STATS IN BRIEF

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Graduate and First-Professional Students: 2007–08

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Statistics in Brief publications present descriptive data in tabular formats to provide useful information to a broad audience, including members of the general public. They address simple and topical issues and questions. They do not investigate more complex hypotheses, account for inter-relationships among variables, or support causal inferences. We encourage readers who are interested in more complex questions and in-depth analysis to explore other NCES resources, including publications, online data tools, and public- and restricted-use datasets. See nces.ed.gov and references noted in the body of this document for more information.

Recent years have seen

widespread efforts to encourage more Americans to go to college, with the emphasis primarily at the community college and baccalaureate levels. However, graduate study is also essential to sustaining the U.S. economy and generating the advances in fields such as science, technology, medicine, and others that contribute to our nation's global competitiveness and quality of life (Council of Graduate Schools 2008). In fact, post-baccalaureate education is a growing enterprise in the United States, and enrollment is growing faster at this level than at the undergraduate level. Over the past two decades, fall enrollment at the graduate and first-professional levels has increased by 57 percent, from 1.7 million in 1988 to 2.7 million in 2008 (Snyder and Dillow 2010, table 206). In comparison, undergraduate enrollment grew 45 percent, from 11.3 to 16.4 million, during the same period (Snyder and Dillow 2010, table 205).

For many college graduates, the bachelor's degree is not a terminal degree. After 10 years, nearly 40 percent of those who earned a bachelor's degree in 1992–93 had enrolled in a graduate or first-professional degree program (Nevill and Chen 2007). They chose from a vast array of programs varying in duration, the type of training provided (e.g., theoretical vs. clinical), and occupational specificity.

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In the United States, the master's is the first graduate-level degree, and the doctorate is the highest.[1] The first-professional degree encompasses certain occupationally specific and closely regulated degree programs including the following: medicine (M.D.), chiropractic (D.C. or D.C.M.), dentistry (D.D.S. or D.M.D.), optometry (O.D.), osteopathic medicine (D.O.), pharmacy (Pharm.D.), podiatry (Pod.D. or D.P.M.), veterinary medicine (D.V.M.), law (LL.B. or J.D.), and theology (M.Div., M.H.L., or B.D.). Graduate education also includes certificate programs, which may be awarded at the post-baccalaureate or post-master's level.

Like undergraduates, graduate and first-professional students typically use some combination of their own resources (earnings, savings, and family contributions) and financial aid to meet their expenses. However, financial aid at the two levels—especially grant aid—is distributed quite differently. While a substantial amount of undergraduate grant aid (from federal, state, and institutional sources) is targeted to low- and moderate-income students, grant aid at the graduate and first-professional levels is typically awarded on the basis of nonfinancial criteria. Federal aid to graduate and first-professional students is primarily in the form of loans; there is no federal grant program for these students analogous to the Pell Grant program for low-income undergraduates.[2]

Drawing upon data from the 2007–08 National Postsecondary Student Aid Study (NPSAS:08), a nationally representative survey of all postsecondary students, this Statistics in Brief offers an overview of the enrollment characteristics of graduate and first-professional students, when they started their programs, how they combined school and work, the price of attending, and the types and amounts of aid they receive to help pay for their education in 2007–08. Except where otherwise indicated, it includes students enrolled at public, private nonprofit, and for-profit 4-year institutions. Data are reported separately by degree level and within level, for selected degree programs with sufficient numbers to report separately. Financial aid information is presented for all students in a program regardless of whether they attended full or part time. Details on financial aid for full-time, full-year attendees can be found in Cataldi and Ho (2010b). Information on student demographic characteristics can be found in Cataldi and Ho (2010a).

All comparisons of estimates were tested for statistical significance using the Student's t-statistic, and all differences cited are statistically significant at the $p < .05$ level.[3]

[1] A description of the structure of U.S. postsecondary education, including an overview of the types of degrees offered, is available at http://www2.ed.gov/about/offices/list/ous/international/usnei/us/edlite-structure-us.html.

[2] A complete description of federal financial aid programs can be found at http://studentaid.ed.gov/PORTALSWebApp/students/english/index.jsp.

[3] No adjustments for multiple comparisons were made. The standard errors for the estimates can be found at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.

STUDY QUESTIONS

1. In what types of programs and institutions did students enroll?
2. When did students start their programs and how did they combine school and work?
3. What is the price of graduate/first-professional education?
4. What types and amounts of financial aid did students receive?

KEY FINDINGS

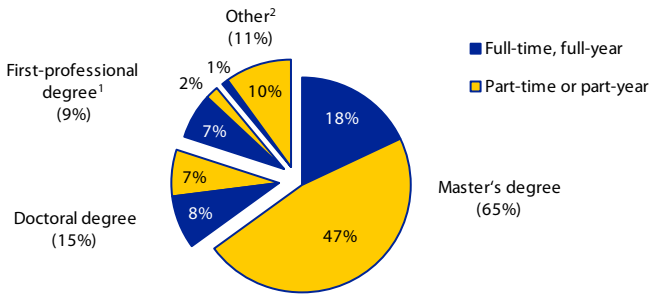
- About two-thirds of all graduate/first-professional students were enrolled in master's degree programs, and about half of all master's-level students were in business or education programs.
- Students in Master of Business Administration (M.B.A.) programs and master's or doctoral programs in education commonly delayed enrollment in graduate education after earning their bachelor's degree (32–70 percent delayed for 7 or more years), worked full time while enrolled (71–72 percent), and enrolled part time (68–83 percent). In contrast, a majority of medical, other health science, and law students enrolled full time (79–89 percent) and within 2 years of earning their bachelor's degree (68–79 percent), and fewer worked full time while enrolled (10–19 percent).
- The average total price of full-time, full-year attendance ranged from a low of $28,400 for a master's degree program at a public institution to a high of $52,500 for a first-professional program at a private nonprofit institution.
- Financial aid packages varied by degree program. Compared with graduate and first-professional students in other degree programs, Doctor of Philosophy (Ph.D.) students (excluding those in education) were the most likely to receive grants (64 percent vs. 30–48 percent) and the least likely to take out loans (20 percent vs. 42–82 percent). Borrowing was more common among first-professional students (76–82 percent for medical, other health science, and law students) than master's or doctoral students (20–52 percent).

1 In what types of programs and institutions did students enroll?

Sixty-five percent of the 3 million students studying at the graduate and first-professional level in 2007–08 were working on a master's degree (figure 1). Another 15 percent were enrolled in doctoral programs, and 9 percent were in first-professional programs. The remaining 11 percent were working on a post-baccalaureate or post-master's certificate (in teaching, for example) or taking graduate courses without enrolling in a formal program.[4]

FIGURE 1.

GRADUATE LEVEL AND ATTENDANCE STATUS of graduate and first-professional students: 2007–08



[1] "First-professional degrees include: medicine (M.D.) chiropractic (D.C. or D.C.M.), dentistry (D.D.S. or D.M.D.), optometry (O.D.), osteopathic medicine (D.O.) pharmacy (Pharm.D.), podiatry (Pod.D. or D.P.M.), or veterinary medicine (D.V.M.), law (LL.B. or J.D.), and theology (M.Div., M.H.L., or B.D.)

[2] "Other" includes students taking graduate courses without being enrolled in a specific degree or certificate program and students enrolled in a post-baccalaureate or post-master's certificate program.

NOTE: Estimates include all graduate and first-professional students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

[4] Students in certificate programs and students not enrolled in formal degree programs are not included in subsequent analyses.

Half of all master's students were in business or education.

Students working on a master's degree in education (Master of Education [M.Ed.], Master of Arts in Teaching [M.A.T.], or any other education master's degree) accounted for 31 percent of all master's degree students (figure 2). Another 19 percent of master's students were enrolled in M.B.A. programs. The remaining master's students were in a Master of Arts (M.A.) or Master of Science (M.S.) program in a subject other than education (11 percent and 21 percent, respectively) or another master's degree program (18 percent), such as Master of Social Work (M.S.W.), Master of Public Administration (M.P.A.), or Master of Fine Arts (M.F.A.) (Cataldi and Ho 2010a, table 10).

Ph.D. students (excluding those in education) were the largest group at the doctoral level.

Sixty percent of all students at the doctoral level were working on a Ph.D. in a field other than education—that is, in disciplines such as the humanities, social sciences, natural sciences, engineering, and mathematics (figure 2).

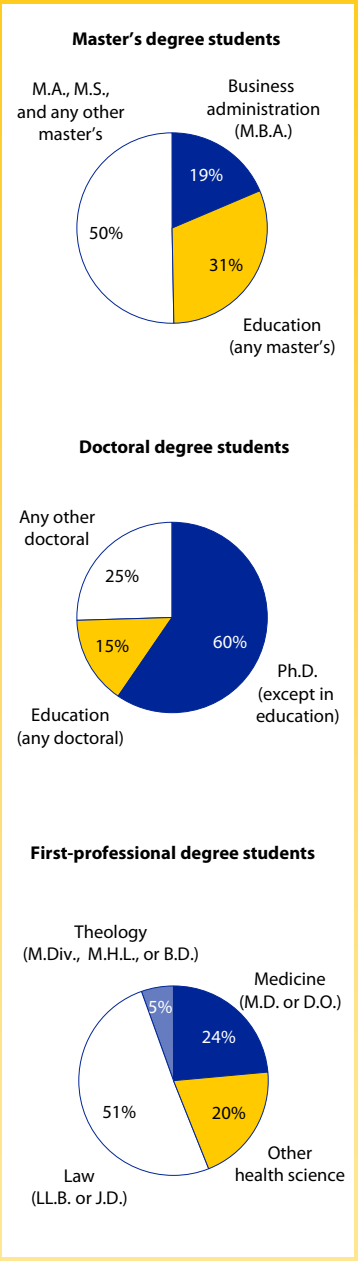
Another 15 percent of doctoral students were working on a Ph.D. in education, Doctor of Education (Ed.D.), or other education doctorate. The remaining 25 percent of doctoral students were working on other degrees, such as Doctor of Business Administration (D.B.A.), Doctor of Fine Arts (D.F.A.), and Doctor of Public Administration (D.P.A.).

Law was the largest first-professional program.

Fifty-one percent of all first-professional students were working on a law degree—a Bachelor's of Law (LL.B.) or Juris Doctor (J.D.) (figure 2). Twenty-four percent were in medicine (including M.D. and D.O. programs). Programs in other health sciences (i.e., chiropractic, dentistry, optometry, pharmacy, podiatry, or veterinary medicine) accounted for 20 percent of all first-professional students, and the remaining 5 percent of students were in theology programs working on a Master of Divinity (M.Div.), Master of Hebrew Letters (M.H.L.), or Bachelor of Divinity (B.D.) degree.

FIGURE 2.

DEGREE PROGRAMS of graduate and first-professional students, by graduate level: 2007–08



NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.

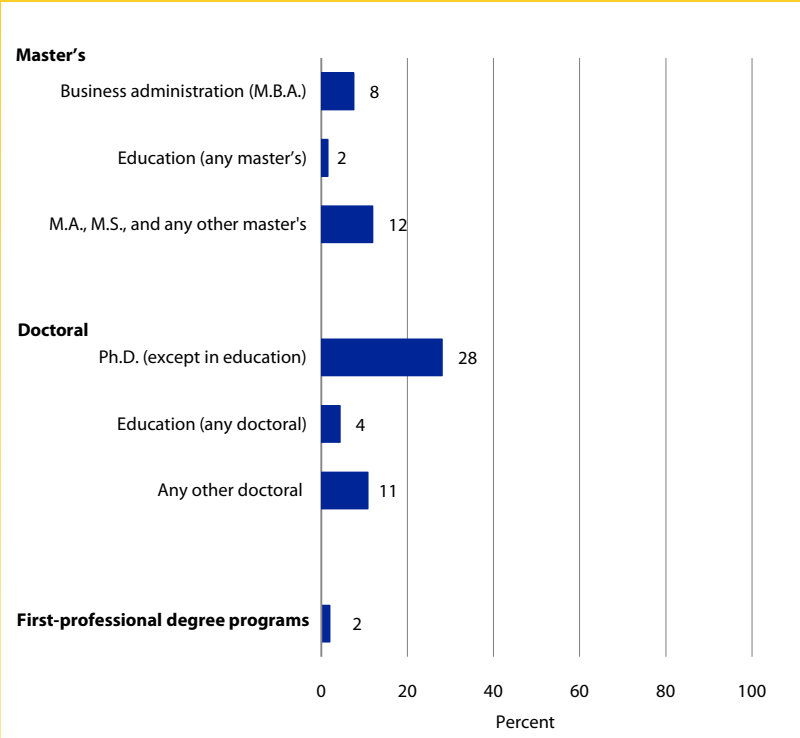
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

More than one-quarter of Ph.D. students (excluding those in education) were foreign/international students.

Students from other countries enrolled most often in Ph.D. programs other than education. Twenty-eight percent of Ph.D. students in fields other than education were foreign/international students, compared with no more than 12 percent in any other graduate or first-professional degree program (figure 3).

FIGURE 3.

FOREIGN/INTERNATIONAL STATUS
Percentage of graduate and first-professional students who were foreign/international students, by degree program: 2007–08



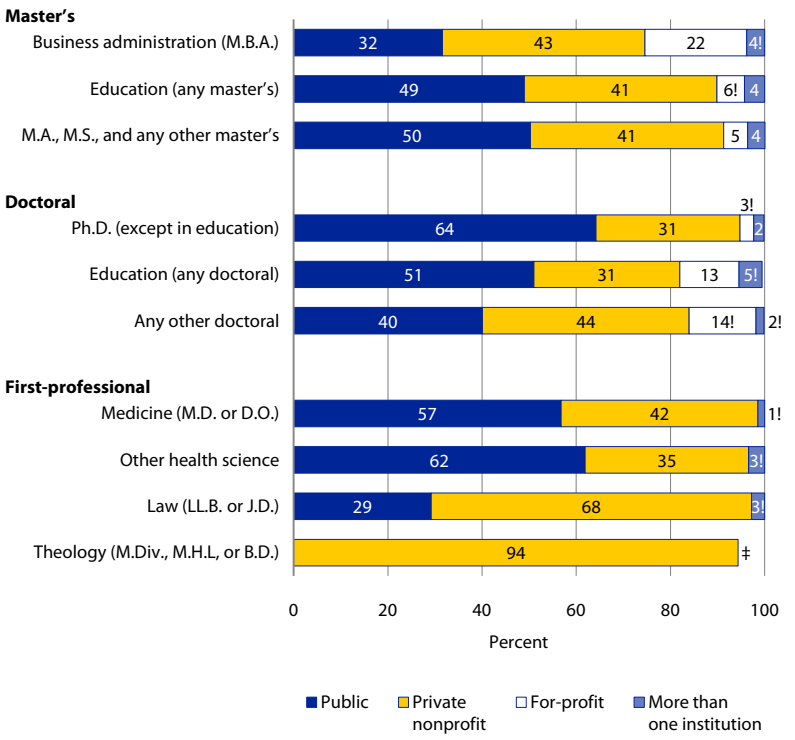
NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

Almost one-quarter of M.B.A. students were enrolled at for-profit institutions.

The proportion of students choosing a public or private institution varied by program. A majority of students in Ph.D. programs other than education (64 percent) and "other health science" first-professional programs (62 percent) attended public institutions (figure 4). In contrast, a majority of law students (68 percent) and almost all theology students (94 percent) attended private nonprofit institutions. Twenty-two percent of M.B.A. students were enrolled at for-profit institutions.

FIGURE 4.

TYPE OF INSTITUTION ATTENDED for graduate and first-professional students, by degree program: 2007–08



! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.
‡ Reporting standards were not met for the "Public" and "More than one institution" categories. The percentage attending a for-profit institution rounded to 0.
NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

2 When did students start their programs, and how did they combine school and work?

Some students enroll in graduate education immediately after earning a bachelor's degree, while others wait. Once enrolled, students have various options for combining school and work: enrolling full or part time and working full time, part time, or not at all. In making their choices, students may take into consideration factors such as program requirements, financial resources, financial aid availability, and personal circumstances such as work schedules or family obligations.

Students in M.B.A. and graduate education programs tended to delay entering graduate school and to work full time while enrolled.

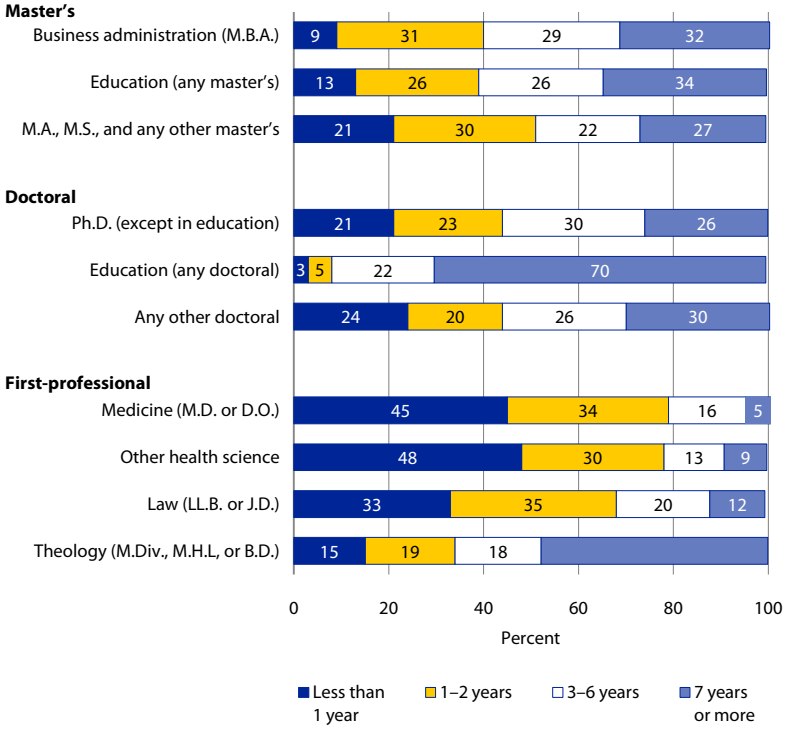
Some students in business and education may have incentives to combine school and work. Some teachers may use graduate education to climb career ladders that reward additional education. School districts typically provide salary premiums for advanced degrees and often require them for promotion to administrative positions (Odden and Kelley 2002); as indicated later in the financial aid section, M.B.A. students often receive tuition reimbursement from their employers to enroll in an M.B.A. program.

Thirty-two percent of M.B.A students delayed their enrollment in graduate school for 7 or more years after earning their bachelor's degree (figure 5).

Among students in education, 34 percent of those at the master's level and 70 percent of those at the doctoral level delayed 7 or more years.[5]

FIGURE 5.

ENROLLMENT DELAY AFTER BACHELOR'S DEGREE for graduate and first-professional students, by degree program: 2007–08



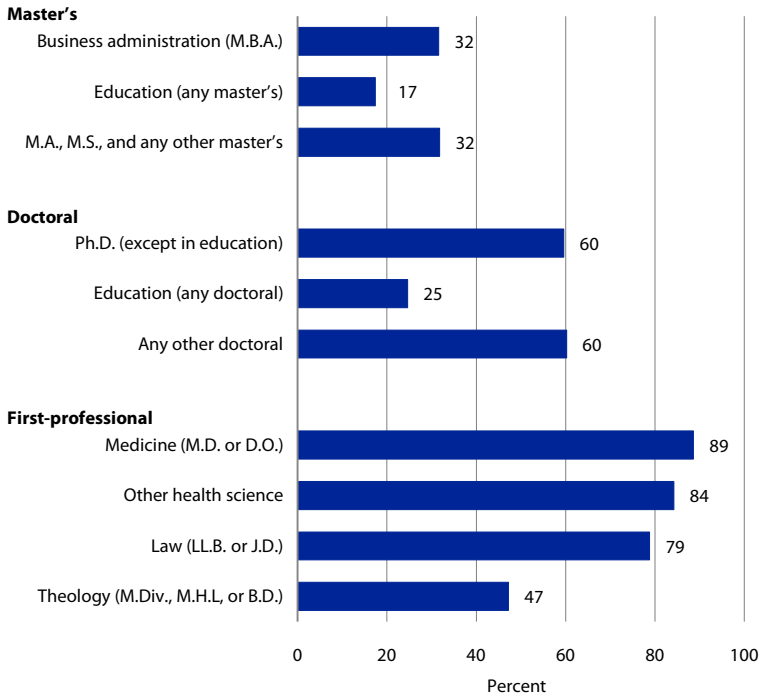
NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. During the delay period, students could have been working on a different graduate degree. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

[5] This delay is from receipt of a bachelor's degree. Some doctoral students may have been enrolled in another graduate program during that period.

Once enrolled, 32 percent of M.B.A. students, 17 percent of master's students in education, and 25 percent of doctoral students in education studied full time—lower percentages than observed among students in Ph.D. (except in education), other doctoral, or first-professional programs (47–89 percent) (figure 6).[6] Compared with students in any other degree program, a greater proportion of M.B.A. and education students (master's and doctoral) worked full time while enrolled (71–72 percent vs. 55 percent or less) (figure 7).

FIGURE 6.

ENROLLMENT STATUS
Percentage of graduate and first-professional students who enrolled full time, full year, by degree program: 2007–08

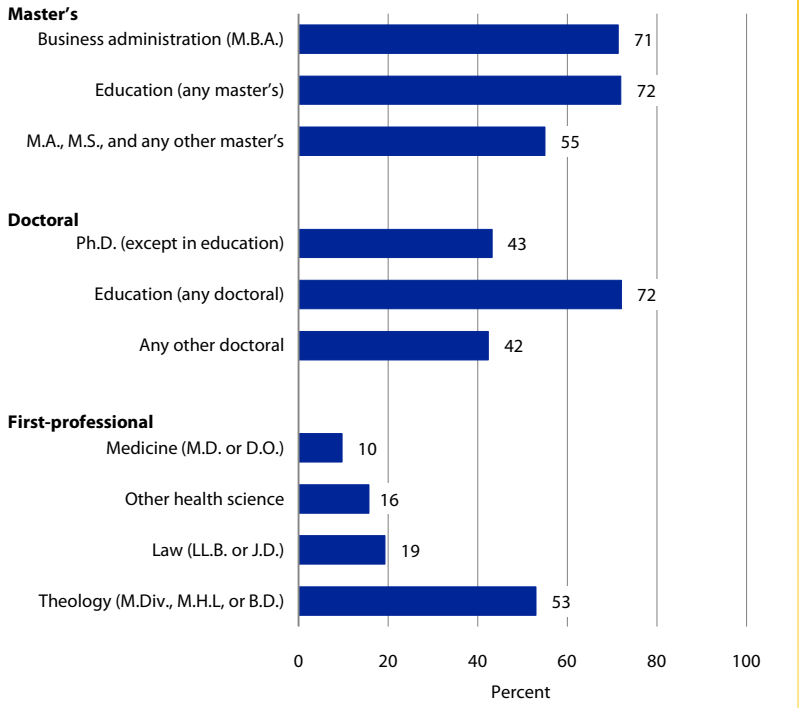


NOTE: Full-time students were enrolled full time in one postsecondary institution for 9 months or more. Additional months could be part time. Students may have attended more than one institution. Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

[6] The difference between students in M.B.A. and theology programs was not statistically significant, perhaps due to the small sample size for theology students.

FIGURE 7.

WORK AND ENROLLMENT
Percentage of graduate and first-professional students who worked full time while enrolled, by degree program: 2007–08



NOTE: Full-time work while enrolled is defined as working 35 or more hours per week. Hours worked for an assistantship are included in calculating hours worked. Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

Most Ph.D. students in fields other than education had an assistantship or similar award-involving work.

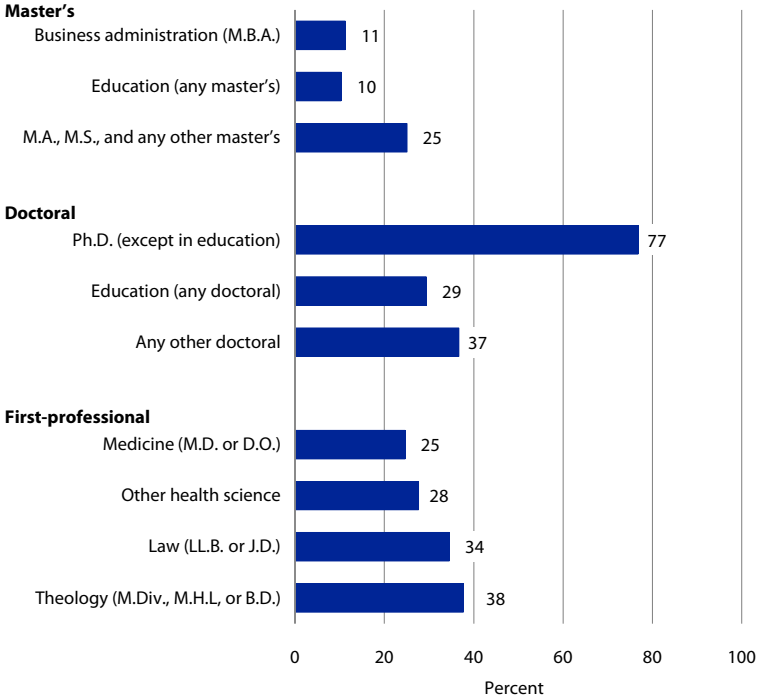
Seventy-seven percent of Ph.D. students in fields other than education had an assistantship or work-study award requiring them to work (figure 8).[7]

First-professional students tended to enroll full time and not work full time.

Forty-five percent of students in medicine, 48 percent of students in other health sciences, and 33 percent of students studying law enrolled in their programs less than a year after earning their bachelor's degree (figure 5). A greater proportion of students in medicine, other health sciences, and law enrolled full time for the full year than did students in theology or in any of the master's or doctoral degree program categories shown in figure 6 (79–89 percent vs. 17–60 percent). Similarly, a smaller proportion of them worked full time while enrolled (10–19 percent vs. 42–72 percent) (figure 7).

FIGURE 8.

ASSISTANTSHIPS AND WORK-STUDY JOBS
Percentage of graduate and first-professional students with assistantships or work-study jobs, by degree program: 2007–08



NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

[7] Choy and Geis (2002) describe assistantships for graduate/first-professional students in some detail, including the responsibilities of teaching assistants.

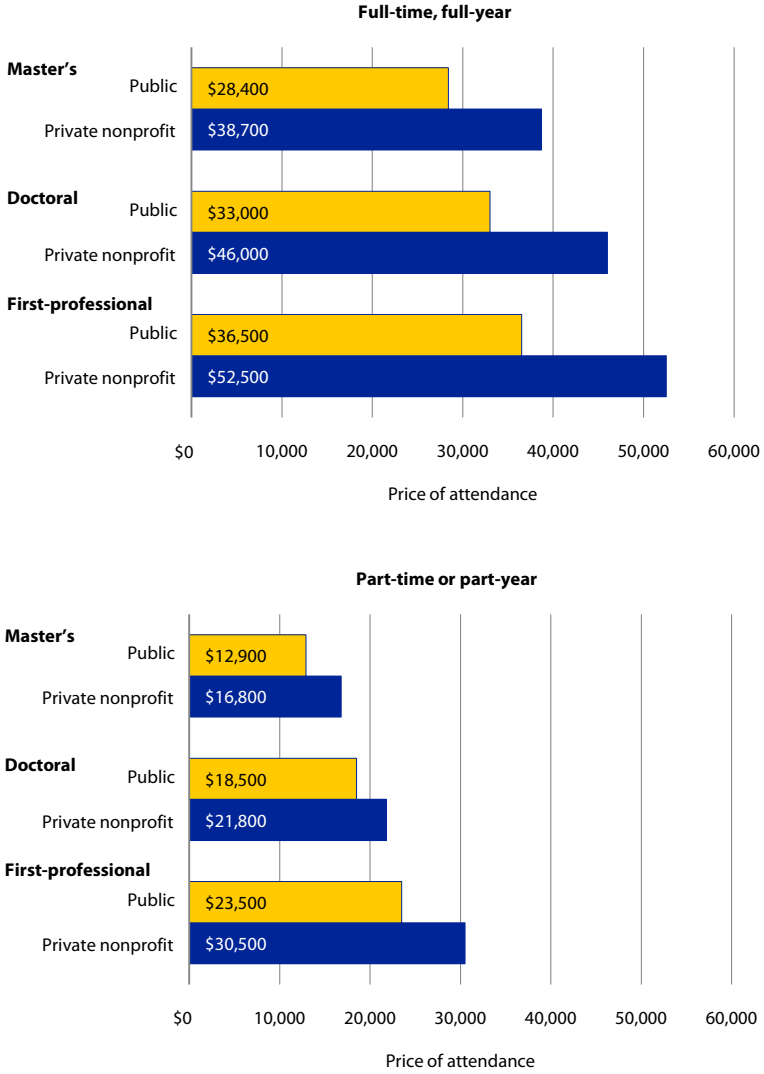
3 What is the price of graduate/ first-professional education?

Postsecondary institutions establish an annual student budget, or price of attendance, that is used to determine whether a student is eligible for financial aid and if so, how much. This budget takes into account actual charges for tuition and fees and allowances for books, supplies, and living expenses appropriate to the student's circumstances (allowing for higher expenses if the student has dependents, for example). The price of attendance varies according to the degree sought, type of institution attended, and whether the student was enrolled full time or part time. For part-time students, the budget is the actual tuition and fees plus an allowance for other expenses that is prorated to reflect the amount of time the student was enrolled. Consequently, part-time and part-year students typically have a lower price of attendance than full-time, full-year students in the same program.

In 2007–08, the average total price of full-time, full-year attendance ranged from a low of $28,400 for a master's degree program at a public institution to a high of $52,500 for a first-professional program at a private nonprofit institution (figure 9). (Sample sizes were too small for reliable estimates for for-profit institutions.) In each degree program, students who enrolled part time or for part of the year paid less than those enrolled full time for the full year, but at least $12,900 per year, on average.

FIGURE 9.

AVERAGE PRICE OF ATTENDANCE for graduate and first-professional students, by attendance status and type of institution: 2007–08



NOTE: Full-time, full-year enrollment means that the student was enrolled full time for at least 9 months during 2007–08. Additional months could be part time. All other students were classified as "part-time or part-year." Price of attendance is the student budget, which includes tuition and fees, books and supplies, room and board, transportation, and personal expenses. For students enrolled less than full time for the full year, the budget is adjusted to reflect the length of time enrolled. For example, the full-time, full-year budget would be divided by two for a student enrolled half time for the full year. Estimates include graduate and first-professional students enrolled in degree programs in public and private nonprofit Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Sample sizes were too small for reliable estimates for for-profit institutions. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

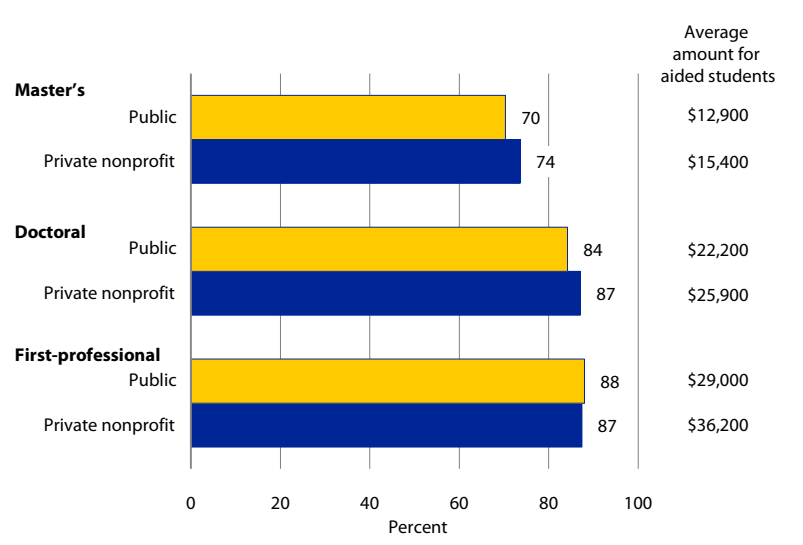
4 What types and amounts of financial aid did students receive?

To help pay for their education, graduate and first-professional students have access to three major types of financial aid—grants, loans, and assistantships (see text box on next page for more detail). The figures in this section show financial aid types and amounts by degree program including all students, regardless of attendance status. Thus, the financial aid patterns for students in the various degree programs reflect the mix of full- and part-time or part-year students in those programs (see figure 1). Details for students who attended full time, full year are available in Cataldi and Ho (2010b).

A comparison of students across degree programs indicates that relatively fewer students in master's programs than in doctoral or first-professional programs received any aid (70–74 percent vs. 84–88 percent), and they received lower average amounts (figure 10). This pattern reflects the lower average price of attendance at the master's level for students in each sector (figure 9). It also reflects, at least in part, the relatively larger percentage of master's students working full time while enrolled and relatively smaller percentage enrolled full time than in most doctoral and first-professional programs (figures 7 and 6).[8]

FIGURE 10.

FINANCIAL AID
Percentage of graduate and first-professional students with any financial aid and average amount for aided students, by type of institution: 2007–08



NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in public or private nonprofit Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Sample sizes were too small for reliable estimates for for-profit institutions. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

[8] Doctoral students in education, who also commonly attended part time and worked full time, were an exception.

Major Types of Financial Aid for Graduate and First-Professional Students

Grants

Grant aid, which does not have to be repaid, may be awarded in the form of grants, scholarships, fellowships, traineeships, tuition waivers, or tuition reimbursement by an employer. Sources may be federal, state, institutional, or private. Grants at the graduate and first-professional levels typically are awarded on a discretionary basis and may not be related to financial need.

Loans

Stafford Loans. Graduate and first-professional students with financial need can borrow up to $8,500 per year in subsidized loans through the federal Stafford loan program. The federal government pays the interest on the loans while the student is enrolled, for the first 6 months after the student leaves school, and during periods of deferment (because of unemployment, for example). Regardless of financial need, students can obtain unsubsidized Stafford loans, for which they pay all interest that accumulates from the time the debt is incurred. Graduate and first-professional students can borrow a maximum of $20,500 in subsidized and unsubsidized Stafford loans each year, with a lifetime maximum of $138,500 that includes their undergraduate Stafford loans. Students in health professions can borrow an additional $20,000 in unsubsidized Stafford loans annually. In 2007–08, their lifetime maximum was $189,125, but this amount was increased to $224,000 in April 2008.

Other Loans. Graduate and first-professional students may obtain education loans from private lenders (sometimes referred to as alternative loans). As of July 1, 2006, they could take out federal PLUS loans, previously limited to parents of undergraduates. Graduate PLUS loans are intended to help students bridge the gap between the price of attendance and their other financial aid. Some students also may be able to obtain state or institutional loans or, if they have exceptional need, federal Perkins loans.

Assistantships

Assistantships are an important source of financial aid, especially for doctoral students and for international students, who are not eligible for federal loan programs. Students receive a stipend in exchange for teaching, research, or administrative duties. Because academic departments typically select the recipients, assistantships are considered institutional aid, but funding often comes from federally funded research grants.

Detailed information on the types of financial aid available and eligibility requirements can be found at http://studentaid.ed.gov/PORTALSWebApp/students/english/gradstudent.jsp.

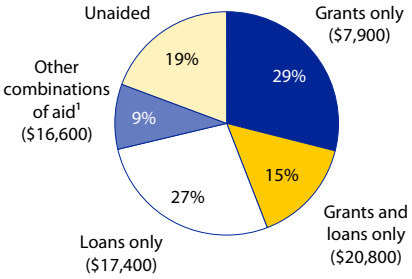
Financial aid packages varied by degree program.

Financial aid packages reflect the price of attendance, how students combine school and work, full- or part-time enrollment, and the types of aid typically available to students in different degree programs. For example, at the master's level, proportionately more students in M.B.A. than in other master's degree programs received grant aid (48 percent vs. 30–44 percent) (figure 11). This pattern reflects, at least in part, the greater percentage of M.B.A. students receiving employer aid (which is included in grant aid)—40 percent compared with 20–25 percent in other master's programs (figure 12). Although education master's students, like M.B.A. students, commonly attended part time or worked full time while enrolled (figures 6 and 7), they received employer aid relatively less often than M.B.A. students (20 percent vs. 40 percent) and were the most likely, among master's students, to have no financial aid (figure 12).

FIGURE 11.

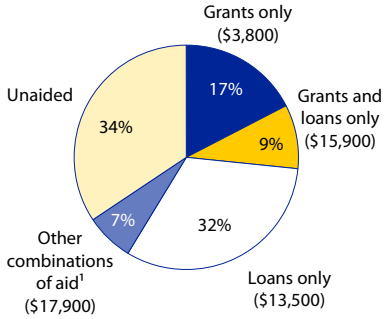
FINANCIAL AID FOR MASTER'S DEGREE STUDENTS
Percentage of students with various types of aid and aid packages and average amounts for recipients, by degree program: 2007–08

Business administration (M.B.A.)



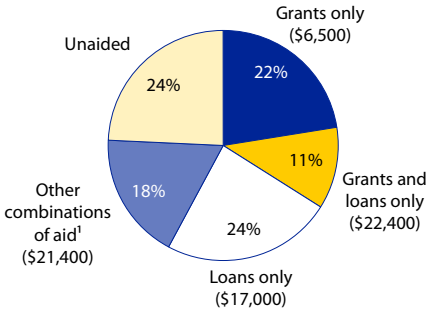
Aid type	Percent	Average amount
Any aid	81	$14,500
Any grants	48	$7,300
Any loans	45	$16,600
Any assistantships	6	$9,600

Education (any master's)



Aid type	Percent	Average amount
Any aid	66	$11,800
Any grants	30	$4,400
Any loans	44	$13,200
Any assistantships	6	$8,100

M.A., M.S., and any other master's

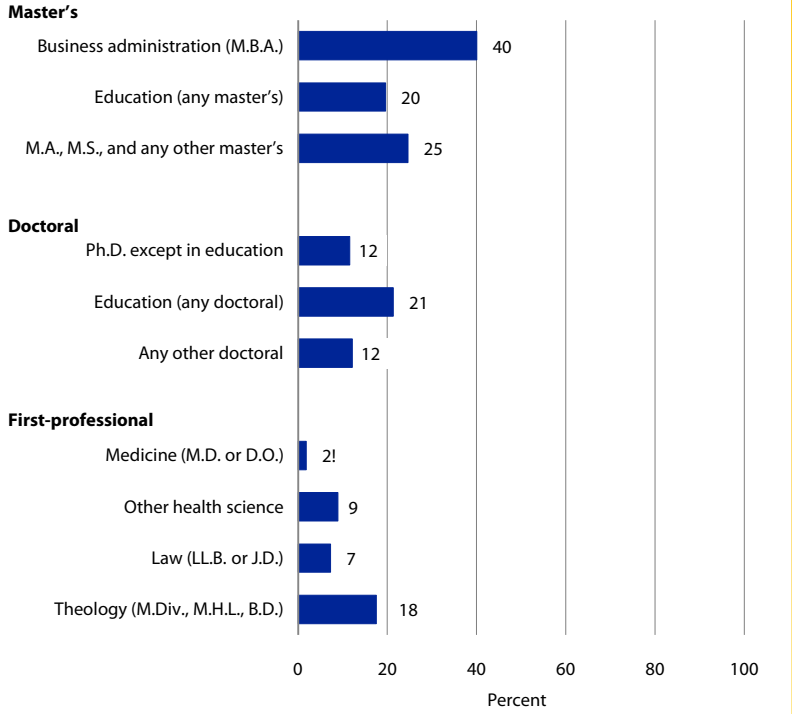


Aid type	Percent	Average amount
Any aid	76	$15,700
Any grants	44	$7,000
Any loans	42	$16,900
Any assistantships	15	$10,100

[1] "Other" combinations of aid include, for example, grants and assistantships and grants, loans, and assistantships.
NOTE: Average amounts shown in the pie charts are for students with the aid package indicated. Average amounts in the boxes are for all aid of the type indicated. Estimates include all master's students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

FIGURE 12.

EMPLOYER AID
Percentage of graduate and first-professional students with employer aid, by degree program: 2007–08



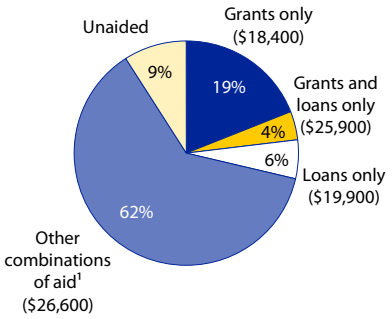
! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.
NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

Ninety-one percent of all Ph.D. students in fields other than education received some type of financial aid, with 62 percent receiving a combination of types that included aid other than just grants and loans (figure 13). This reflects the greater prevalence of assistantships among these students (62 percent of Ph.D. students in fields other than education received an assistantship, compared with 24 percent of education doctoral students and 27 percent of doctoral students in other programs). Relatively few students in Ph.D. programs other than education relied entirely on loans (6 percent). In addition to the greater access to assistantships just mentioned, another contributing factor to this relatively low reliance on only loans by students in Ph.D. programs other than education may be the higher percentage of international students than in other programs (28 percent vs. 2–12 percent) (figure 3). Although international students have access to private loans, they are ineligible to participate in any of the federal student loan programs, which are the major source of loan funds for graduate students (figure 16). Compared with other doctoral students, education doctoral students received financial aid less commonly, and they relied solely on loans more commonly than did Ph.D. students in fields other than education.

FIGURE 13.

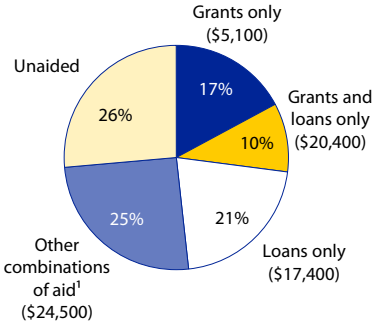
FINANCIAL AID FOR DOCTORAL DEGREE STUDENTS
Percentage of students with various types of aid and aid packages and average amounts for recipients, by degree program: 2007–08

Ph.D. (except in education)



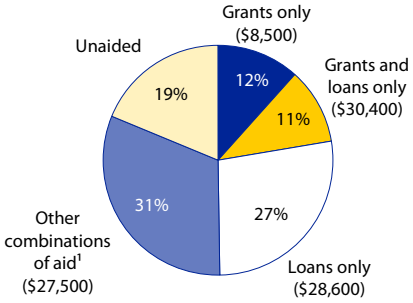
Aid type	Percent	Average amount
Any aid	91	$24,400
Any grants	64	$14,100
Any loans	20	$15,500
Any assistantships	62	$16,000

Education (any doctoral)



Aid type	Percent	Average amount
Any aid	74	$17,400
Any grants	39	$6,600
Any loans	42	$16,900
Any assistantships	24	$12,800

Any other doctoral



Aid type	Percent	Average amount
Any aid	81	$25,500
Any grants	39	$8,500
Any loans	52	$26,300
Any assistantships	27	$13,000

[1] "Other" combinations of aid include, for example, grants and assistantships and grants, loans, and assistantships.
NOTE: Average amounts shown in the pie charts are for students with the aid package indicated. Average amounts in the boxes are for all aid of the type indicated. Estimates include all doctoral students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

Medical, other health science, and law students relied solely on loans (40 percent in each case) relatively more commonly than did master's or doctoral students (6–32 percent), and they often combined loans with grants or other types of aid (figures 14, 11, and 13). Compared with students at the master's and doctoral level, relatively few (4–5 percent) first-professional students received grants only.

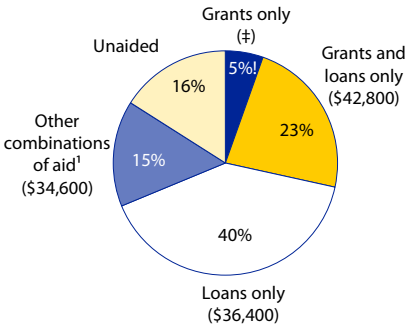
Loans figured prominently in student financing of graduate education.

Borrowing was least common among Ph.D. students in fields other than education (20 percent), and most common for first-professional students (76–82 percent) (figures 11, 13, and 14). Among borrowers, the average loan amounts ranged from a low of $13,200 for education master's students to a high of $34,600 for medical students (figures 11, 13, and 14). Education master's students often enroll part time and work full time while enrolled (figures 6 and 7). Part-time enrollment reduces the price of attending and thus may lessen the need to borrow. Medical students, in contrast, face high prices of attendance[9] and usually enroll full time (figure 6).

FIGURE 14.

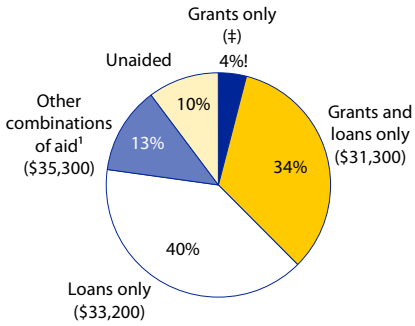
FINANCIAL AID FOR FIRST-PROFESSIONAL STUDENTS
Percentage of students with various types of aid and aid packages and average amounts for recipients, by degree program: 2007–08

Medicine (M.D. or D.O.)



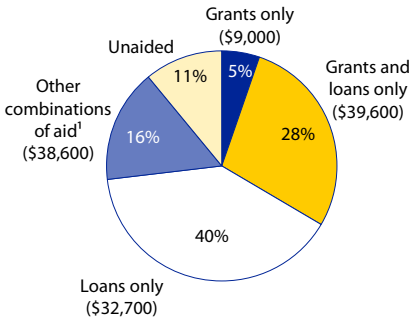
Aid type	Percent	Average amount
Any aid	84	$35,900
Any grants	33	$8,000
Any loans	76	$34,600
Any assistantships	8	$7,700

Other health science



Aid type	Percent	Average amount
Any aid	90	$31,600
Any grants	44	$6,500
Any loans	82	$29,900
Any assistantships	7	‡

Law (LL.B. or J.D.)



Aid type	Percent	Average amount
Any aid	89	$34,600
Any grants	41	$9,600
Any loans	82	$31,800
Any assistantships	9	$5,200

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.
‡ Reporting standards not met.
[1] "Other" combinations of aid include, for example, grants and assistantships and grants, loans, and assistantships.
NOTE: Average amounts shown in the pie charts are for students with the aid package indicated. Average amounts in the boxes are for all aid of the type indicated. Estimates include all first-professional students except theology students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Theology students are excluded because of their small number. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

[9] The average price of attendance for medical students attending full time, full year was $45,000 in 2007–08 (Cataldi and Ho 2010a, table 12). In comparison, full-time, full-year students in M.B.A. programs and Ph.D. programs other than education paid an average of $36,200 and $39,000, respectively.

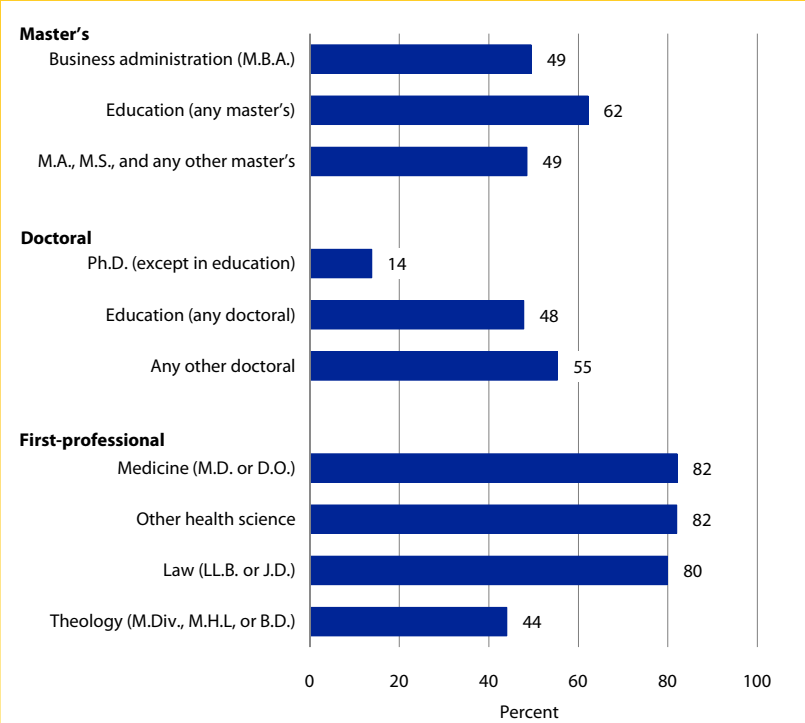
Ph.D. students in fields other than education had the lowest percentage of their aid in the form of loans, and first-professional students had the highest.

Ph.D. students in fields other than education stand out as being the least dependent on loans—14 percent of their aid was in the form of loans, on average (figure 15). Besides being the least likely of all graduate/first-professional students to borrow, Ph.D. students in fields other than education were the least likely to have only loans in their aid package—6 percent vs. 21–40 percent for students in the other programs shown in figures 11, 13, and 14.

For students in master's, education doctoral, and "any other" doctoral programs, the ratio of loans to total aid ranged from 48 percent to 62 percent (figure 15). For students in medicine, other health sciences, or law, it was higher (80–82 percent).

FIGURE 15.

LOANS AS A PERCENTAGE OF TOTAL AID
Among students with any financial aid, average percentage of total aid that was in loans, by degree program: 2007–08



NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

More students took out Stafford loans than any other type of loan, but students commonly used multiple types.

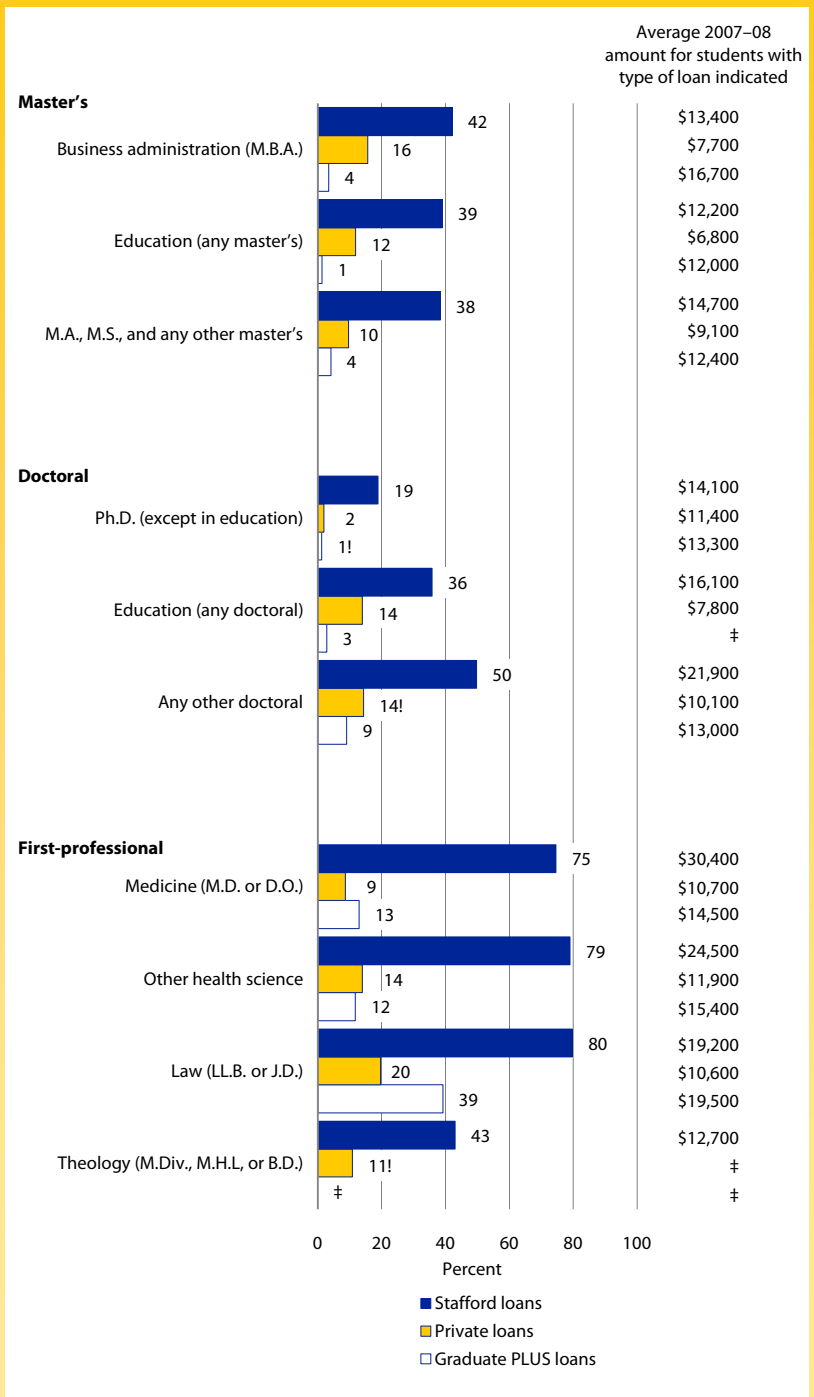
Graduate and first-professional students borrowed through federal, state, or institutional programs or took out private (alternative) loans to pay for their education. In each degree program, a greater percentage of students took out Stafford loans than any other type (figure 16). Students in medicine and other health sciences who took out Stafford loans borrowed larger amounts through this program, on average, than other students, which may reflect, in part, the higher Stafford loan limits set for students in health fields.

Graduate and first-professional students are permitted to obtain Graduate PLUS loans in amounts sufficient to fill the gap between their other aid and total price of attendance. Nevertheless, Graduate PLUS loans were taken out less commonly than private loans among students in all master's degree programs (1–4 percent vs. 10–16 percent) and in education doctoral programs (3 percent vs. 14 percent) (figure 16). However, the average private loan amount was generally less than the average Stafford or Graduate PLUS amount for students who took out these types of loans.[10] For example, among M.B.A. students with private loans, the average amount was $7,700.

[10] The apparent differences between the average private and PLUS amounts for students in "other" health science programs or Ph.D. programs other than education and between the average private and Stafford loan amounts for students in Ph.D. programs other than education were not statistically significant. All other differences were statistically significant.

FIGURE 16.

TYPES AND AVERAGE AMOUNTS OF LOANS for graduate and first-professional students, by degree program: 2007–08



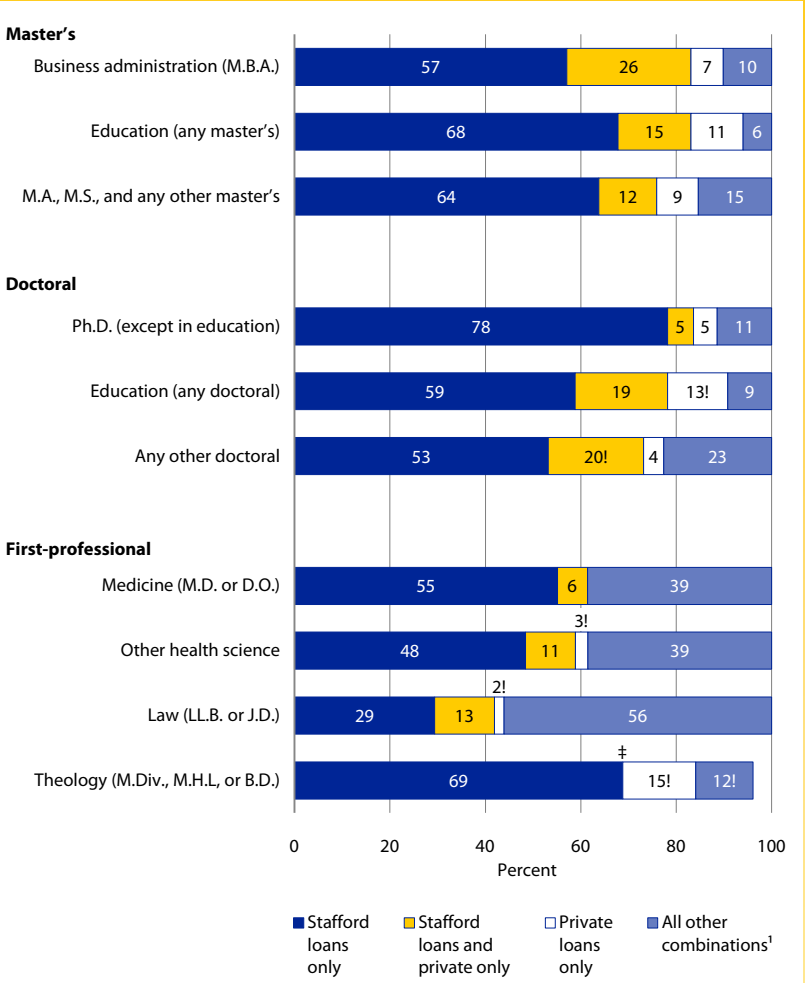
! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.
‡ Reporting standards not met.
NOTE: Estimates include all graduate and first-professional students enrolled in degree programs in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

In contrast, among M.B.A. students with Stafford loans, the average amount was $13,400, and among those with Graduate PLUS loans, the average amount was $16,700. Law students stand out as the most common borrowers of Graduate PLUS loans (39 percent, compared with no more than 13 percent of students in any other degree program).

Students often borrowed from multiple sources (figure 17), although "Stafford loans only" was the most commonly used package in each degree program except law (48–78 percent vs. 29 percent). Despite the availability of unsubsidized Stafford and Graduate PLUS loans to all U.S. citizens and permanent residents, from 4 to 13 percent of students in master's and doctoral degree programs and 15 percent of theology students relied on private loans only.

FIGURE 17.

TYPE OF LOAN PACKAGE for graduate and first-professional students who borrowed, by degree program: 2007–08



! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.
‡ Reporting standards not met.
[1] Other combinations could include other federal loans (Graduate PLUS, Perkins, or Public Health Service), state loans, or institutional loans alone or in combination with each other or Stafford or private loans.
NOTE: Estimates include all graduate and first-professional students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico who borrowed. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

FIND OUT MORE

For questions about content, ordering additional copies of this Statistics in Brief, or to view this report online, go to:

http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174

More detailed information on graduate and first-professional students can be found in Web Tables produced by the National Center for Education Statistics (NCES) using the 2007–08 National Postsecondary Student Aid Study (NPSAS:08) data. These tables provide a comprehensive source of information on graduate and first-professional students during the 2007–08 academic year, including their demographic characteristics, disability status, income, parents' education, enrollment delay after attaining a bachelor's degree, attendance status, type of institution, degree program, and price of attendance. A second set of Web Tables provides information on how graduate and first-professional students paid for their education in 2007–08.

Web Tables—Profile of Students in Graduate and First-Professional Education: 2007–08 (NCES 2010-177). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2010177

Web Tables—Student Financing of Graduate and First-Professional Education: 2007–08 (NCES 2011-172). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011172

For a longitudinal look at students' paths through graduate school, see *The Path Through Graduate School: A Longitudinal Examination 10 Years After Bachelor's Degree* (NCES 2007-162). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007162

TECHNICAL NOTES

Survey Methodology

The estimates provided in this Statistics in Brief are based on data collected through the 2007–08 National Postsecondary Student Aid Study (NPSAS:08). NPSAS covers broad topics concerning student enrollment in postsecondary education and how students and their families finance their education. In 2008, students provided data through instruments administered over the Internet or by telephone. In addition to student responses, data were collected from the institutions that sampled students attended and other relevant databases, including U.S. Department of Education records on student loan and grant programs and student financial aid applications.

NPSAS:08 is the seventh administration of NPSAS, which has been conducted every 3 to 4 years since 1986–87. The NPSAS:08 target population includes students enrolled in Title IV postsecondary institutions in the United States and Puerto Rico at any time between July 1, 2007, and June 30, 2008.[11] This population included about 21 million undergraduates and 3 million graduate students enrolled in more than 6,000 institutions.

The institution sampling frame for NPSAS:08 was constructed from the 2004–05 and 2005–06 Institutional Characteristics, Fall Enrollment, and Completions files of the Integrated Postsecondary Education Data System (IPEDS). The sampling design consisted of first selecting eligible institutions, then selecting students from these institutions. Institutions were selected with probabilities proportional to a composite measure of size based on expected 2007–08 enrollment. With approximately 1,700 institutions participating in the study, the weighted institution unit response rate was 90 percent. Eligible sampled students were defined as study respondents if at least 11 key data elements were available from any data source. Approximately 114,000 undergraduates and 14,000 graduate students were

VARIABLES USED

All estimates presented in this Statistics in Brief were produced using PowerStats, a web-based software application that allows users to generate tables for many of the postsecondary surveys conducted by NCES. See "Run Your Own Analysis With DataLab" below for more information on PowerStats. The variables used in this Brief are listed below. Visit the NCES DataLab website (http://nces.ed.gov/datalab) to view detailed information on how these variables were constructed and their sources. Under *Detailed Information About PowerStats Variables, NPSAS Undergraduates: 2008*, click *by subject* or *by variable name*. The program files that generated the statistics presented in this Brief can be found at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011174.

Label	Name
Aid package by type of aid	AIDTYPE
Assistantships	GRASTAMT
Attendance status	ATTNSTAT
Employer aid	EMPLYAMT
Enrollment delay after bachelor's degree	GRADGAP
Foreign/international students	CITIZEN2
Graduate or first-professional degree program	GRADPGM
Graduate level	GRADDEG
Graduate level and attendance status	GRADSTAT
Graduate level and institution type	PGMSEC
Graduate PLUS loan	GPLUSAMT
Grants	TOTGRT
Institution type	AIDSECTG
Job type	JOBTYPE2
Loans	TOTLOAN
Loan package by type of loan	GLOANSR2
Loans as a percentage of total aid	LOANPCT
Price of attendance	BUDGETAJ
Primary role while enrolled and working (including students with assistantship/work-study jobs)	JOBROLE2
Private loans	PRIVLOAN
Stafford loans	STAFFAMT
Total aid	TOTAID
Work intensity (including work-study/assistantship jobs)	JOBHOUR2

[11] The target population of students was limited to those enrolled in an academic program, at least one course for credit that could be applied toward an academic degree, or an occupational or vocational program requiring at least 3 months or 300 clock hours of instruction to receive a degree, certificate, or other formal award. The target population excluded students who were also enrolled in high school or a high school completion (e.g., GED preparation) program. "Title IV institutions" refers to institutions eligible to participate in federal financial aid programs under Title IV of the Higher Education Act.

study respondents, and the weighted student unit response rates for both levels were 96 percent. Estimates were weighted to adjust for the unequal probability of selection into the sample and for nonresponse.

Two broad categories of error occur in estimates generated from surveys: sampling and nonsampling errors. Sampling errors occur when observations are based on samples rather than on entire populations. The standard error of a sample statistic is a measure of the variation due to sampling and indicates the precision of the statistic. The complex sampling design used in NPSAS:08 must be taken into account when calculating variance estimates such as standard errors. NCES's online PowerStats, which generated the estimates in this report, uses the balanced repeated replication (BRR) method to adjust variance estimation for the complex sample design.

Nonsampling errors can be attributed to several sources: incomplete information about all respondents (e.g., some students or institutions refused to participate, or students participated but answered only certain items); differences among respondents in question interpretation; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data.

For more information on NPSAS:08 methodology, see *2007–08 National Postsecondary Student Aid Study (NPSAS:08) Full-scale Methodology Report* (http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011188).

Item Response Rates

NCES Statistical Standard 4-4-1 states that "[a]ny survey stage of data collection with a unit or item response rate less than 85 percent must be evaluated for the potential magnitude of nonresponse bias before the data or any analysis using the data may be released" (U.S. Department of Education 2002). In the case of NPSAS:08, this means that nonresponse bias analysis could be required at any of three levels: (a) institutions, (b) study respondents, or (c) items. Because the institutional and study respondent response rates were 90 and 96 percent, respectively, nonresponse bias analysis was not required at those levels.

The student interview response rate, however, was 71 percent, and therefore nonresponse bias analysis was required for those variables based in whole or in part on student interviews. In this report, 12 variables required nonresponse bias analysis: AIDTYPE (60 percent), GRASTAMT (71 percent), GRADGAP (70 percent), TOTGRT (61 percent), JOBTYPE2 (52 percent), TOTLOAN (67 percent), GLOANSR2 (67 percent), LOANPCT (51 percent), JOBROLE2 (53 percent), PRIVLOAN (67 percent), TOTAID (60 percent), and JOBHOUR2 (58 percent). For each of these variables, nonresponse bias analyses were conducted to determine whether respondents and nonrespondents differed on the following characteristics: institution sector, region, and total enrollment; student type, sex, and age group; whether the student had Free Application for Federal Student Aid (FAFSA) data, was a federal aid recipient, was a Pell Grant recipient, or borrowed a Stafford Loan; and the amount, if any, of a student's Pell Grant or Stafford Loan. Differences between respondents and nonrespondents on these variables were tested for statistical significance at the 5 percent level.

Nonresponse bias analyses of the variables in this report with response rates less than 85 percent indicated that respondents differed from nonrespondents on 21 to 86 percent of the characteristics analyzed, indicating that there may be bias in these estimates. Any bias due to nonresponse, however, is based upon responses prior to stochastic imputation. The potential for bias in these estimates is tempered by two factors.

First, potential bias may have been reduced due to imputation. Because imputation procedures are designed specifically to identify donors with similar characteristics to those with missing data, the imputation is assumed to reduce bias. While item-level bias before imputation is measurable, such bias after imputation is not, so whether the imputation affected the bias cannot be directly evaluated. Therefore, the item estimates before and after imputation were compared to determine whether the imputation changed the biased estimate, thus suggesting a reduction in bias.

For continuous variables, the difference between the mean before imputation and the mean after imputation was estimated. For categorical variables, the estimated difference was computed for each of the categories as the percentage of students in that category before imputation minus the percentage of students in that category after imputation. These estimated differences were tested for statistical significance at the 5 percent level. A significant difference in the item means after imputation implies a reduction in bias due to imputation. A nonsignificant difference suggests that imputation may not have reduced bias, that the sample size was too small to detect a significant difference, or that there was little bias to be reduced. Statistical tests of the differences between the means before and after imputation for AIDTYPE, TOTGRT, JOBTYPE2, TOTLOAN, GLOANSR2, LOANPCT, JOBROLE2, PRIVLOAN, TOTAID, and JOBHOUR2 were significant, indicating that the nonresponse bias was reduced through imputation. The differences between the means before and after imputation for GRASTAMT and GRADGAP were not significant, indicating that imputation may not have reduced nonresponse bias, that the sample size was too small to detect a significant difference, or that there was little bias to be reduced.

Second, for some composite variables, the components of the variables from which the composites are constructed often constitute a very small proportion of the total variable, attenuating the potential bias introduced by nonresponse. For example, most of the components of TOTAID (total amount of all financial aid received) were obtained from federal databases and institutional records and have very high response rates. Some components of TOTAID, however, are types of financial aid that are often disbursed directly to students and not through institutions (e.g., employer aid and private loans). Because the primary source of information about such types of aid is the student interview, these variables were missing for interview nonrespondents.

In the case of missing information from the student interview, values were stochastically imputed and the imputed values used to construct the composite variables. In the example cited above, both employer aid and private loans were received by relatively few students and were small components of the total. For example, 52 percent of all undergraduates received any grants (TOTGRT), a primary component of TOTAID, and the average among all undergraduates was $2,500. In comparison, 8 percent received any employer aid (EMPLYAM3), with an average among all undergraduates of $200. Therefore, despite the low response rates of these components, any bias they contribute is likely to be minimal.

For more detailed information on nonresponse bias analysis and an overview of the survey methodology, see *2007–08 National Postsecondary Student Aid Study (NPSAS:08) Full-scale Methodology Report* (http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011188).

Statistical Procedures

Comparisons of means and proportions were tested using Student's *t* statistic. Differences between estimates were tested against the probability of a Type I error[12] or significance level. The statistical significance of each comparison was determined by calculating the Student's *t* value for the difference between each pair of means or proportions and comparing the *t* value with published tables of significance levels for two-tailed hypothesis testing. Student's *t* values were computed to test differences between independent estimates using the following formula:

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

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors.

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

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

A second hazard in reporting statistical tests is the possibility that one can report a "false positive" or Type I error. Statistical tests are designed to limit the risk of this type of error using a value denoted by alpha. The alpha level of .05 was selected for findings in this report and ensures that a difference of a certain magnitude or larger would be produced when there was no actual difference between the quantities in the underlying population no more than 1 time out of 20.[13] When analysts test hypotheses that show alpha values at the .05 level or smaller, they reject the null hypothesis that there is no difference between the two quantities. Failing to reject a null hypothesis, i.e., detect a difference, however, does not imply the values are the same or equivalent.

[13] No adjustments were made for multiple comparisons.

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