,987	8,908	—	12,424	—	—
Other	14,729	—	—	14,516	—	—

Table 4.5—Average amount of financial aid received by aided full-time graduate and first-professional students, by source of aid, degree program, and selected student characteristics: 1989–90—Continued

	Any aid	Federal	State	Institutional	Other[1]	Employer[2]
			First-professional			
Total	$12,310	$10,617	$2,592	$4,319	$4,649	—
Gender						
Male	12,449	10,922	2,507	4,368	4,782	—
Female	12,142	10,202	2,687	4,218	4,496	—
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	13,170	11,655	—	5,529	5,601	—
Black, non-Hispanic	16,178	11,096	—	6,845	4,562	—
Hispanic	11,997	9,691	1,539	4,314	—	—
White, non-Hispanic	12,005	10,583	2,635	3,920	4,483	—
Age						
23 years or younger	12,003	10,209	2,496	4,697	4,539	—
24–29 years	12,843	10,957	2,661	4,076	5,301	—
30 years or older	11,507	10,231	2,608	4,486	3,478	—
Marital status						
Not married	12,713	10,769	2,489	4,439	4,816	—
Married	11,606	10,222	2,793	4,076	4,345	—
Housing status						
Campus housing	11,503	9,790	2,827	4,273	4,173	—
Off campus	12,433	10,728	2,566	4,328	4,772	—
Citizenship						
U.S. citizen	12,373	10,616	2,579	4,168	4,680	—
Eligible noncitizen	13,904	10,871	—	6,292	—	—
Other	9,433	—	—	7,776	—	—
Income and dependency						
Dependent student						
Less than $50,000	12,167	9,761	2,499	4,981	—	—
$50,000 or more	10,802	9,283	—	4,195	—	—
Independent student						
Less than $20,000	12,752	10,956	2,558	4,325	4,722	—
$20,000–29,999	11,829	10,254	—	4,230	4,833	—
$30,000–49,999	10,550	9,695	—	3,876	4,714	—
$50,000 or more	9,341	8,581	—	4,242	—	—
Major field of study						
Arts and humanities	7,668	5,971	—	3,306	2,949	—
Law	11,274	9,183	1,834	4,241	5,118	—
Medicine	13,784	12,108	3,149	4,456	5,139	—
Other	—	—	—	—	—	—

—Sample size too small for reliable estimate.

[1]Includes all sources of aid other than federal, state, or institutional. Examples of other sources are corporations, unions, foundations, fraternal organizations, and community organizations.

[2]Included in "Other" column as well.

[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Types of Financial Aid

As indicated at the beginning of this chapter, the types of financial aid awarded to graduate and first-professional students fall into three major categories: grants, loans, and assistantships. This section examines the percentages of students who received each type of aid and, for those who received each type, the average amount received. It considers each type of aid separately, although many students received more than one type. The various combinations of aid awarded are discussed in chapter 5.

Among all graduate and first-professional students, 29 percent received grants, 17 percent received loans, and 10 percent received assistantships (table 4.6). Tuition waivers (defined in this report as a type of grant) were awarded to 8 percent of the students, and Stafford loans (also included in loans) were awarded to 16 percent. Full-time students were more likely than part-time students to receive each type of aid. The difference in the percentage of students with loans was particularly striking: 34 percent of full-time students had loans, compared with 6 percent of part-time students. A major reason for this difference is that only students enrolled half time or more are eligible for Stafford loans.

Full-time students were about equally likely to receive grants (37 percent) and loans (34 percent). Seventeen percent of full-time students had assistantships, and 11 percent had tuition waivers. Among part-time students, grants were the major source of aid (received by 25 percent). With respect to other types of aid, 6 percent received tuition waivers, 6 percent received loans, and 5 percent received assistantships.

Table 4.6— Percentage of graduate and first-professional students who received financial aid, by type of aid, attendance status, degree program, and institution type and control: 1989–90

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
			All students			
Total[3]	45.0	29.4	7.9	9.6	17.4	15.6
Master's degree	39.8	27.6	7.6	8.7	11.9	10.6
Public	35.2	22.9	8.4	10.7	10.1	9.0
4-year non-doctoral	26.6	18.3	5.2	5.0	7.1	6.2
4-year doctoral	39.7	25.4	10.1	13.8	11.8	10.5
Private not-for-profit	48.3	36.1	6.0	5.1	15.0	13.4
4-year non-doctoral	41.2	31.8	4.9	2.3	11.4	10.0
4-year doctoral	52.1	38.3	6.6	6.6	17.0	15.3
Doctoral degree	59.9	39.8	18.3	28.5	11.8	8.8
Public	57.6	36.7	21.5	31.9	10.3	7.6
Private not-for-profit	64.6	46.4	11.5	21.3	14.9	11.4
First-professional degree	70.3	35.4	4.2	2.7	60.2	56.7
Public	70.3	37.3	5.5	3.6	60.9	57.6
Private not-for-profit	70.3	34.2	3.3	2.2	59.7	56.1
			Full-time students			
Total[3]	64.1	37.3	10.8	17.1	34.4	31.4
Master's degree	57.6	35.3	12.1	18.6	25.8	23.1
Public	55.1	32.5	15.2	23.4	22.4	19.8
4-year non-doctoral	39.3	23.7	6.5	13.0	18.4	16.1
4-year doctoral	60.3	35.4	18.0	26.8	23.8	21.1
Private not-for-profit	61.9	40.2	6.8	10.5	31.4	28.7
4-year non-doctoral	56.3	35.7	5.0	5.9	30.5	27.5
4-year doctoral	63.7	41.6	7.4	12.0	31.6	29.0
Doctoral degree	74.4	49.1	22.8	37.7	16.1	12.5
Public	72.9	45.2	26.8	42.9	13.7	10.7
Private not-for-profit	77.0	55.8	16.0	28.9	20.3	15.5
First-professional degree	73.1	36.0	4.4	2.9	63.0	59.4
Public	72.7	37.6	5.4	3.9	62.9	59.3
Private not-for-profit	73.3	34.8	3.7	2.1	63.0	59.5

Table 4.6— Percentage of graduate and first-professional students whoreceived financial aid, by type of aid, attendance status, degree program, and institution type and control: 1989–90—Continued

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
			Part-time students			
Total[3]	32.7	24.6	6.3	4.8	5.8	5.0
Master's degree	32.6	24.7	5.7	4.3	6.0	5.3
Public	27.0	19.0	5.6	5.3	5.1	4.6
4-year non-doctoral	23.6	17.1	5.3	3.0	4.5	3.9
4-year doctoral	29.1	20.3	5.8	6.8	5.5	5.0
Private not-for-profit	43.1	35.3	5.8	2.5	7.7	6.6
4-year non-doctoral	37.7	31.6	5.0	1.4	5.9	5.1
4-year doctoral	46.7	37.7	6.3	3.3	8.8	7.5
Doctoral degree	43.9	30.3	15.6	19.7	6.2	4.8
Public	42.8	29.0	17.6	22.5	5.7	4.5
Private not-for-profit	47.8	35.2	7.9	9.0	8.0	6.1
First-professional degree	47.5	24.5	3.0	2.5	34.3	30.1
Public	37.4	19.3	6.5	1.6	31.5	30.8
Private not-for-profit	51.1	26.4	1.8	2.8	35.3	29.8

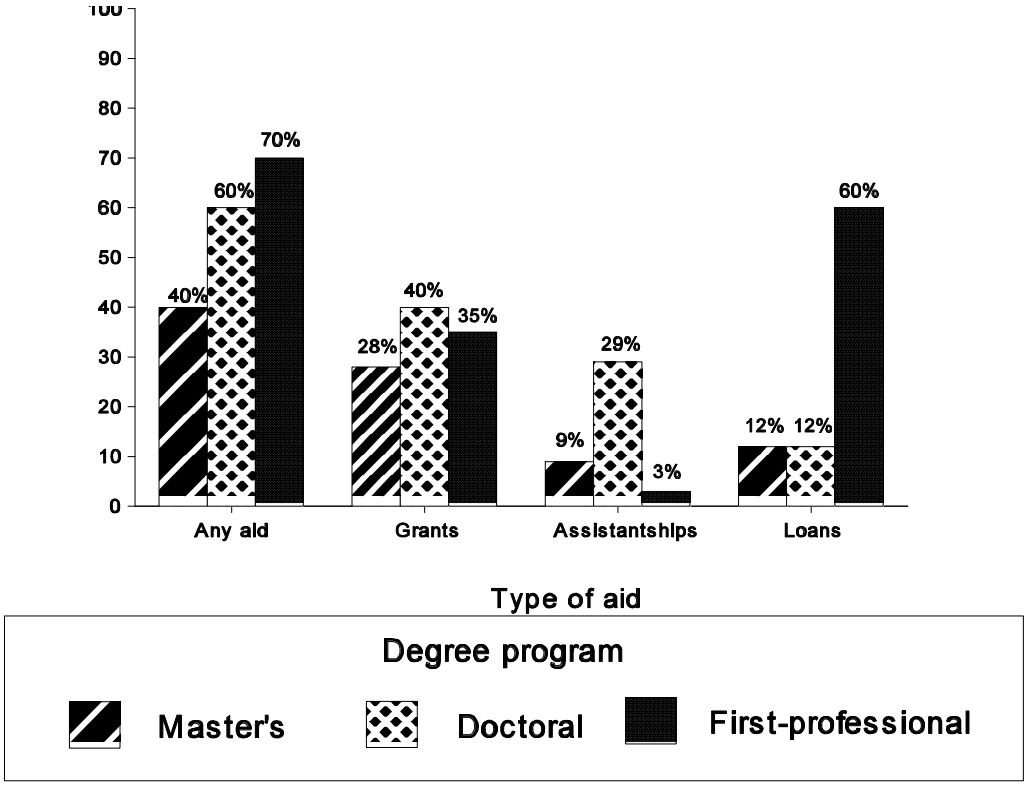
[1]Included in "Grants" column as well.
[2]Included in "Loans" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Degree Program and Type of Institution

The various types of aid were distributed differently across students by degree program (figure 4.3 and table 4.6). For example, doctoral and first-professional students were more likely to be awarded grants than were students in master's degree programs: 40 percent of doctoral students and 35 percent of first-professional students received grants, compared with 28 percent of master's students. However, the differences between master's students (32 percent of whom were enrolled full time) and first-professional students (90 percent of whom were enrolled full time) disappear when attendance status is controlled for.

Figure 4.3—Percentage of graduate and first-professional students who received financial aid, by type of aid and degree program: 1989–90



NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Doctoral students were much more likely to be awarded tuition waivers and assistantships than were master's or first-professional students. Eighteen percent of the students enrolled in doctoral degree programs received tuition waivers, compared with 8 percent of master's students and 4 percent of first-professional students; 29 percent of doctoral students received assistantships, compared with 9 percent of master's students and 3 percent of first-professional students. First-professional students relied much more heavily on loans (60 percent had loans) than did master's or doctoral students (12 percent each had loans).

The use of different types of aid varied by type of institution as well as by degree program. At the master's level, the percentages of students who received grants and who received loans were greater at private not-for-profit institutions than they were at public institutions (36 percent compared with 23 percent for grants, and 15 percent compared with 10 percent for loans). In contrast, the percentages of master's students who received assistantships were greater at public than at private not-for-profit institutions (11 percent compared with 5 percent). At the doctoral level, the percentages of students who received loans were greater in private not-for-profit than in public institutions (15 percent compared with 10 percent). The percentages receiving grants did not differ significantly. In contrast, doctoral students at public institutions were more likely than their counterparts in private not-for-profit institutions to receive tuition waivers (22 percent compared with 12 percent) or assistantships (32 percent compared with 21 percent). For first-professional students, the percentages receiving each type of aid did not vary significantly by type of institution.

Among full-time graduate and first-professional students who received grants, the average amount awarded was $4,413 (table 4.7). The average amount awarded to those who received assistantships was $7,160, and for those who received loans it was $9,034. For each type of aid shown in table 4.7, except assistantships, part-time students received smaller amounts, on average, than did full-time students. The average assistantship amount awarded was not significantly different for full- and part-time students.

Table 4.7—Average amount of financial aid received by aided graduate and first-professional students, by type of aid, attendance status, degree program, and institution type and control: 1989–90

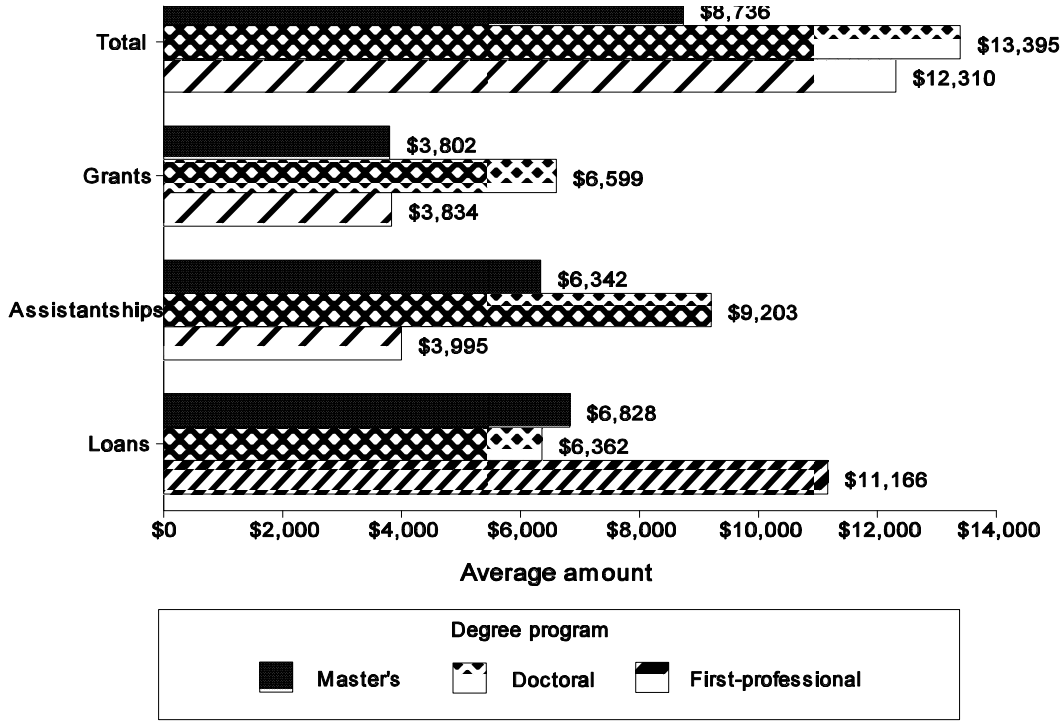
	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
			Full-time students			
Total[3]	$10,703	$4,413	$3,426	$7,160	$9,034	$6,224
Master's degree	8,736	3,802	3,467	6,342	6,828	5,674
Public	7,764	3,066	2,791	6,377	5,354	5,024
4-year non-doctoral	5,474	1,955	—	3,960	4,709	4,846
4-year doctoral	8,254	3,311	2,909	6,761	5,518	5,068
Private not-for-profit	10,198	4,807	6,007	6,211	8,607	6,434
4-year non-doctoral	7,089	2,494	—	—	6,745	5,969
4-year doctoral	11,084	5,447	6,654	6,795	9,184	6,576
Doctoral degree	13,395	6,599	3,920	9,203	6,362	5,452
Public	11,160	4,079	2,912	8,690	5,746	5,508
Private not-for-profit	16,982	10,060	6,786	10,494	7,067	5,387
First-professional	12,310	3,834	2,479	3,995	11,166	6,732
Public	10,147	2,727	2,080	4,481	9,132	6,399
Private not-for-profit	13,895	4,717	2,912	3,326	12,666	6,978
			Part-time students			
Total[3]	$3,893	1,838	1,677	6,378	5,546	4,916
Master's degree	3,506	1,827	1,782	5,921	5,148	4,681
Public	3,490	1,423	1,567	6,007	4,751	4,231
4-year non-doctoral	2,853	1,086	1,147	4,774	5,434	4,320
4-year doctoral	3,818	1,603	1,813	6,352	4,401	4,187
Private not-for-profit	3,525	2,237	2,173	5,575	5,645	5,271
4-year non-doctoral	2,235	1,464	1,191	—	4,692	4,465
4-year doctoral	4,216	2,667	2,685	—	6,071	5,633
Doctoral degree	8,961	3,520	2,110	7,722	—	—
Public	8,941	2,760	2,199	7,888	—	—
Private not-for-profit	9,030	5,902	—	—	—	—
First-professional degree	8,287	2,620	—	—	8,091	6,146
Public	7,737	—	—	—	7,609	5,735
Private not-for-profit	8,432	2,781	—	—	8,247	6,299

—Sample size too small for reliable estimate.
[1]Included in "Grants" column as well.
[2]Included in "Loans" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Average awards varied by degree program as well as by attendance status (figure 4.4). Among full-time aided students, doctoral students received larger grants, on average ($6,599), than did master's or first-professional students ($3,802 and $3,834, respectively). Among part-time aided students, doctoral and first-professional students received larger grants, on average ($3,520 and $2,620), than did master's students ($1,827). Doctoral students received the largest assistantships, on average ($9,203 for full-time and $7,722 for part-time), followed by master's students ($6,342 for full-time and $5,921 for part-time), and then first-professional students ($3,995 for full-time, and too few for a reliable estimate among part-time). Full-time first-professional students received larger average loans than their counterparts at the doctoral or master's level: the average loan for a full-time first-professional student was $11,166, compared with $6,362 for a full-time doctoral student and $6,828 for a full-time master's student. Among part-time students, the average loan for a first-professional student was $8,091, compared with $5,148 for master's students. Too few part-time doctoral students in the sample received loans for a reliable estimate of the average amount.

Figure 4.4—Average amount of financial aid received by aided full-time graduate and first-professional students, by type of aid and degree program: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

In all three degree programs, full-time aid recipients who attended private not-for-profit institutions received larger grants, on average, than did students who attended public institutions. In addition, full-time master's and first-professional students had larger loans, on average, in private institutions than in public ones. No significant difference was found in the amount of the average assistantship awarded to full-time students at public and private institutions in any degree program.

Table 4.8 shows the average amount of financial aid received by full-time, full-year aid recipients. In 1989–90, the total amount for all aid received was $12,213. The patterns with respect to sources of aid and across degree programs and institution types were very similar to those just described for all full-time students (and shown in table 4.7). As would be expected, the amounts of aid for full-time, full-year students tended to be slightly higher than for all full-time students.

Table 4.8—Average amount of financial aid received by aided full-time, full-year graduate and first-professional students, by type of aid, degree program,and institution type and control: 1989–90

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
			All students			
Total[3]	$12,213	$4,976	$3,902	$7,465	$9,695	$6,398
Master's degree	10,537	4,500	4,011	6,586	7,556	5,936
Public	8,910	3,566	3,189	6,634	5,676	5,225
4-year non-doctoral	6,599	3,076	—	—	4,954	—
4-year doctoral	9,295	3,642	3,259	6,916	5,826	5,306
Private not-for-profit	13,207	5,877	7,081	6,433	9,727	6,778
4-year non-doctoral	9,090	3,378	—	—	7,726	6,541
4-year doctoral	14,075	6,423	7,386	6,896	10,152	6,828
Doctoral degree	14,665	7,259	4,397	9,386	6,681	5,414
Public	12,068	4,217	3,059	9,020	5,782	5,360
Private not-for-profit	18,744	11,172	—	10,139	7,870	5,492
First-professional degree	12,842	4,085	2,491	3,930	11,514	6,802
Public	10,307	2,796	2,161	4,216	9,172	6,412
Private not-for-profit	14,991	5,245	2,886	3,545	13,538	7,135

—Sample size too small for reliable estimate.
[1]Included in "Grants" column as well.
[2]Included in "Loans" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Student Characteristics

For the most part, the patterns associated with the distribution of "any" aid (described previously in the section on sources of aid and shown again in table 4.9) were repeated for each type of aid. That is, in cases where students with a particular characteristic were more likely than students with another one to receive any financial aid (full-time compared with part-time attendance status, for example), the students were usually also more likely to receive grants, loans, and assistantships. Because these patterns have already been discussed, only major exceptions for a particular type of aid are noted in this section.

Table 4.9—Percentage of graduate and first-professional students who received financial aid, by type of aid, degree program, and selected student characteristics: 1989–90

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
Total[3]	45.0	29.4	7.9	9.6	17.4	15.6
			Master's			
Total	39.8	27.6	7.6	8.7	11.9	10.6
Gender						
Male	44.5	31.1	8.4	11.6	12.5	11.3
Female	36.6	25.3	7.1	7.0	11.3	9.9
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	45.0	29.2	12.6	22.3	6.0	4.8
Black, non-Hispanic	44.0	28.2	8.3	5.7	15.5	12.5
Hispanic	42.0	27.8	7.1	5.7	14.5	12.6
White, non-Hispanic	39.0	27.4	7.1	7.9	12.0	10.9
Age						
23 years or younger	50.6	32.9	12.6	18.7	16.5	15.4
24–29 years	44.5	30.4	8.1	11.1	14.8	13.1
30 years or older	34.1	24.4	6.0	5.1	8.9	7.8
Marital status						
Not married	45.6	29.2	8.5	11.6	17.1	15.1
Married	33.8	25.6	6.2	6.2	7.2	6.5
Attendance status						
Full-time	57.6	35.3	12.1	18.6	25.8	23.1
At least half-time	37.6	26.2	6.7	6.9	10.9	9.7
Less than half-time	28.2	23.4	4.8	2.1	1.7	1.4
Housing status						
Campus housing	61.2	39.2	19.5	25.0	18.8	16.5
Off campus	38.5	26.9	6.8	7.7	11.4	10.2
Citizenship						
U.S. citizen	38.8	26.9	6.8	7.2	12.6	11.3
Eligible noncitizen	52.0	29.7	10.6	20.3	14.5	12.5
Other	48.9	35.2	17.8	28.2	1.5	0.6
Income and dependency						
Dependent student						
Less than $50,000	52.6	31.0	10.4	25.7	12.9	12.2
$50,000 or more	35.3	27.6	11.4	12.2	3.2	2.5
Independent student						
Less than $20,000	49.0	30.2	11.5	16.0	20.1	18.3
$20,000–29,999	37.2	26.4	6.1	4.4	10.8	9.1
$30,000–49,999	31.7	24.4	4.1	2.4	5.7	4.8
$50,000 or more	31.6	27.1	3.7	2.9	3.5	3.0
Major field of study						
Arts and humanities	44.4	28.5	10.5	14.8	13.7	12.5
Natural sciences	52.1	33.6	14.4	29.5	14.3	13.0
Social sciences	51.3	30.3	11.4	13.7	25.1	22.1
Engineering	51.7	36.9	10.6	18.3	9.0	7.5
Law	—	—	—	—	—	—
Business	43.1	32.2	4.7	5.2	12.1	10.7
Education	26.7	19.3	5.2	2.8	6.5	5.9
Medicine	43.3	30.6	5.6	5.8	15.8	14.5
Other	48.1	28.4	12.2	13.8	19.4	17.8

Table 4.9—Percentage of graduate and first-professional students who received financial aid, by type of aid, degree program, and selected student characteristics: 1989–90—Continued

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
			Doctoral			
Total	59.9	39.8	18.3	28.5	11.8	8.8
Gender						
Male	63.6	43.2	20.7	32.4	12.1	8.6
Female	54.8	36.0	15.4	23.3	11.7	9.4
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	78.4	49.2	26.0	48.8	6.0	2.9
Black, non-Hispanic	46.4	26.5	8.5	10.8	8.2	6.3
Hispanic	61.1	45.9	22.8	17.6	11.8	11.8
White, non-Hispanic	56.2	38.2	17.0	25.1	13.4	10.3
Age						
23 years or younger	69.6	45.8	21.0	41.2	19.8	12.3
24–29 years	78.1	51.7	22.1	42.0	14.6	11.0
30 years or older	48.3	32.5	16.0	19.2	9.2	7.4
Marital status						
Not married	69.1	44.7	20.0	35.9	17.4	12.7
Married	50.2	33.7	14.9	22.8	6.7	5.5
Attendance status						
Full-time	74.4	49.1	22.8	37.7	16.1	12.5
At least half-time	56.9	34.9	19.4	28.4	11.9	9.4
Less than half-time	33.0	26.5	12.4	12.4	1.4	1.0
Housing status						
Campus housing	83.0	56.4	30.7	46.0	13.2	11.0
Off campus	55.9	37.0	16.2	25.5	11.5	8.5
Citizenship						
U.S. citizen	54.5	36.7	15.3	23.4	14.0	11.4
Eligible noncitizen	75.7	43.1	20.5	51.0	9.9	4.8
Other	76.8	51.7	31.0	43.6	2.9	0.0
Income and dependency						
Dependent student						
Less than $50,000	—	—	—	—	—	—
$50,000 or more	—	—	—	—	—	—
Independent student						
Less than $20,000	74.1	48.1	23.4	40.2	16.5	12.4
$20,000–29,999	50.3	35.5	16.6	18.9	7.9	6.1
$30,000–49,999	47.0	32.0	14.6	18.3	6.1	4.8
$50,000 or more	33.2	23.5	5.8	7.5	4.9	2.8
Major field of study						
Arts and humanities	55.9	37.2	12.0	24.4	16.0	10.9
Natural sciences	81.4	54.9	29.5	50.2	7.1	5.5
Social sciences	58.9	39.2	16.6	19.4	20.3	13.9
Engineering	79.6	48.5	30.2	56.5	3.5	2.8
Law	53.7	27.3	17.4	4.2	50.0	48.0
Business	50.5	34.0	7.7	21.9	10.6	10.6
Education	29.6	18.9	9.7	8.4	4.7	3.4
Medicine	62.7	47.4	14.1	18.5	20.8	17.7
Other	69.9	39.7	23.1	34.9	12.6	9.6

Table 4.9—Percentage of graduate and first-professional students who received financial aid, by type of aid, degree program, and selected student characteristics: 1989–90—Continued

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
			First-professional			
Total	70.3	35.4	4.2	2.7	60.2	56.7
Gender						
Male	69.4	34.0	4.2	3.0	59.0	55.7
Female	71.4	37.4	4.1	2.3	61.6	58.1
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	64.7	36.7	7.2	5.9	50.2	47.9
Black, non-Hispanic	85.4	61.1	7.7	2.9	75.5	71.1
Hispanic	75.7	48.1	2.3	0.8	68.2	65.8
White, non-Hispanic	69.6	33.0	3.7	2.5	59.7	56.1
Age						
23 years or younger	69.4	33.9	2.7	2.0	59.5	55.9
24–29 years	73.3	35.9	4.1	3.1	65.0	62.2
30 years or older	64.9	36.0	5.9	2.8	50.8	46.3
Marital status						
Not married	72.4	35.8	3.3	2.5	64.1	60.7
Married	65.3	34.3	5.3	3.0	52.3	49.0
Attendance status						
Full-time	73.1	36.0	4.4	2.9	63.0	59.4
At least half-time	52.9	26.1	3.0	2.8	38.5	33.1
Less than half-time	31.3	19.5	3.2	1.6	21.8	21.0
Housing status						
Campus housing	78.5	47.8	8.3	2.8	62.1	57.4
Off campus	69.2	33.7	3.6	2.7	59.9	56.6
Citizenship						
U.S. citizen	71.0	35.3	3.8	2.3	61.7	58.3
Eligible noncitizen	78.9	46.8	5.3	6.2	70.7	67.9
Other	42.8	27.2	10.0	11.6	9.3	1.7
Income and dependency						
Dependent student						
Less than $50,000	93.8	48.9	2.3	2.0	86.8	81.6
$50,000 or more	93.7	36.0	6.1	2.1	81.3	70.2
Independent student						
Less than $20,000	72.5	37.8	4.5	3.1	63.0	60.1
$20,000–29,999	64.5	29.7	2.3	1.5	53.7	50.5
$30,000–49,999	56.5	25.5	4.7	2.4	42.8	39.5
$50,000 or more	47.0	22.1	2.8	1.7	34.0	28.0
Major field of study						
Arts and humanities	63.2	50.3	10.6	2.3	34.7	29.8
Law	66.1	31.7	3.1	1.7	57.8	54.3
Medicine	76.3	36.7	3.2	2.7	68.2	65.1
Other	—	—	—	—	—	—

—Sample size too small for reliable estimate.
[1]Included in "Grants" column as well.
[2]Included in "Loans" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Among master's degree students, although males were significantly more likely than females to receive aid (45 percent compared with 37 percent), this pattern did not follow for loans (table 4.7). There were no significant differences in the percentages of males and females who assumed loans in any of the three degree programs (13 percent and 11 percent, respectively, for master's students; 12 percent in both cases for doctoral students; and 59 percent and 62 percent, respectively, for first-professional students).

Asian students at both the master's and doctoral levels were much more likely than students in other racial–ethnic groups to receive assistantships. In addition, at the master's level, Asian students were less likely to take out loans.

Full-time students were more likely than part-time students to receive any financial aid, and they were especially more likely to take out loans. For example, at the master's level, 26 percent of full-time students assumed loans, compared with 11 percent of part-time students who were enrolled at least half time and 2 percent of part-time students who were enrolled less than half time. At the doctoral level, 16 percent of full-time students had loans, in contrast with only 1 percent of students enrolled less than half time. Among first-professional students, 63 percent of full-time students took out loans, compared with 39 percent of at least half-time students and 22 percent of less than half-time students.

There were no significant differences between the percentages of noncitizens who were eligible for federal aid and other noncitizens who received financial aid at the master's and doctoral levels. However, eligible noncitizens at the master's level were much more likely than other noncitizens to have loans (15 percent compared with 2 percent).

As discussed earlier, in all degree programs, financially independent students in the lowest income group (less than $20,000 per year) were more likely than those in the highest income group ($50,000 or more) to receive some type of financial aid. However, at the master's degree level, the difference in the percentages of students in the lowest and highest income groups who received grants was not significant.

Given that a student received financial aid, there was relatively little variation in the average amount of aid awarded to full-time students with different demographic and socioeconomic characteristics. That is, few significant differences were observed in the average grant, loan, or assistantship according to students' age, race–ethnicity, and gender among aid recipients. Some exceptions are noted below.

Among full-time master's students, males received more total aid, on average, than did females ($9,526 compared with $8,074) (table 4.10). The difference was primarily in assistantships (males received an average of $6,954, compared with $5,693 for females). Among full-time students at the first-professional level, black, non-Hispanic students received a larger amount of aid, on average, than did Asian, Hispanic, or white, non-Hispanic students. The difference occurred primarily in grants, where black, non-Hispanic students received an average of $6,123, compared with $3,226 for Hispanic students and $3,554 for white, non-Hispanic students. Also among full-time first-professional students, independent students in the lowest income group had larger loans, on average ($11,527), than did students in the highest income group ($9,440).

Table 4.10—Average amount of financial aid received by aided full-time graduate and first-professional students, by type of aid, degree program, and selected student characteristics: 1989–90

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
Total[3]	$10,703	$4,413	$3,426	$7,160	$9,034	$6,224
			Master's			
Total	8,736	3,802	3,467	6,342	6,828	5,674
Gender						
Male	9,526	4,101	3,385	6,954	7,493	5,869
Female	8,074	3,513	3,542	5,693	6,338	5,512
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	9,264	3,491	3,969	7,817	—	—
Black, non-Hispanic	8,109	4,600	—	—	5,559	5,240
Hispanic	9,265	4,907	—	—	7,150	5,463
White, non-Hispanic	8,667	3,701	3,412	6,068	6,932	5,713
Age						
23 years or younger	9,198	4,350	3,432	5,824	6,351	5,640
24–29 years	9,477	4,186	3,855	6,322	7,090	5,551
30 years or older	7,632	3,089	2,996	6,801	6,708	5,851
Marital status						
Not married	9,139	4,181	3,688	5,965	6,827	5,592
Married	8,284	3,249	3,234	7,049	6,868	5,854
Housing status						
Campus housing	11,766	5,522	4,898	6,922	9,180	6,319
Off campus	8,294	3,526	3,125	6,238	6,589	5,610
Citizenship						
U.S. citizen	8,515	3,676	3,285	5,930	6,878	5,646
Eligible noncitizen	12,352	5,428	—	—	—	—
Other	9,651	4,117	3,602	7,113	—	—
Income and dependency						
Dependent student						
Less than $50,000	7,793	3,902	—	—	—	—
$50,000 or more	9,478	—	—	—	—	—
Independent student						
Less than $20,000	9,280	3,869	3,514	6,474	6,505	5,605
$20,000–29,999	8,688	3,374	—	5,905	7,652	5,942
$30,000–49,999	7,784	3,639	—	—	7,576	5,783
$50,000 or more	6,561	3,668	—	—	—	—
Major field of study						
Arts and humanities	8,173	3,813	3,948	5,284	5,989	5,271
Natural sciences	11,081	4,386	—	8,113	—	—
Social sciences	8,081	3,623	3,472	5,566	5,926	5,591
Engineering	10,247	4,088	2,959	7,572	6,970	5,826
Law	—	—	—	—	—	—
Business	9,450	4,275	4,494	5,294	8,418	6,114
Education	6,009	2,481	2,633	—	5,692	4,784
Medicine	8,234	2,357	—	—	7,323	5,948
Other	8,637	3,960	—	—	6,265	6,122

Table 4.10—Average amount of financial aid received by aided full-time graduate and first-professional students, by type of aid, degree program, and selected characteristics: 1989–90—Continued

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
			Doctoral			
Total	$13,395	$6,959	$3,920	$9,203	$6,362	$5,452
Gender						
Male	14,389	6,723	4,203	9,660	6,313	5,827
Female	12,190	6,537	3,542	8,338	6,394	4,893
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	14,290	6,589	3,548	9,561	—	—
Black, non-Hispanic	—	—	—	—	—	—
Hispanic	—	—	—	—	—	—
White, non-Hispanic	12,936	6,227	3,978	9,059	6,457	5,389
Age						
23 years or younger	18,353	8,791	—	—	—	—
24–29 years	14,877	7,392	4,461	9,773	6,894	5,331
30 years or older	10,745	5,176	3,340	8,676	5,850	5,702
Marital status						
Not married	13,996	7,181	4,019	9,274	5,950	4,847
Married	12,889	5,756	3,590	9,385	7,190	6,357
Housing status						
Campus housing	16,169	7,531	4,901	9,929	—	—
Off campus	12,654	6,337	3,584	8,975	6,376	5,400
Citizenship						
U.S. citizen	13,296	6,603	4,034	9,222	6,490	5,423
Eligible noncitizen	13,033	—	—	—	—	—
Other	15,360	7,187	4,231	9,510	—	—
Income and dependency						
Dependent student						
Less than $50,000	—	—	—	—	—	—
$50,000 or more	—	—	—	—	—	—
Independent student						
Less than $20,000	14,624	7,178	4,107	9,355	5,723	5,131
$20,000–29,999	10,442	6,085	—	—	—	—
$30,000–49,999	11,326	5,102	—	—	—	—
$50,000 or more	—	—	—	—	—	—
Major field of study						
Arts and humanities	12,699	6,131	—	—	—	—
Natural sciences	14,774	7,044	4,624	9,485	—	—
Social sciences	11,689	6,402	—	—	—	—
Engineering	14,974	6,110	—	10,810	—	—
Law	—	—	—	—	—	—
Business	—	—	—	—	—	—
Education	—	—	—	—	—	—
Medicine	14,987	—	—	—	—	—
Other	14,789	—	—	—	—	—

Table 4.10— Average amount of financial aid received by aided full-time graduate and first-professional students, by type of aid, degree program, and selected student characteristics: 1989–90—Continued

	Any aid	Grants	Tuition waivers[1]	Assistantships	Loans	Stafford loans[2]
			First-professional			
Total	$12,310	$3,834	$2,479	$3,995	$11,166	$6,732
Gender						
Male	12,449	3,736	2,403	4,406	11,349	6,753
Female	12,142	3,926	2,621	3,177	10,959	6,707
Race–ethnicity						
Native American	—	—	—	—	—	—
Asian	13,170	4,701	—	—	11,967	6,753
Black, non-Hispanic	16,178	6,123	—	—	11,670	6,940
Hispanic	11,997	3,226	—	—	10,472	6,519
White, non-Hispanic	12,005	3,554	2,555	3,726	11,130	6,732
Age						
23 years or younger	12,003	4,352	2,553	—	10,536	6,626
24–29 years	12,843	3,572	2,074	4,301	11,681	6,829
30 years or older	11,507	3,933	3,063	—	10,660	6,595
Marital status						
Not married	12,713	3,840	2,357	3,923	11,371	6,722
Married	11,606	3,875	2,752	4,251	10,714	6,760
Housing status						
Campus housing	11,503	4,267	2,770	—	9,978	6,483
Off campus	12,433	3,751	2,382	4,086	11,327	6,765
Citizenship						
U.S. citizen	12,373	3,810	2,542	3,392	11,183	6,725
Eligible noncitizen	13,904	4,342	—	—	11,197	6,961
Other	9,433	—	—	—	—	—
Income and dependency						
Dependent student						
Less than $50,000	12,167	5,224	—	—	9,496	6,102
$50,000 or more	10,802	4,089	—	—	9,417	6,376
Independent student						
Less than $20,000	12,752	3,755	2,213	4,379	11,527	6,807
$20,000–29,999	11,829	3,357	—	—	11,289	6,836
$30,000–49,999	10,550	3,948	—	—	10,223	6,693
$50,000 or more	9,341	3,913	—	—	9,440	6,255
Major field of study						
Arts and humanities	7,668	3,729	2,633	—	5,784	5,817
Law	11,274	3,297	1,805	2,460	10,251	6,697
Medicine	13,784	4,318	3,057	4,375	12,328	6,815

—Sample size too small for reliable estimate.
[1]Included in "Grants" column as well.
[2]Included in "Loans" column as well.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Chapter 5

Composition of Student Financial Aid Awards

Many graduate and first-professional students receive financial aid of more than one type (grants, loans, and assistantships) and from more than one source (federal, state, institutional, and other). The preceding chapter described, by degree program and student characteristics, the percentages of students who received each type of aid, the percentages who received aid from each source, and the average amounts they received. However, it did not consider the composition of students' awards—how many students received a combination of federal and institutional aid, for example, or how many received grants and loans as opposed to grants only. To round out the discussion, this chapter focuses on the combinations of aid sources and types of financial aid awarded to graduate and first-professional students.[17]

Types of Financial Aid

Table 5.1 shows how the various types of financial aid were combined for graduate and first-professional students. Although a large number of combinations of aid are theoretically possible, relatively few accounted for most of the aid award combinations in 1989–90. Almost one-half of all aided graduate and first-professional students (48 percent) received grants only. Another 20 percent received loans only; 15 percent received grants and loans; and 13 percent received other types of aid only (primarily assistantships).

The distribution of financial aid varied significantly by degree program (figure 5.1). At the master's level, 57 percent of aided students received grants only, 17 percent received loans only, 11 percent received a combination of grants and loans, and 13 percent received other aid only. At the doctoral level, the percentages of aided students receiving grants only (54 percent) and grants and loans (11 percent) were similar to those at the master's level. However, a smaller percentage of doctoral students received loans only (8 percent). Doctoral students were more likely than master's students to receive "other" aid only (25 percent compared with 13 percent).

[17]Because of the way in which composite variables were constructed from the financial aid data collected for this survey, the tables in this chapter show work study rather than assistantships (a more common form of work for graduate students) in combination with grants and loans. Work-study programs provide partial reimbursement of wages paid to students, and may be sponsored by the federal or state government or the institution. They are used infrequently for graduate students.

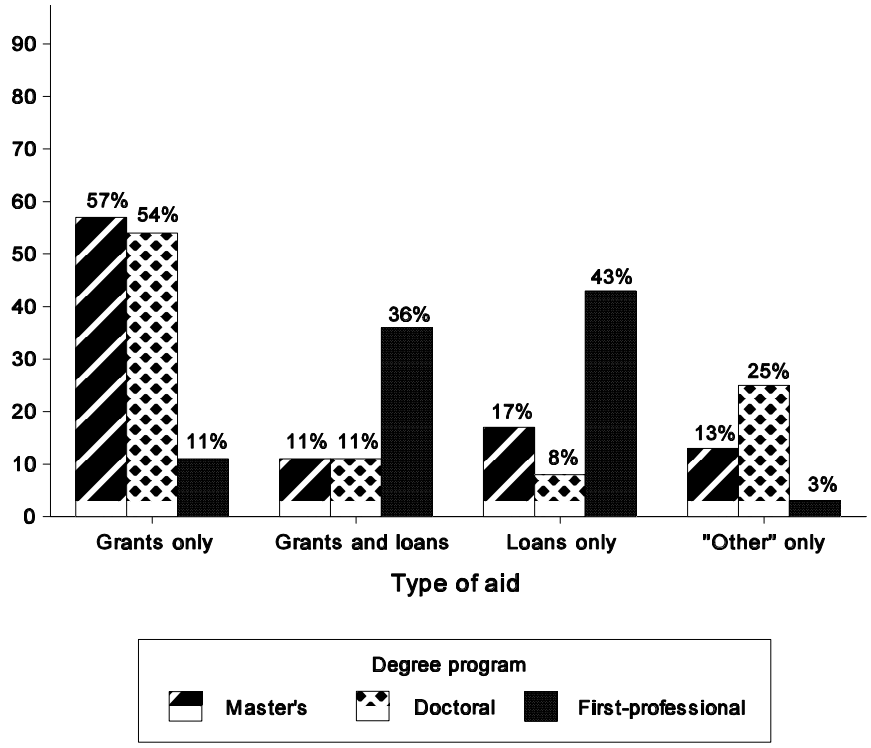
Table 5.1—Percentage of aided graduate and first-professional students (full-time and part-time) who received various types of aid and average amount: 1989–90

	Percent	Average amount
Total*		
Grants only	47.8	$ 5,422
Grants and work study	0.6	12,406
Grants, loans, and work study	1.6	15,373
Grants and loans	15.4	13,652
Loans only	20.0	9,179
Loans and work study	1.5	11,651
Work study only	0.5	3,100
Other only	12.5	7,478
Master's degree		
Grants only	56.7	4,211
Grants and work study	0.5	—
Grants, loans, and work study	1.4	13,985
Grants and loans	10.6	11,748
Loans only	16.5	6,855
Loans and work study	1.3	8,640
Work study only	0.5	—
Other only	12.5	5,963
Doctoral degree		
Grants only	53.9	11,786
Grants and work study	1.2	—
Grants, loans, and work study	0.6	—
Grants and loans	10.9	16,024
Loans only	8.1	8,641
Loans and work study	0.0	—
Work study only	0.6	—
Other only	24.7	11,347
First-professional degree		
Grants only	10.6	5,959
Grants and work study	0.7	—
Grants, loans, and work study	3.5	16,177
Grants and loans	35.5	14,941
Loans only	43.1	11,926
Loans and work study	3.4	15,451
Work study only	0.3	—
Other only	2.8	6,887

—Sample size too small for reliable estimate.
*Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Figure 5.1—Percentage of graduate and first-professional students who received various types of aid, by degree program: 1989–90



NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

First-professional students were much less likely than master's or doctoral students to receive grants only (11 percent compared with 57 percent and 54 percent, respectively), and were much more likely to receive loans only (43 percent compared with 17 percent and 8 percent, respectively). They were also more likely to receive a combination of grants and loans (36 percent compared with 11 percent for both master's and doctoral students).

Among all graduate and first-professional students who received a combination of grants, loans, and work study, the average amount received was $15,373. The average amount of financial aid received by students with loans only ($9,179) was greater than that for students with grants only ($5,422).

Again, the patterns differed greatly by degree program. Doctoral students with grants only received an average of $11,786. In contrast, master's and first-professional students with grants only received average amounts of $4,211 and $5,959, respectively. First-professional students who relied on loans only borrowed an average of $11,926, a greater amount than was borrowed, on average, by master's ($6,855) or doctoral ($8,641) students who received loans only.

Sources of Financial Aid

Among graduate and first-professional students as a group, 29 percent received institutional aid only, making it the most common financial aid source (table 5.2). When just institutional aid was awarded, the average amount the students received was $7,485. Another 22 percent of students received "other" aid only (primarily employer aid), with an average award of $2,269. In addition, 16 percent received federal aid only (averaging $8,189), and 13 percent received a combination of federal and institutional aid (averaging $14,133). State aid, either alone or in combination with other sources, was not a common source of aid for graduate and first-professional students as a group.

Table 5.2—Percentage of aided graduate and first-professional students (full-time and part-time) who received aid from various sources and average amount: 1989–90

	Percent	Average amount
Total*		
Federal only	16.3	$ 8,189
Federal and institutional	13.1	14,133
Federal, institutional, and other	2.3	16,996
Federal and other	2.7	11,861
Federal and state	2.5	9,373
Federal, state, and other	0.2	15,031
Federal, state, and institutional	1.7	14,051
Federal, state, institutional, and other	0.3	14,433
State only	0.9	3,341
State and institutional	0.9	8,050
Institutional only	28.8	7,485
Other aid only	22.4	2,269
Other and state or institutional	7.9	9,970
Master's degree		
Federal only	14.1	5,575
Federal and institutional	10.3	12,794
Federal, institutional, and other	1.6	16,090
Federal and other	1.4	8,116
Federal and state	1.9	6,529
Federal, state, and other	0.0	—
Federal, state, and institutional	0.7	—
Federal, state, institutional, and other	0.1	—
State only	1.0	—
State and institutional	0.9	5,212
Institutional only	29.9	6,085
Other aid only	30.0	2,112
Other and state or institutional	8.0	8,079
Doctoral degree		
Federal only	4.5	8,501
Federal and institutional	9.5	18,375
Federal, institutional, and other	2.0	—
Federal and other	1.8	—
Federal and state	0.9	—
Federal, state, and other	0.0	—
Federal, state, and institutional	2.0	—
Federal, state, institutional, and other	0.2	—
State only	0.5	—
State and institutional	2.1	—
Institutional only	52.3	11,591
Other aid only	9.1	4,721
Other and state or institutional	15.1	14,948

Table 5.2—Percentage of aided graduate and first-professional students (full-time and part-time) who received aid from various sources and average amount: 1989–90—Continued

	Percent	Average amount
First-professional degree		
Federal only	34.7	$11,265
Federal and institutional	25.4	15,178
Federal, institutional, and other	5.5	17,403
Federal and other	7.0	15,954
Federal and state	5.9	12,388
Federal, state, and other	0.6	—
Federal, state, and institutional	4.4	14,972
Federal, state, institutional, and other	0.8	15,166
State only	0.8	—
State and institutional	0.2	—
Institutional only	8.1	5,660
Other aid only	3.7	6,146
Other and state or institutional	2.9	7,753

—Sample size too small for reliable estimate.
*Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Master's students most frequently received institutional aid and "other" aid (primarily employer aid): 30 percent received institutional aid only, and another 30 percent received "other" aid only. The average amount of aid the students received was greater when the source was institutional than when it was "other" ($6,085 compared with $2,112). Fourteen percent of master's students received federal aid only, which was greater than the proportion of doctoral students who received federal aid only (5 percent), but less than the proportion of first-professional students who received such aid (35 percent).

Doctoral students most frequently received institutional aid. Approximately one-half (52 percent) received institutional aid only, compared with 30 percent of master's students and 8 percent of first-professional students. Another 10 percent of doctoral students received institutional aid in combination with federal aid, and 15 percent received a combination of "other" aid and state or institutional aid. When institutional aid was awarded alone, the average amount awarded was $11,591, and when it was awarded in combination with federal aid, the average amount was $18,375.

First-professional students more often received federal aid than did master's or doctoral students. Thirty-five percent of first-professional students received federal aid only (with an average award of $11,265), and another 25 percent received a combination of federal and institutional aid (with an average award of $15,178). The next most frequent aid source for first-professional students was institutional aid only (8 percent).

Chapter 6

Sources of Student Financial Support

While financial aid is an important source of support for graduate and first-professional students, it is not the only one. Many students contribute to their support with their own savings and earnings, and many receive financial help from their spouses, parents, other relatives, or friends. This chapter examines the extent to which students were known to have relied on these different sources of financial support. Students were characterized as receiving financial aid if they received any aid from federal, state, institutional, or other sources. They were defined as receiving self/family support if they reported using their own or spouses' earnings or savings, or if they received contributions from parents, other relatives, or friends.

Use of Financial Aid and Self/Family Support

Overall, 6 percent of all graduate and first-professional students received financial aid only (that is, they reported no self/family support); 46 percent were known to have received self/family support only; and 31 percent were known to have received both financial aid and self/family support (table 6.1 and figure 6.1). The remaining 17 percent (the "unknowns" in table 6.1) fell into one of two categories: either data on self/family support were not provided and therefore the students could not be placed in one of the other categories; or students did not receive any financial aid and reported receiving no self/family support.[18] Approximately 5 percent of the latter group—that is, students who did not receive financial aid but reported no self/family support responded that they or their parents had used savings bonds or participated in state savings plans to pay for their school-year expenses, or that they had received loans (as opposed to contributions) from parents, friends, or relatives.[19]

[18]It is likely that most of the "unknowns" are in the self/family support only category, because institutions know about most financial aid.

[19]These savings bonds were not included in student savings because students were asked only if they had used savings bonds belonging to themselves or their parents to help finance their education, and were not asked if they had their own savings bonds.

Table 6.1—Percentage of graduate and first-professional students who received financial aid and self/family support, by attendance status, degree program, and institution type and control: 1989–90

	Financial aid only	Self/family support only	Self/family support and financial aid	Unknown[1]
		All students		
Total[2]	6.2	45.8	31.2	16.8
Master's degree	5.6	50.4	28.0	16.0
Public	4.4	55.1	25.5	15.0
4-year non-doctoral	4.1	63.6	19.0	13.3
4-year doctoral	4.6	50.6	29.0	15.8
Private not-for-profit	7.6	41.9	32.5	18.0
4-year non-doctoral	6.2	48.0	27.0	18.8
4-year doctoral	8.3	38.7	35.3	17.6
Doctoral degree	9.5	33.8	41.8	14.8
Public	8.2	35.7	41.6	14.5
Private not-for-profit	12.4	29.9	42.4	15.4
First-professional degree	7.6	25.7	48.3	18.5
Public	8.3	26.3	48.9	16.4
Private not-for-profit	7.1	25.3	47.9	19.8
		Full-time students		
Total[2]	7.5	30.0	44.4	18.1
Master's degree	6.4	35.5	40.4	17.8
Public	5.3	38.8	40.0	15.9
4-year non-doctoral	4.7	51.4	25.4	18.4
4-year doctoral	5.4	34.7	44.8	15.1
Private not-for-profit	8.3	29.8	40.9	21.0
4-year non-doctoral	6.1	32.1	37.8	24.0
4-year doctoral	8.9	29.1	41.9	20.1
Doctoral degee	11.6	20.6	52.5	15.2
Public	10.2	21.7	53.8	14.3
Private not-for-profit	14.1	18.7	50.4	16.8
First-professional degree	8.1	23.6	50.2	18.2
Public	8.7	24.5	50.6	16.2
Private not-for-profit	7.6	23.0	49.9	19.6

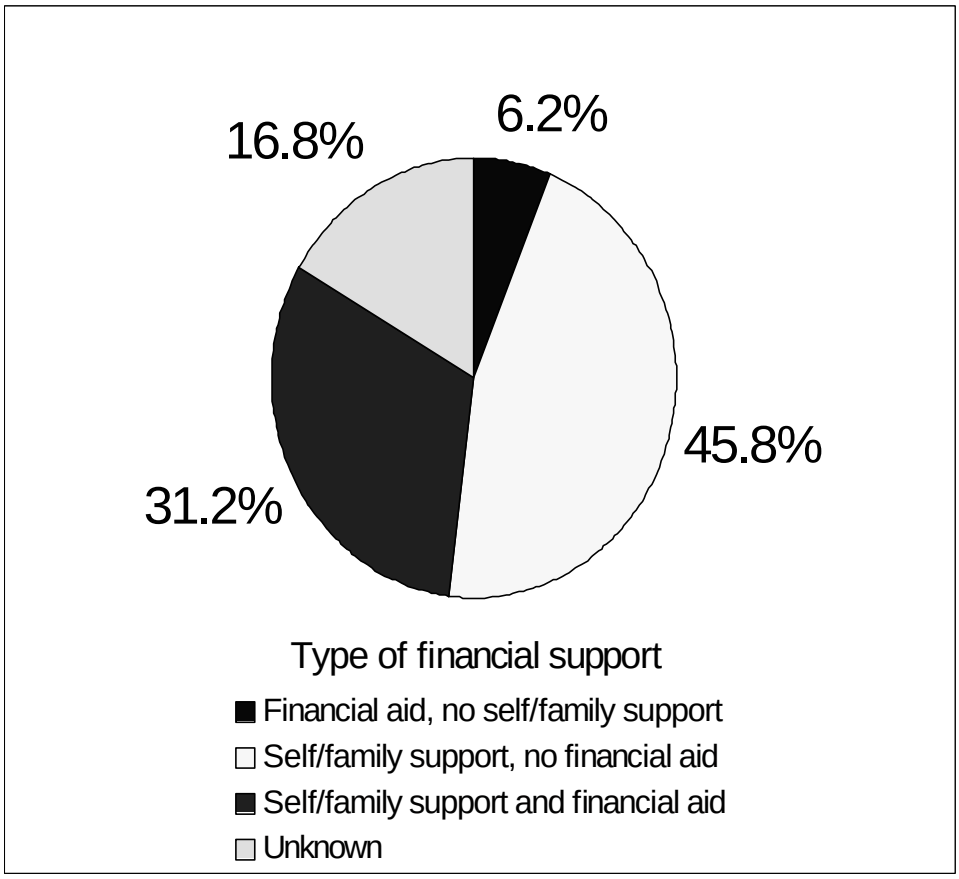
Table 6.1—Percentage of graduate and first-professional students who received financial aid and self/family support, by attendance status, degree program, and institution type and control: 1989–90–Continued

	Financial aid only	Self/family support only	Self/family support and financial aid	Unknown[1]
		Part-time students		
Total[2]	5.6	56.1	22.6	15.7
Master's degree	5.4	56.7	22.8	15.1
Public	4.3	62.1	19.2	14.4
4-year non-doctoral	4.2	65.9	17.3	12.7
4-year doctoral	4.4	59.7	20.5	15.5
Private not-for-profit	7.5	46.7	29.4	16.5
4-year non-doctoral	6.3	52.7	24.7	16.4
4-year doctoral	8.3	42.7	32.5	16.5
Doctoral degree	7.7	47.0	30.5	14.8
Public	6.6	47.9	30.6	14.9
Private not-for-profit	11.5	43.7	30.2	14.6
First-professional degree	4.6	44.0	33.5	17.9
Public	4.8	56.4	25.4	13.3
Private not-for-profit	4.5	39.5	36.4	19.6

[1]Includes students who were missing data on self/family support or did not receive any financial aid and reported receiving no self/family aid.
[2]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Figure 6.1—Percentage distribution of graduate and first-professional students by type of financial support: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Part-time students were much more likely than full-time students to rely on self/family support only (56 percent compared with 30 percent). On the other hand, full-time students were much more likely than part-time students to receive financial aid only (8 percent compared with 6 percent), or a combination of self/family support and financial aid (44 percent compared with 23 percent).

The pattern of support varied by degree program. Doctoral and first-professional students were more likely than master's students to be supported entirely by financial aid (10 percent and 8 percent, respectively, compared with 6 percent). Among full-time students, however, the difference between master's and first-professional students was not statistically significant.

Master's and doctoral students who attended private institutions were more likely than those who attended public institutions to be supported entirely by financial aid. For first-professional students, the difference was not statistically significant.

Master's students were the most likely to rely on self/family support without financial aid (50 percent compared with 34 percent of doctoral students and 26 percent of first-professional students). Master's students at public institutions were more likely than those at private institutions to have self/family support only (55 percent compared with 42 percent).

First-professional students were more likely to have a combination of self/family support and financial aid (48 percent) than were doctoral students (42 percent). Doctoral students, in turn, were more likely to have both types of support than were master's students (28 percent).

Overall, 46 percent of graduate and first-professional students depended on self/family support alone. The percentage varied by certain student characteristics, however (table 6.2). For example, females were more likely than males to rely on self/family support only (50 percent compared with 41 percent). In addition, students 30 years or older were more likely than students 23 years or younger or 24–29 years to rely on self/family support (52 percent compared with 38 percent and 41 percent), as were married students compared with not married students (54 percent compared with 40 percent). Among racial–ethnic groups, Asian students were less likely than white, non-Hispanic students to rely on self/family support alone (36 percent compared with 47 percent). Students with education as their field of study were especially likely to depend on self/family support only: 62 percent were in this category, compared with proportions ranging from 30 percent to 47 percent in other fields.

Table 6.2—Percentage of graduate and first-professional students who received financial aid and self/family support, by selected student characteristics: 1989–90

	Financial aid only	Self/family support only	Self/family support and financial aid	Unknown[1]
Total	6.2	45.8	31.2	16.8
Gender				
Male	7.1	41.0	36.4	15.5
Female	5.6	50.5	27.7	16.3
Race–ethnicity				
Native American	10.2	52.5	26.0	11.3
Asian	8.8	36.3	36.9	18.0
Black, non-Hispanic	7.8	43.2	27.0	22.1
Hispanic	5.1	43.5	29.7	21.7
White, non-Hispanic	5.9	47.0	31.0	16.1
Age				
23 years or younger	5.4	38.4	41.5	14.7
24–29 years	6.6	40.8	37.3	15.3
30 years or older	6.2	51.5	25.0	17.3
Marital status				
Not married	6.5	40.4	36.7	16.5
Married	6.3	54.1	27.6	12.0
Attendance status				
Full-time	7.5	30.0	44.4	18.1
At least half-time	5.6	52.0	26.9	15.5
Less than half-time	5.5	59.3	19.2	15.9
Housing status				
Campus housing	8.7	26.0	45.2	20.0
Off campus	6.0	47.5	30.1	16.5
Citizenship				
U.S. citizen	5.9	47.6	31.3	15.3
Eligible noncitizen	9.3	31.9	38.5	20.2
Other	10.5	36.3	35.3	17.9
Income and dependency				
Dependent student	3.6	36.9	40.8	18.7
Less than $50,000	3.6	29.7	47.7	18.9
$50,000 or more	3.5	45.5	32.5	18.5
Independent student	6.3	46.2	30.9	16.7
Less than $20,000	7.4	36.0	39.2	17.3
$20,000–29,999	5.3	50.3	28.0	16.4
$30,000–49,999	5.6	55.1	23.2	16.2
$50,000 or more	5.1	58.5	20.5	15.9

Table 6.2—Percentage of graduate and first-professional students who received financial aid and self/family support, by selected student characteristics: 1989–90—Continued

	Financial aid only	Self/family support only	Self/family support and financial aid	Unknown[1]
Major field of study				
Arts and humanities	6.1	43.0	34.6	16.2
Natural sciences	10.6	31.9	41.5	15.9
Social sciences	5.4	39.9	36.9	17.7
Engineering	10.0	40.8	33.7	15.5
Law	4.9	30.5	45.6	19.0
Business	5.6	47.8	31.3	15.3
Education	4.1	62.5	18.0	15.4
Medicine	9.0	32.2	42.3	16.4
Other	5.2	36.8	36.2	21.8

[1]Includes students who were missing data on self/family support or did not receive any financial aid and reported receiving no self/family aid.
NOTE: This table includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Types of Self/Family Support

There are many possible combinations of self/family support. For example, a student could depend on himself or herself alone, rely totally on a spouse, receive help from a spouse and use his or her own resources, get help from a parent with or without help from a spouse, and so on. Of greatest interest are the proportions of students who get help from their parents, get help from a spouse, and rely entirely on their own resources. Tables 6.3 and 6.4 show, for the students who received self/family support, the percentages who got help from parents or other relatives, a spouse, themselves only, and themselves and someone else. The categories are not mutually exclusive.

Table 6.3—Among those receiving self/family aid, percentage receiving aid from parents or other relatives, spouse, and self, by degree program and institution type and control: 1989–90

	Parents or other relatives[1]	Spouse[2]	Self only	Self and any of spouse, parents, or other relatives
Total[3]	22.7	12.9	66.3	25.0
Master's degree	19.4	12.7	69.4	23.0
Public	18.1	13.4	70.1	22.4
4-year non-doctoral	14.6	12.2	74.8	18.0
4-year doctoral	20.1	14.0	67.6	24.7
Private not-for-profit	21.8	11.4	68.0	24.4
4-year non-doctoral	16.5	12.6	72.0	20.5
4-year doctoral	24.7	10.8	65.9	26.5
Doctoral degree	21.6	13.6	67.4	25.5
Public	19.5	13.9	69.5	22.5
Private not-for-profit	26.5	13.1	62.6	32.0
First-professional degree	51.8	15.2	37.5	44.6
Public	52.4	15.5	36.8	44.3
Private not-for-profit	51.4	14.9	38.0	44.8

[1]May also have received help from spouse or self.
[2]May also have received help from self or others.
[3]Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Table 6.4—Among those receiving self/family aid, percentage receiving aid from parents or other relatives, spouse, and self, by selected student characteristics: 1989–90

	Parents or other relatives[1]	Spouse[2]	Self only	Self and any of spouse, parents, or other relatives
Total	22.7	12.9	66.3	25.0
Gender				
Male	26.2	10.4	66.1	26.7
Female	20.0	15.0	66.6	23.6
Race–ethnicity				
Native American	13.0	27.4	59.6	32.9
Asian	47.9	15.0	42.0	39.8
Black, non-Hispanic	18.9	12.6	70.6	25.2
Hispanic	26.2	17.6	59.0	31.4
White, non-Hispanic	20.4	12.5	68.8	23.2
Age				
23 years or younger	52.3	5.5	43.7	41.6
24–29 years	31.9	10.4	60.3	30.4
30 years or older	9.0	16.6	76.0	17.2
Marital status				
Not married	35.5	0.0	64.5	27.7
Married	10.8	25.7	67.4	22.8
Attendance status				
Full-time	38.5	14.9	49.8	38.3
At least half-time	16.0	13.4	72.0	20.3
Less than half-time	9.3	10.7	81.1	14.0
Housing status				
Campus housing	41.9	15.2	47.6	40.9
Off campus	21.3	12.8	67.8	23.8
Citizenship				
U.S. citizen	20.6	12.7	68.4	23.7
Eligible noncitizen	37.2	13.6	52.6	34.7
Other	50.2	17.3	38.4	41.6
Income and dependency				
Dependent student	70.3	0.5	29.6	52.3
Less than $50,000	66.8	0.3	33.0	51.7
$50,000 or more	74.3	0.6	25.5	53.0
Independent student	20.9	13.4	67.8	23.9
Less than $20,000	36.5	8.3	57.7	32.5
$20,000–29,999	14.9	13.0	74.7	19.3
$30,000–49,999	7.5	19.4	75.0	17.3
$50,000 or more	3.3	20.0	77.6	14.7

Table 6.4—Among those receiving self/family aid, percentage receiving aid from parents or other relatives, spouse, and self, by selected student characteristics: 1989–90—Continued

	Parents or other relatives[1]	Spouse[2]	Self only	Self and any of spouse, parents, or other relatives
Major field of study				
Arts and humanities	27.0	15.1	62.0	30.6
Natural sciences	24.5	11.4	66.0	28.3
Social sciences	25.6	13.0	63.5	28.5
Engineering	17.5	13.5	70.9	23.9
Law	44.0	13.8	45.4	42.6
Business	16.6	9.0	75.5	18.3
Education	12.6	15.5	72.8	20.2
Medicine	42.2	14.0	47.1	34.7
Other	25.7	17.3	59.5	29.3

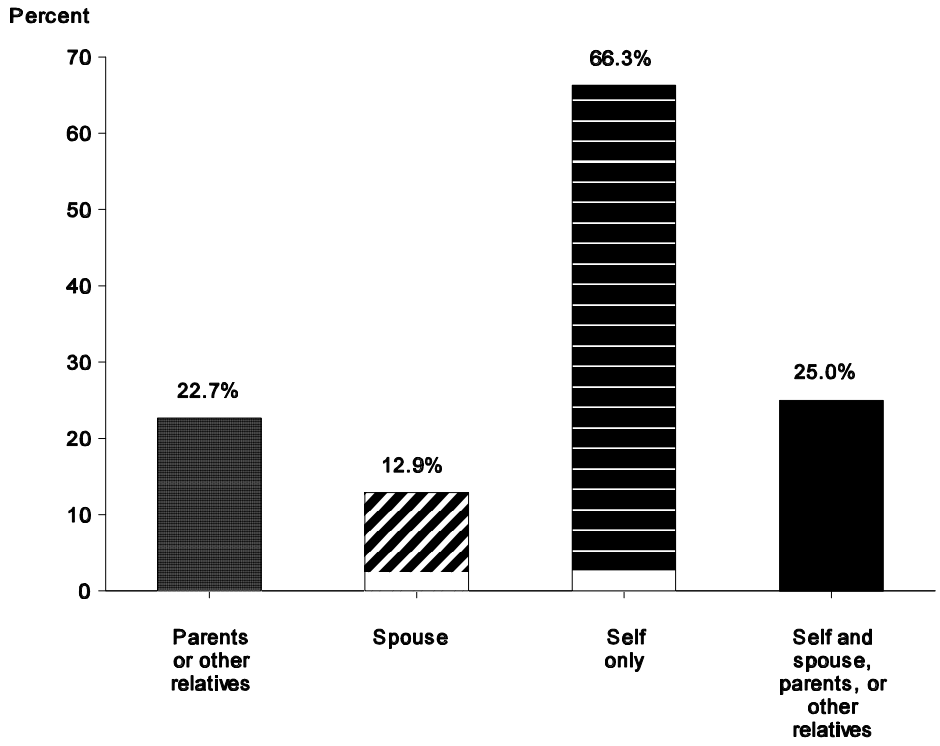
[1]May also have received help from spouse or self.
[2]May also have received help from self or others.
NOTE: This table includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

For about two-thirds (66 percent) of the graduate and first-professional students who had self/family support (either alone or in combination with financial aid), their only form of self/family support was their own savings and earnings. Another 25 percent contributed to their own support, but also received financial help from their spouse, parents, or other relatives (table 6.3 and figure 6.2). Overall, 23 percent of students received contributions from parents or other relatives, and 13 percent received financial support from a spouse.[20]

[20]Note that these two categories are not mutually exclusive. A student could have received support from parents or other relatives and also from a spouse.

Figure 6.2—Among graduate and first-professional students with self/family support, percentage receiving aid from various sources: 1989–90



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

Master's and doctoral students with self/family support were more likely than first-professional students with such support to have just their own savings and earnings as their self/family support (69 percent and 67 percent, respectively, compared with 38 percent). First-professional students with self/family support were much more likely than master's or doctoral students with self/family support to receive financial help from parents or other relatives (52 percent compared with 19 percent and 22 percent, respectively).

Master's students enrolled in private not-for-profit institutions and receiving self/family support were more likely than their counterparts in public institutions to receive financial help from parents or other relatives (22 percent compared with 18 percent).[21] In addition, master's students at doctoral-granting institutions who were supported by self/family support were more likely than those at non-doctoral-granting institutions to receive financial help from parents or other relatives (20 percent compared with 15 percent in the public sector, and 25 percent compared with 17 percent in the private sector).

[21]The data show the same pattern for doctoral students, but the difference is not statistically significant.

Considering only those with self/family support, certain types of students were more likely than others to receive financial support from parents and other relatives. For example, 48 percent of Asian graduate and first-professional students received such help, a much greater proportion than in any other racial–ethnic group (table 6.4). In addition, the likelihood of receiving financial support from parents or other relatives declined with students' age: 52 percent of students 23 years or younger received support from parents or other relatives, compared with 32 percent of those 24–29 years and 9 percent of those 30 years or older. Marital status was also a factor: 36 percent of the students who were not married received financial support from parents or relatives, compared with 11 percent of married students. Approximately one-quarter of married students received help from a spouse, however.

For financially independent students who received self/family support, the likelihood of contributions from parents or relatives declined with student income: 37 percent of those in the lowest income category (based on their own and spouse's incomes) received such help, as did 15 percent of those with incomes from $20,000 to 29,999, 8 percent of those with incomes from $30,000 to 49,999, and 3 percent of those with incomes of $50,000 or more. Financially independent students in the lowest income category were the least likely to have themselves as their only source of self/family support. Among students in the higher income groups, approximately three-quarters (75 percent to 78 percent, depending on the category) had themselves as the only source of self/family support, whereas in the lowest income group, 58 percent were their only source of self/family support.

Forty-four percent of students who received self/family support and were studying law and 42 percent of those who were studying medicine received financial support from parents or other relatives, which made them more likely than those in any other field to receive this type of help. Family-assisted students in education were significantly less likely to receive contributions from parents and other relatives than were students in all other fields except business and engineering.

Appendix A

Glossary

Appendix A

Glossary

This glossary describes the variables used in this report. Most variables were derived by NCES and are directly from the NPSAS:90 graduate Encrypted Table Generation System (ETGS). For more information on how they were derived, users should consult the *Methodology Report for the 1990 National Postsecondary Student Aid Study* (Longitudinal Studies Branch, Postsecondary Education Statistics Division, Washington, D.C.: National Center for Education Statistics, NCES 92-080, May 1992). In a few instances variables were not available in the ETGS and were derived by MPR Associates either using information from several variables or aggregating categories based on the original data. These variables are labeled "MPR-derived." A brief description of how they were derived is included in the description of the variable. Variables are listed here in order of appearance in the tables, with row variables first, followed by column variables.

Row Variables

Degree or Program

Master's degree	An award that requires the successful completion of a program of study of at least the full-time equivalent of one but not more than two academic years of work beyond the bachelor's degree.
Doctoral degree	An award that requires work at the graduate level and terminates in a doctoral degree. The doctoral degree classification includes such degrees as Doctor of Education; Doctor of Juridical Science; Doctor of Public Health; and the Doctor of Philosophy degree in any field such as agronomy, food technology, education, engineering, public administration, ophthalmology, or radiation. For the Doctor of Public Health degree, the prior professional degree is generally earned in the closely-related professional field of medicine or of sanitary engineering.
First-professional degree	One of the following degrees: Chiropractic (D.C. or D.C.M), Pharmacy (D.Par.), Dentistry (D.D.S. or D.M.D.), Podiatry (Pod.D. or D.P.), Medicine (M.D.), Veterinary Medicine (D.V.M.), Optometry (O.D.), Law (L.L.B., J.D.), Osteopathic Medicine (D.O.), Theology (M.Div. or H.H.L. or B.D.).
Other graduate program	A program or course at the postbaccalaureate level that does not necessarily lead to a graduate or first professional degree. Includes professional education programs.

Income and Dependency Status

Dependent student	A student dependent on his or her parents or guardians for financial support. For financial aid purposes, a student is classified as dependent unless the definition of independent student is met.
Less than $50,000	Adjusted gross family income of less than $50,000 in 1988.
$50,000 or more	Adjusted gross family income of $50,000 or more in 1988.
Independent student	A student independent of financial support from his or her parents or guardians. A student is considered financially independent if at least one of the following conditions is met: 1) the student is 24 years old by December 31 of the academic year; 2) the student is a veteran; 3) the student is a ward of the court or both parents are dead; 4) the student has legal dependents other than a spouse; or 5) the student is married or not claimed as a tax exemption for the calendar year.
Less than $20,000	Student and spouse adjusted gross income of less than $20,000 in 1988.
$20,000-29,999	Student and spouse adjusted gross income of $20,000-29,000 in 1988.
$30,000-49,999	Student and spouse adjusted gross income of $30,000-49,999 in 1988.
$50,000 or more	Student and spouse adjusted gross income of $50,000 or more in 1988.

Field of Study

Arts and Humanities	Liberal arts, philosophy, theology, English, art, music, visual performance art.
Natural Sciences	Mathematics, life science, physical science.
Social Sciences	Psychology, economics, history, political science, social science (other), public administration, social work.
Engineering	Engineering, engineering technology, architecture, computer science.
Law	Lawyer, legal assistant.
Business	Accounting, finance, business (other), marketing, journalism, communication.
Education	Secondary education, education (other).
Medicine	Medical doctor, dentist, optometry, pharmacy, chiropractic, veterinary, nursing, medicine (other).
Other	Agriculture, home economics, occupational (other), library science, parks/recreational, ethnic studies/foreign language.

Institution Control

Public	A postsecondary educational institution operated by publicly elected or appointed school officials in which the program and activities are under the control of these officials and which is supported primarily by public funds.
Private not-for-profit	A postsecondary educational institution which is controlled by an individual or agency other than a State, a subdivision of a State, or the Federal Government, which is usually supported primarily by other than public funds.

Institution Type

Doctoral	An institution that confers at least a doctoral or first-professional degree in one or more programs.
Non-doctoral	An institution or subsidiary element that confers at least a baccalaureate or master's degree in one or more programs. (This type of institution cannot award higher than a master's degree.)

Race–Ethnicity	Categories used to describe groups to which individuals belong, identify with, or belong in the eyes of the community. The categories do not denote scientific definitions of anthropological origins.
American Indian or Alaskan Native	A person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.
Asian American or Pacific Islander	A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or Pacific Islands. This includes people from China, Japan, Korea, the Philippine Islands, Samoa, India, and Vietnam.
Black, Non-Hispanic	A person having origins in any of the black racial groups of Africa (except those of Hispanic origin).
Hispanic	A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
White, Non-Hispanic	A person having origins in any of the original peoples of Europe, North Africa, or the Middle East (except those of Hispanic origin).

Age

23 years or younger	Student was 23 years or younger as of 12/31/89.
24–29 years	Student was between 24 and 29 years old as of 12/31/89.
30 years or older	Student was 30 years or older as of 12/31/89.

Marital Status

Not married	Student was single, widowed, or divorced.
Married	Student was married.

Attendance Status

Full-time	Student was enrolled full-time according to the institution's definition.
At least half-time	Student was enrolled at least half-time but less than full-time according to the institution's definition.
Less than half-time	Student was enrolled less than half-time according to the institution's definition.
Full-time, full-year	Student was enrolled full-time in each term in 1989–90 according to the institution's definition.

Housing Status

Campus housing	Institution-owned living quarters for students. These are typically on-campus or off-campus dormitories, residence halls, or other facilities.
Off campus	Students living with their parents or in their own or a shared off-campus residence, not with their parents, guardians, or other relatives.

Citizenship

U.S. citizen	Student was a U.S. citizen.
Eligible noncitizen	Student was not a citizen of the United States but satisfied the requirements to be eligible for federal financial aid. An example of an eligible noncitizen would be a person with permanent residence status.
Other	Student was not a citizen of the United States and was not eligible for federal financial aid.

Column Variables That Do Not Appear as Row Variables

Expenses (MPR-derived)

All expenses	Sum of expenses for tuition and fees, food and housing, books and supplies, and other expenses.
Tuition and fees	Amount of money charged to students for instructional services (tuition) and additional services that the tuition charge does not cover (fees). (TUITCOST)

Food and housing	Student-reported expenses for rent or mortgage, utilities and food. (ROOMCOST + OTHRMCOST)
Books and supplies	Student-reported expenses for books, supplies, computers, and microscopes. (BOOKCOST)
Other expenses	Student-reported expenses for commuting to class (e.g. bus fare, gas, parking); other educational expenses such as transportation to permanent home, babysitting while attending classes; personal expenses, such as clothing, recreation, vacation, trips, cleaning; dependent care, day care, babysitting; repaying education loans; and other expenses such as phone, child support, insurance, medical, or loans other than education. (OTHRCOST + OFFCOST)

Financial Aid

Any aid	Student received financial assistance—grants, loans, or work—from sources other than family or self to help finance his or her education.
Federal	Student financial aid for which the source of origin is the Federal government. Most federal aid programs are administered by the Department of Education.
State	Student financial aid for which the source of origin is a State agency. This aid can either be provided/funded by or administered by a State agency.
Institutional	Student financial aid whose source of origin is the postsecondary institution. This aid is provided by the institution. It includes assistantships funded by federal research grants.
Other	Non-Federal, non-State, and noninstitutional sources of student financial aid. This includes aid provided by corporations, employers, unions, foundations, fraternal organizations, community organizations, and other sources.
Employer	Student financial aid provided by the student's employer.

Type of Aid

Grant	A type of student financial aid that does not require repayment or employment. It is usually (but not always) awarded on the basis of need, possibly combined with some skills or characteristics the student possesses. Grants include scholarships and fellowships.
Tuition waiver	Student is excused from paying tuition or pays a discounted tuition.
Assistantship	Students provided with this type of support work with faculty teaching courses or conducting research projects or participate in formal work-study programs.

Loan	A type of student financial aid that advances funds and that is evidenced by a promissory note requiring the recipient to repay the specified amount(s) under prescribed conditions.
Stafford Loan	Long-term, low-interest loan administered by the federal government. Students borrow money for education expenses directly from banks and other lending institutions. The loans are guaranteed by the federal government. The loan program is authorized by the Higher Education Act of 1965, as amended, Title IV-B; 20 U.S.C. 1071 *et seq*., and was formerly known as the Guaranteed Student Loan (GSL) program.
Work study	A program that provides partial reimbursement of wages paid to students. It may be sponsored by the federal or state government or the institution. These programs are used infrequently for graduate students.

Self/Family Support (MPR-derived)

Self/family support	Financial support from one or more of the following sources: the student's own savings or earnings; a spouse's savings or earnings; or monetary gifts from parents or other relatives. (EARNSCHL, SAVESCHL, SPERNSCH, SPSAVSCH, PARCONTR, or FCONREL)
Parents or other	Monetary gifts from parents or other relatives that were used to pay for student's education expenses. (PARCONTR or FCONREL)
Spouse	Spouse's earnings or savings that were used to pay for student's education expenses. (SPERNSCH, SPSAVSCH)
Self	Students earnings or savings that were used to pay for education expenses. (EARNSCHL, SAVESCHL)

Appendix B

Technical Notes and Methodology

Appendix B
Technical Notes and Methodology

The 1989–90 NPSAS Survey

The need for a nationally representative database on postsecondary student financial aid prompted the U.S. Department of Education to conduct the 1986–87 National Postsecondary Student Aid Study (NPSAS:87). To meet these data needs the NPSAS sample was designed to include students enrolled in all types of postsecondary education. Thus, it included students enrolled in public institutions; private, not-for-profit institutions; and proprietary institutions. The sample included students at 4-year and 2-year institutions, as well as students enrolled in occupationally specific programs that lasted for less than two years.

The sample for the NPSAS:87 data collection consisted of students enrolled in the fall of 1986. The sample for the 1989–90 NPSAS (NPSAS:90), on the other hand, consisted of students enrolled in postsecondary education throughout the 1989–90 academic year, a more accurate representation of postsecondary students.

NPSAS:90 includes data from approximately 61,000 eligible students (about 14,000 of whom were graduate and first-professional students) from about 1,100 institutions. For each student in the sample, efforts were made to collect registration and financial aid records from the institution. The weighted response rate was 86 percent for institutions and 81 percent for graduate and first-professional students.

While the NPSAS:90 includes information on proprietary students pursuing post-baccalaureate studies, these students are not included in this report. They compose a small proportion of postbaccaluareate students (.3 percent). This report limits itself to graduate and first-professional students who attended 4-year institutions.

For more information on the NPSAS survey, consult the *Methodology Report for the 1990 National Postsecondary Student Aid Study* (Longitudinal Studies Branch, Postsecondary Education Statistics Division, Washington, D.C.: National Center for Education Statistics, U.S. Department of Education, NCES 92-080, May 1992).

Accuracy of Estimates

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

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

The accuracy of a survey result is determined by the effect of sampling and nonsampling errors. In surveys with sample sizes as large as those in the NPSAS:90 study, sampling errors generally are not the primary concern, except where separate estimates are made for relatively small subpopulations such as Asian-Americans or Native Americans. In this report, small sample sizes were not usually a problem. Table B-1 shows the weighted totals for each of the row variables.

Table B.1—Weighted Ns for row variables

Row variable (1000s)	Weighted N
Total	2,310
Gender	
Male	1,014
Female	1,264
Race–ethnicity	
American Indian	7
Asian	192
Black, non-Hispanic	120
Hispanic	102
White, non-Hispanic	1,890
Age	
23 years or younger	273
24–29 years	841
30 years or older	1,177
Marital status	
Married	1,112
Not married	1,097
Attendance status	
Full-time	885
Part-time	1,250
Dependency status	
Dependent	88
Independent	2,222
Housing status	
School-owned	178
Off-campus	2,132
Fields of study	
Arts & humanities	198
Natural sciences	119
Social sciences	202
Engineering	184
Law	139
Business	348
Education	430
Medicine	248
Other	90
Income and dependency	
Dependent student	
Less than $50,000	48
$50,000 or more	40
Independent student	
Less than $20,000	1,001
$20,000–$29,999	398
$30,000–$49,999	505
$50,000 or more	318

Table B.1—Weighted Ns for row variables— Continued

Row variable (1000s)	Weighted N
Institution control	
Public	1,439
Private not-for-profit	871
Type of institution	
All graduate students	
Public	
4-year non-doctoral	416
4-year doctoral	1,023
Private	
4-year non-doctoral	210
4-year doctoral	661
Master's degree	
Public	
4-year non-doctoral	310
4-year doctoral	567
Private	
4-year non-doctoral	166
4-year doctoral	312

Statistical Procedures

The descriptive comparisons in this report were based on **Student's t** statistics. Comparisons based on the estimates of the proportions includes the estimates of the probability of a Type I error, 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 to published tables of significance levels for two-tailed hypothesis testing.

The 1989–90 NPSAS survey, while representative and statistically accurate, was not a simple random sample. Instead, the survey sample was selected using a more complex three step procedure with stratified samples and differential probabilities of selection at each level. First, postsecondary institutions were initially listed within geographical strata. Once institutions were organized by zip code and state, they were further stratified by control (that is, public, private, not-for-profit or proprietary) and offering (less-than-2-year, 2- to 3-year, 4-year non-doctoral- granting, and 4-year doctoral-granting). Sampling rates for students enrolled at different institutions and levels (undergraduate or other) varied, resulting in better data for policy purposes, but at a cost to statistical efficiency.

Most of the estimates presented in this report were produced using the NPSAS:90 Encrypted Table Generation System (ETGS) for graduate and first-professional students. The ETGS software offers users the capability to specify and generate their own tables from the NPSAS data. The data within the ETGS are encrypted to protect the confidentiality of the more than 14,000 graduate and first-professional students. The ETGS not only allows the expansion of tables in this report, it calculates proper standard errors[22] and weighted sample sizes for estimates. Table B.2 presents illustrative standard errors for a table of estimates produced by the NPSAS:90 graduate ETGS. If the number of valid cases is too small to produce an estimate, the ETGS prints the message "low-N" instead of the estimate.

For more information about the 1990 NPSAS Encrypted Table Generation System, contact:

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NCES Longitudinal Studies Branch
555 New Jersey Ave NW
Washington D.C., 20208-5652
(202) 219-1367

Student's t values may be computed for comparisons using these tables' estimates with the following formula:

$$t = P_1 - P_2 \; / \; \text{SQRT} \; (se_1^2 + se_2^2)$$

where P_1 and P_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 the estimates were not independent (for example when comparing the percentages of students in different age groups), a covariance term was added to the denominator of the t-test formula. Because the actual covariance terms were not known, it was assumed that the estimates were perfectly negatively correlated. Consequently, $2(se_1 * se_2)$ was added to the denominator of the t-test formula.

[22]The NPSAS sample is not a simple random sample and, therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. The ETGS 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 ETGS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the Taylor series method.

There are hazards in reporting statistical tests for each comparison. First, the test may make comparisons based on large **t** statistics 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 students in the specific categories used for comparison. Hence, a small difference compared across a large number of students would produce a large **t** statistic.

A second hazard in reporting statistical tests for each comparison is that, when making multiple comparisons among categories of an independent variable, for example, different levels of income, the probability of a Type I error for these comparisons taken as a group is larger than the probability for a single comparison. When more than one difference between groups of related characteristics or "families" are tested for statistical significance, a standard that assures a level of significance for all of those comparisons taken together must be applied.

Comparisons were made in this report only when $p \# .05 / k$ for a particular pairwise comparison, where that comparison was one of k tests within a family. This guarantees both that the individual comparison would have $p \# .05$ and that when k comparisons were made within a family of possible tests, the significance level of the comparisons would sum to $p \# .05$.[23]

For example, in a comparison of enrollment for males and females, only one comparison is possible (males v. females). In this family, $k = 1$, and the comparison can be evaluated with a **Student's t** test. When students are divided into three racial–ethnic groups and all possible comparisons are made, then $k = 3$ and the significance level of each test must be $p \# .05/3$, or .0167. In this report, when comparisons are made between three different classifications, then $k = 3$ and the significance level of each test must be $p \# .05/3$, or .0167, in order to be considered statistically significant.

[23] The standard that $p \# .05/k$ for each comparison is more stringent than the criterion that the significance level of the comparisons should sum to $p \# .05$. For tables showing the t statistic required to insure that $p \# .05/k$ for a particular family size and degrees of freedom, see Oliver Jean Dunn, "Multiple Comparisons Among Means," *Journal of the American Statistical Association*, 56: 52-64.

Table B.2—Standard errors for Table 2.1: Percentage distribution of graduate and first-professional students by institution type and control, by degree program, income and dependency status, and field of study: 1989–90

	Public 4-year non-doctoral-granting	Public 4-year doctoral-granting	Private 4-year non-doctoral-granting	Private 4-year doctoral-granting
Total*	1.78	2.90	1.00	1.85
Degree program				
Master's degree	2.21	3.43	1.37	1.88
Doctoral degree	0.00	4.37	0.00	4.37
First-professional degree	0.00	3.15	0.00	3.15
Other graduate program	4.12	4.98	2.25	3.76
Income and dependency				
Dependent student				
Less than $50,000	3.26	4.77	1.84	3.96
$50,000 or more	3.35	4.96	2.06	4.39
Independent student				
Less than $20,000	1.29	2.56	0.88	1.98
$20,000–29,999	2.15	3.55	1.43	2.23
$30,000–49,000	2.67	3.69	1.43	1.97
$50,000 or more	3.28	4.02	1.62	2.53
Field of study				
Arts and humanities	2.19	5.04	3.98	4.80
Natural sciences	2.10	3.31	0.78	2.82
Social sciences	2.19	4.65	2.39	5.57
Engineering	1.73	3.26	1.23	3.26
Law	0.37	3.85	0.00	3.86
Business	2.04	3.32	1.80	2.82
Education	3.54	4.50	2.46	1.51
Medicine	1.03	4.21	1.22	3.90
Other	2.02	5.82	1.49	5.63

*Includes students in graduate programs other than master's, doctoral, and first-professional.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90).

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