STATS IN BRIEF

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Merit Aid for Undergraduates

Trends From 1995–96 to 2007–08

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In the 2007–08 academic year,

undergraduates received $62 billion in grant aid from a variety of sources, including postsecondary institutions ($24 billion), the federal government ($22 billion), state governments ($8 billion), and private sources ($8 billion). Slightly more than half (52 percent) of all undergraduates received grant aid, with total grant aid averaging $4,900 per student (Wei and Wun 2009, tables 1 and 2).

Grants may be awarded on the basis of financial need, other factors, or both. Need-based grants are awarded based on students' financial need as determined by the grantor. Non-need-based grants are awarded without any regard to financial need. Often called scholarships, they are awarded most frequently to recognize academic merit, using such criteria as admission test scores or other indicators of academic achievement.[1] A small proportion of them are awarded on the basis of athletic performance or other criteria specified by the grantor. For ease of presentation, all of these non-need-based grants are referred to as "merit aid" in this report. Grants with a merit component but whose recipients must also meet

[1] Federal aid and much of state aid is distributed on a need basis using students' and sometimes their families' financial status as determined by information from the Free Application for Federal Student Aid (FAFSA). Some states also use grade point average or standardized test scores.

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some standard of need are considered need-based. For example, the federal Academic Competitiveness Grant, which requires recipients to meet specific, rigorous academic standards, is considered need-based because recipients must also have low incomes.

While federal grant aid authorized by Title IV of the Higher Education Act has consistently been targeted to low- and moderate-income students, an increasing amount of grant aid from state and institutional sources has been merit-based (Baum and Lapovsky 2006; College Board 2000, 2009a, 2009b; NASSGAP 2009). Researchers have found evidence that merit aid increases postsecondary attendance, improves the quality of high school education, and attracts students to higher education who are more likely to persist (Dynarski 2000; Henry and Rubenstein 2002; Singell and Stater 2006). Some, however, have expressed concern that merit aid diverts resources from a central goal of financial aid policy, increasing access to college (McPherson and Schapiro 1998). They view merit aid as support for many students who would attend college without aid. Some also suggest that merit aid may not further a second important financial aid goal—improving success in college—because merit aid recipients, who generally come from more advantaged backgrounds, would likely have succeeded in its absence (Ehrenberg, Zhang, and Levin 2006; Selingo 2001). This report does not examine the potential positive or negative impacts of merit aid but rather provides descriptive information about who received merit and other types of grant aid.

This Statistics in Brief first examines merit aid and other non-need-based aid from all sources and then focuses on two sources of merit aid widely cited in empirical and policy-oriented literature[2]—postsecondary institutions and states—examining how much merit aid students received and the characteristics of students who received it.[3] It tracks changes in institutional and state merit aid from 1995–96, around the time when many state merit-based programs began, through 2007–08, the latest year for which national data are available.

The report draws on four administrations of the National Postsecondary Student Aid Study (NPSAS), a survey of a nationally representative sample of undergraduates enrolled in U.S. postsecondary institutions that participate in federal student aid programs. It is limited to undergraduates who qualify for state and federal financial aid (i.e., U.S. citizens and eligible noncitizens), who make up 99 percent of undergraduates.

This Statistics in Brief examines merit aid by institution sector, student characteristics, and region. It does so because previous analyses of merit aid have found that its award varies by these factors (Dynarski 2002a, 2002b; Heller 2002). When examining aid awarded to undergraduates, the analyses focus on students who enrolled full time for a full academic year at 4-year institutions, where the majority of grant aid is awarded. The analyses also focus on state and institutional merit aid because these institutions are the main sources of such aid. Federal aid is entirely need-based: the relatively small ACG and SMART grants have a merit component but are available only to Pell-eligible students and therefore classed as need-based. To put the frequency and amount of merit aid in context, data on need-based aid are also provided. Students may receive both merit- and need-based aid, and the estimates presented in this report of the percentage of students who received each type of aid reflect that type only without consideration of other types of aid a student may have received (i.e., the merit and need-based aid groups are not mutually exclusive).

State distribution of merit aid varies by region (Ingle, Cohen-Vogel, and Hughes 2007). Therefore, some region-level estimates are presented to illustrate this variation. State-level representative samples were available for only six states: California, Georgia, Illinois, Minnesota, New York, and Texas. Among these states, Georgia was the first state in the nation to enact a state merit aid program (Ingle, Cohen-Vogel, and Hughes 2007), a program that served as

[2] See, for example, Baum and Lapovsky 2006; Cohen-Vogel et al. 2008; Cornwell and Mustard 2002; Cornwell et al. 2005; Dynarski 2002a; Heller 2002; Heller and Rasmussen 2002; Henry and Rubenstein 2002; Longanecker 2002; Price 2001; Selingo 2001; and Zhang and Ness 2010.

[3] Undergraduates who received merit aid often received other grants as well.

a model for the federal HOPE Scholarship program introduced in 1997. Therefore, a profile of Georgia's program and aid estimates among undergraduates in that state are presented to provide an example of a state merit aid program.

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.[4]

Overview of Grant Aid

Federal

The foundation of federal grant aid for undergraduates is the Federal Pell Grant program. Pell Grant eligibility is based entirely on financial need. The amount for which a student is eligible is determined by a formula that takes into account income, assets, and the number of other members in the family also in college.* Slightly more than a quarter (27 percent) of all undergraduates received a Pell Grant in 2007–08 (Wei 2010, table 3.2-E). Federal Supplemental Educational Opportunity Grants (SEOG) are also available to Pell Grant recipients with exceptional financial need. The Academic Competitiveness Grants (ACG) and National Science and Mathematics Access to Retain Talent (SMART) grants, first awarded in 2006–07, include a merit component but also require students to be Pell-eligible. Both these programs are scheduled to end after the 2010–11 academic year. The Pell Grant program dwarfs the others in size—$15.5 billion in 2007–08 compared with $0.8 billion for SEOGs and $0.5 billion for ACGs and SMART Grants (College Board 2009b).

State

Most state aid is awarded in the form of grants and is based on need. Every state except South Dakota had a need-based grant program in 2007–08. However, 27 states also had programs that made awards based exclusively on academic merit. Of the $8.0 billion that states awarded in grant aid to undergraduates, $5.8 billion was based on need (NASSGAP 2008). Whereas 16 percent of 2007–08 undergraduates received a state grant, 4 percent received one based only on merit (Wei 2010, table 3.3-A).

Institutional

Colleges and universities—especially those in the private nonprofit sector—provide grants to help make up the difference between the price of attendance and what a family is expected to contribute from its own financial resources. Some also provide merit scholarships based on academic achievement or other non-need considerations. In 2007–08, some 20 percent of undergraduates received an institutional grant, and 9 percent received one based solely on merit (Wei 2010, table 3.4-A).

Private

Private organizations and employers provide some students with grants using their own criteria, which may or may not include financial need. Tuition reimbursement by employers is considered private grant aid. The extent to which privately funded grants are based on need or merit is unknown. Thirteen percent of undergraduates in 2007–08 received grants from outside private sources or employers.

* Parents' financial circumstances are considered for dependent students. For independent students, only their own and, if married, their spouse's finances are taken into account. Undergraduates are considered dependent unless they are at least 24 years of age, married, orphans, wards of the court, veterans, on active military duty, or have legal dependents.

[4] 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=2012160.

STUDY QUESTIONS

1. How did the award of merit aid change between 1995–96 and 2007–08, compared with need-based grant aid, and how did the two types of aid change across income groups?
2. What are the characteristics of students who received merit aid in 2007–08?
3. How did merit and need-based institutional aid differ at public and private nonprofit 4-year institutions between 1995–96 and 2007–08?
4. How did state grant aid, both merit and need-based, differ by region in 2007–08?

KEY FINDINGS

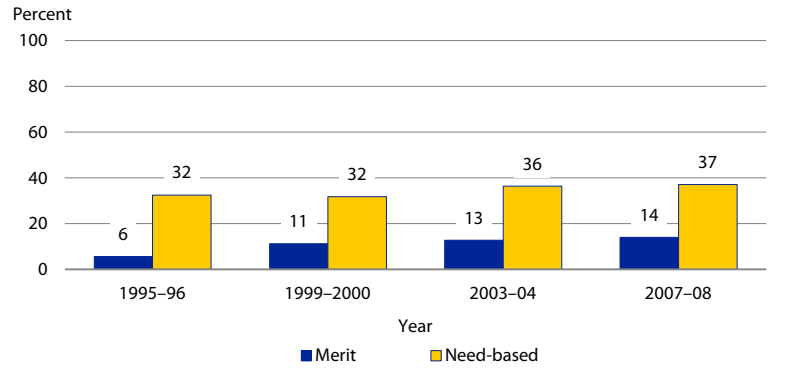
- The proportion of undergraduates receiving merit aid was larger in 2007–08 (14 percent) than in 1995–96 (6 percent); the average amount received was also larger in 2007–08 ($4,700) than in 1995–96 ($4,000) in constant 2007 dollars (figures 1 and 2). The proportion receiving need-based aid was larger in 2007–08 (37 percent) than in 1995–96 (32 percent), and the average amount differed by $400 between 2007–08 ($4,000) and 1995–96 ($3,600) in constant 2007 dollars.
- The proportion of dependent undergraduates receiving any grant aid who were in the high-income group was larger in 2007–08 (18 percent) than in 1995–96 (13 percent) (figure 3).
- In 1995–96, need-based institutional grants were more common than merit-based grants in both private nonprofit (43 percent vs. 24 percent) and public 4-year institutions (13 percent vs. 8 percent) (figure 4). In 2007–08, the proportion of merit aid recipients exceeded that of need-based grant recipients at public institutions (18 percent vs. 16 percent) and was not measurably different at private nonprofit 4-year institutions (42 percent vs. 44 percent). The prevalence of merit aid was higher at private nonprofit 4-year institutions than at public 4-year institutions in both years (24 percent vs. 8 percent in 1995–96 and 44 percent vs. 18 percent in 2007–08).
- Among students at private nonprofit 4-year institutions in 2007–08, those at moderately selective institutions received merit aid more often (56 percent) than their counterparts at both more and less selective ones (35 percent and 28 percent) (figure 6). At public 4-year institutions in 2007–08, the percentage of students receiving merit aid at very selective institutions was lower (13 percent) than that at moderately, minimally, or nonselective institutions (19 percent, 20 percent, and 18 percent, respectively).
- The Southeast had the highest proportion of state merit scholarship recipients (24 percent) of any region in the United States, while the nationwide total was 10 percent (table 2).

1 How did the award of merit aid change between 1995–96 and 2007–08, compared with need-based grant aid, and how did the two types of aid change across income groups?

In 1995–96, some 6 percent of all undergraduates received any kind of merit aid. Eleven percent received any merit aid in 1999–2000, and 14 percent did so in 2007–08 (figure 1). In constant 2007 dollars, the average amount received was $4,700 in 2007–08, compared with $4,000 in 1995–96 (figure 2). In each survey year, the percentage of undergraduates who received merit aid was lower than the percentage with need-based aid, which ranged from 32 percent to 37 percent.

FIGURE 1.

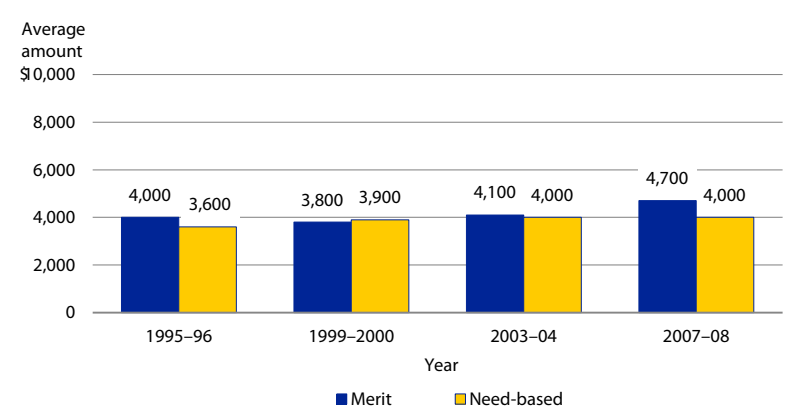
MERIT AND NEED-BASED GRANTS for undergraduates: 1995–96, 1999–2000, 2003–04, and 2007–08



NOTE: Merit and need-based grants are from all sources. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Foreign/international students, who are not eligible for federal aid, are excluded. Merit and need-based aid categories are not mutually exclusive – a student may receive both. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96, 1999–2000, 2003–04, and 2007–08 National Postsecondary Student Aid Studies (NPSAS:96, NPSAS:2000, NPSAS:04, and NPSAS:08).

FIGURE 2.

MERIT AND NEED-BASED GRANTS among undergraduate recipients, average amount received: 1995–96, 1999–2000, 2003–04, and 2007–08



NOTE: Merit and need-based grants are from all sources. Average amounts are inflation adjusted to 2007 dollars. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Foreign/international students, who are not eligible for federal aid, are excluded. Merit and need-based aid categories are not mutually exclusive – a student may receive both. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96, 1999–2000, 2003–04, and 2007–08 National Postsecondary Student Aid Studies (NPSAS:96, NPSAS:2000, NPSAS:04, and NPSAS:08).

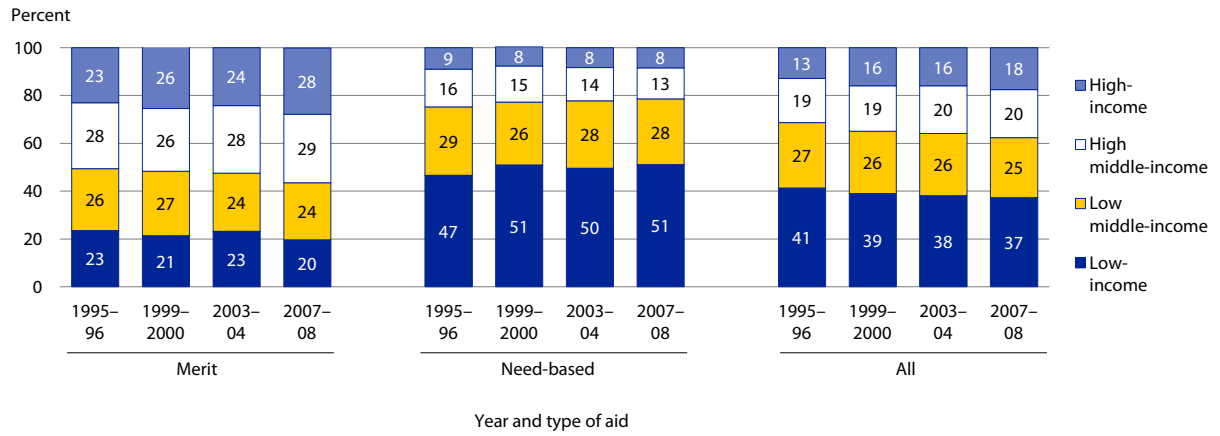
With these changes in the percentage of undergraduates receiving merit aid, the distribution of recipients across income groups (for dependent students) has changed as well. The percentage of recipients receiving merit aid who were high income was larger in 2007–08 (28 percent) than in 1995–96 (23 percent). The percentage who were low income was smaller in 2007–08 (20 percent) than in either 1995–96 (23 percent) or 2003–04 (23 percent) (figure 3).

The distribution of need-based aid recipients across income groups also has changed. The percentage of need-based grant recipients from the lowest income group was higher in 2007–08 than in 1995–96, while the percentage from the high middle-income group was smaller in 2007–08 than in 1995–96.

The net effect of these shifts is a change in the distribution of dependent students who received any grant aid toward students from higher income families. The percentage of all grant recipients (merit and need-based) who were in the lowest income group was higher in 1995–96 (41 percent) than in 2007–08 (37 percent) and the percentage who were in the highest income group was lower in 1995–96 (13 percent) than in 2007–08 (18 percent).

FIGURE 3.

DISTRIBUTION OF GRANT RECIPIENTS BY TYPE OF GRANT AND INCOME LEVEL for dependent undergraduates: 1995–96, 1999–2000, 2003–04, and 2007–08



NOTE: Merit and need-based grants are from all sources. For dependent students, income categories were based upon the distribution of parents' annual income in 1994, 1998, 2002, and 2006. High-income is defined as dependent students' parents with incomes above the 75th percentile; high middle-income is parents with incomes greater than the 50th but less than or equal to the 75th percentile; low middle-income is parents with incomes greater than the 25th but less than or equal to the 50th percentile and low-income is parents with incomes less than or equal to the 25th percentile. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Foreign/international students, who are not eligible for federal aid, are excluded. Merit and need-based aid categories are not mutually exclusive – a student may receive both. Detail may not sum to totals because of rounding. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96, 1999–2000, 2003–04, and 2007–08 National Postsecondary Student Aid Studies (NPSAS:96, NPSAS:2000, NPSAS:04, and NPSAS:08).

2 What are the characteristics of students who received merit aid in 2007–08?

Consistent with the primary purpose of merit aid, indicators of student academic performance were associated with merit aid receipt. About one-third (32 percent) of all students with an SAT combined score of 1300–1600 received any kind of merit aid in 2007–08, compared with about 7 percent of students who scored below 700 (table 1).[5] The pattern was the same for college grade point average (GPA). Receipt of need-based aid was different—the students with the lowest SAT scores received need-based aid more often than did those with moderate to high scores.

In 2007–08, students attending full time received both merit and need-based aid more often than did their counterparts attending part time. About one-quarter (24 percent) of full-time students received merit aid, compared with 7 percent of part-time students, and 48 percent of full-time students received need-based aid, compared with 30 percent of part-time students.

Although dependent students received merit aid more often than independent students did, the opposite was true for need-based aid.

[5] The SAT combined scores are derived as either the sum of SAT I verbal and mathematics scores or the ACT composite score converted to an estimated SAT I combined score. All SAT I scores are provided in a re-centered scale with a maximum of 1600.

TABLE 1.

MERIT AND NEED-BASED GRANTS for all undergraduates and for full-time undergraduates at 4-year institutions: 2007–08

Characteristic	All students		Full-time, 4-year	
	Percent receiving merit	Percent receiving need	Percent receiving merit	Percent receiving need
Total	13.9	37.0	31.9	46.9
Dependency status				
Dependent	21.0	35.5	34.3	43.7
Independent	6.1	38.7	18.3	65.7
Attendance intensity				
Full-time, full-year	24.4	47.7	31.9	46.9
Part-time or part-year	7.3	30.1	†	†
Race/ethnicity[1]				
White	16.4	30.4	35.1	39.8
Black	11.6	52.9	26.9	70.6
Hispanic	8.1	49.7	22.4	66.5
Asian	8.9	35.4	20.5	52.2
Other	11.2	41.2	30.0	54.1
SAT combined score				
0–699	7.3	53.4	18.8	72.1
700–999	13.1	39.9	26.7	52.4
1000–1299	23.8	32.8	37.1	41.8
1300–1600	32.1	32.1	38.2	37.5
College GPA				
Less than 2.0	7.5	38.3	20.1	53.7
2.0–2.99	10.9	38.5	22.1	47.7
3.0 or higher	17.2	35.8	39.2	45.9
Type of institution				
Public 4-year	18.8	34.8	25.0	40.9
Private nonprofit 4-year	36.4	50.9	46.3	59.7
Public 2-year	6.1	27.6	†	†
Private for-profit	4.2	64.7	†	†

† Not applicable.

[1] Black includes African American, Hispanic includes Latino, and Asian includes Pacific Islander. Other includes American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or two or more races.

NOTE: Merit and need-based grants are from all sources. Limited to U.S. citizens or permanent residents. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Foreign/international students, who are not eligible for federal aid, are excluded. Merit and need-based aid categories are not mutually exclusive – a student may receive both. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160.

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

Thirty-nine percent of independent students, whose financial need tends to be greater because they do not have their parents' income to rely on, received need-based aid, and 35 percent or 36 percent of dependent students did.

Receipt of need-based grants reflects the price of attending the institution selected as well as student financial need. Thus, the rate of receipt of need-based aid is highest among students at private for-profit institutions (65 percent) and lowest among those at public 2-year colleges (28 percent). Receipt of merit aid, in contrast, depends on the resources of the institution attended and access to state merit scholarship programs. Undergraduates in 4-year institutions are the main recipients of merit aid: 19 percent of undergraduates in 4-year public and 36 percent at private nonprofit institution received merit aid in 2007–08, compared with 6 percent and 4 percent of students in public 2-year and for-profit institutions, respectively. Therefore, the remaining discussion of merit aid is limited to full-time, full-year students in 4-year public and private nonprofit institutions.

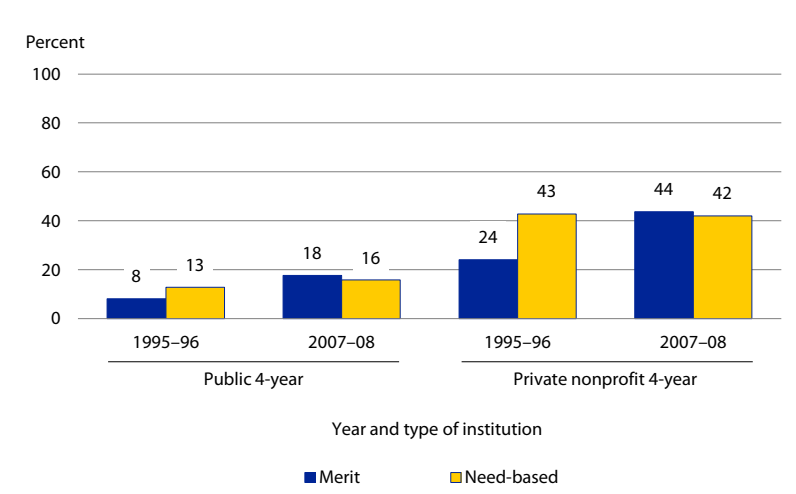
3 How did merit and need-based institutional aid differ at public and private nonprofit 4-year institutions between 1995–96 and 2007–08?

Merit aid can serve institutions' purposes as well as help students. Researchers have found evidence that institutional expenditures on grants improve student retention and graduation rates and have a positive effect on student choice (Gansemer and Schuh 2006; Perna 1998; St. John 1992; Schuh 2000). Institutions can use merit aid to attract high achievers and thus maintain or improve the academic quality of their students relative to those of competing institutions (Brown 2007; McPherson and Schapiro 1994, 1998). In some cases, schools may use merit aid to replace lower ability, high-need students with higher ability, no-need students (Ehrenberg, Zhang, and Levin 2006; McPherson and Schapiro 1998; Schuh 2000). This report does not examine the potential positive or negative impacts of merit aid.

Private nonprofit 4-year institutions awarded merit aid at a higher rate than did public 4-year institutions. In 1995–96, some 8 percent of full-time undergraduates at public 4-year institutions received institutional merit aid and 24 percent of full-time undergraduates at private nonprofit 4-year institutions received merit aid. In 2007–08 those percentages were 18 percent and 44 percent (figure 4).

FIGURE 4.

MERIT AND NEED-BASED INSTITUTIONAL GRANTS AT 4-YEAR INSTITUTIONS for full-time undergraduates: 1995–96 and 2007–08



NOTE: Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Foreign/international students, who are not eligible for federal aid, are excluded. Merit and need-based aid categories are not mutually exclusive – a student may receive both. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 and 2007–08 National Postsecondary Student Aid Studies (NPSAS:96, NPSAS:08).

In public 4-year institutions, the percentage of full-time undergraduates receiving institutional merit aid was higher in 2007–08 (18 percent) than in 1995–96 (8 percent) (figure 4). The receipt of institutional merit aid at private nonprofit 4-year institutions was also higher in 2007–08 (44 percent) than in 1995–96 (24 percent). In addition, while these institutions awarded need-based aid to a larger percentage of undergraduates than they did merit aid in 1995–96 (43 percent vs. 24 percent, respectively), in 2007–08, the percentage of students receiving need-based aid was not measurably different from the percentage receiving merit aid (42 percent and 44 percent, respectively).

In terms of the amounts of aid received at public 4-year institutions, grant aid recipients received larger average amounts in merit than need-based grants in both 1995–96 and 2007–08 (figure 5).[6] Moreover, the average amount of merit aid received in 2007–08 ($4,200) was larger than the amount received in 1995–96 ($3,600) by $600, while the average need-based grant amount was not measurably different ($2,700 and $2,600, respectively).

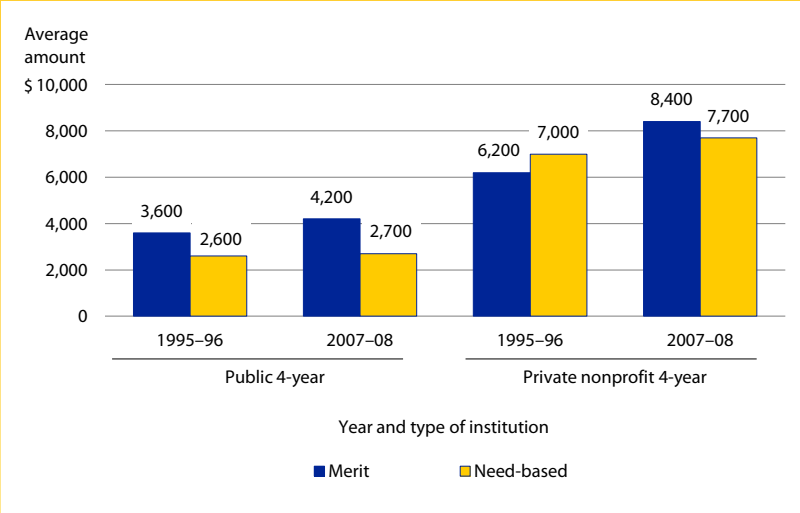
At private nonprofit 4-year institutions in 1995–96, there was no measurable difference between the average need-based grant ($7,000) and merit grant ($6,200). In 2007–08, however, the average merit grant was larger than the average need-based grant ($8,400 vs. $7,700, respectively).

Within each sector, the percentage of students receiving institutional merit aid varied with institutional selectivity, but the patterns were different. In the public sector, the percentage of students who received merit aid was lower at very selective institutions than at moderately selective ones in each year except 2003–04 (figure 6). The percentages receiving merit aid at moderately, minimally, or nonselective institutions were not measurably different in any year.

Among private nonprofit 4-year institutions, the percentage of full-time students who received institutional merit aid was highest each year at moderately selective institutions (figure 6). In 1995–96, some 34 percent of full-time students at these institutions received merit aid, compared with 14 percent of students at very selective institutions and 20 percent of students at minimally selective institutions. In 2007–08, some 56 percent of students at moderately selective institutions received merit aid, compared with 35 percent at very selective institutions and 28 percent at less selective institutions.

FIGURE 5.

MERIT AND NEED-BASED INSTITUTIONAL GRANTS AT 4-YEAR INSTITUTIONS among full-time undergraduate recipients, average amount received: 1995–96 and 2007–08

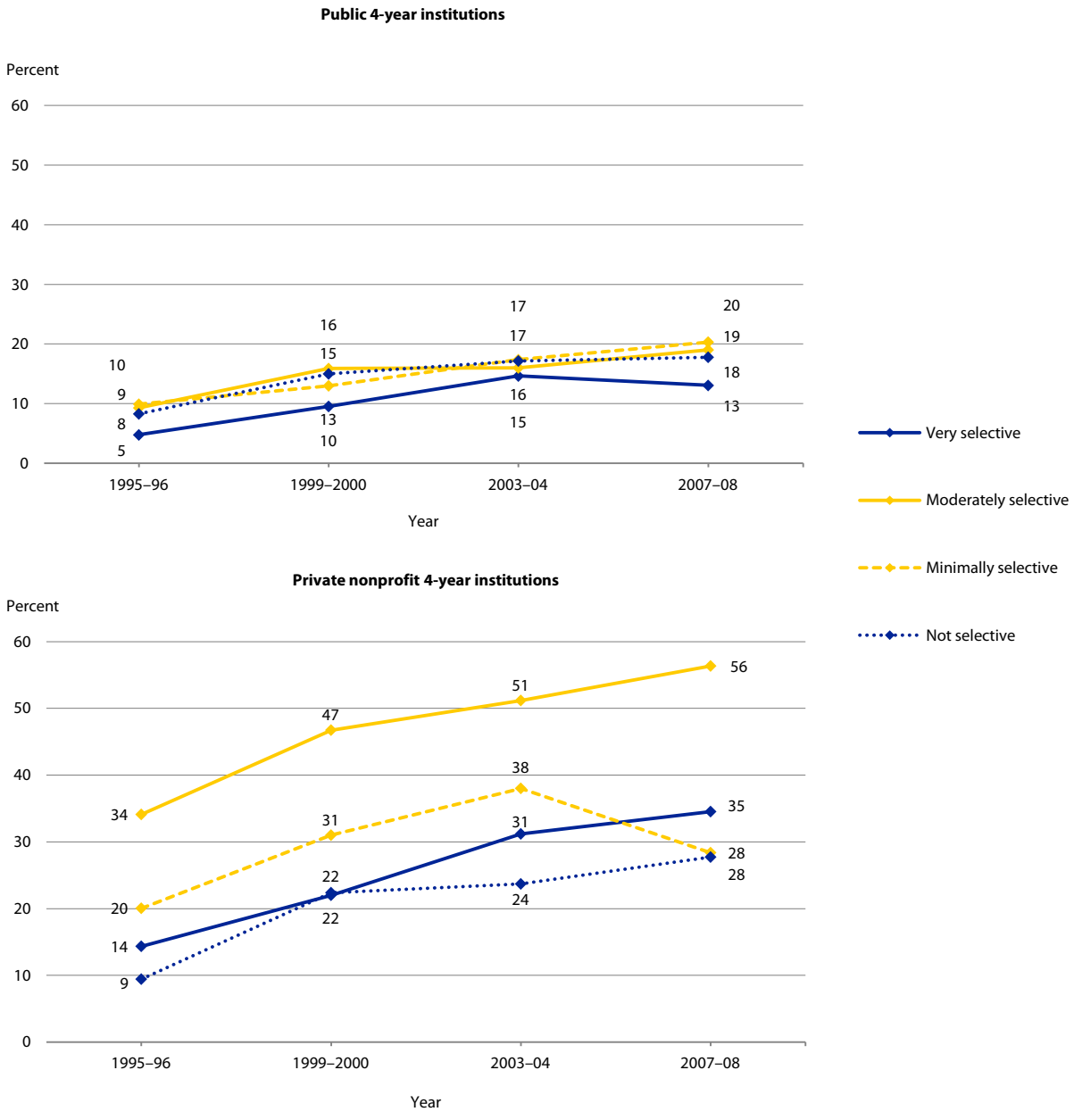


NOTE: Average amounts are inflation adjusted to 2007 dollars. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Foreign/international students, who are not eligible for federal aid, are excluded. Merit and need-based aid categories are not mutually exclusive – a student may receive both. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 and 2007–08 National Postsecondary Student Aid Studies (NPSAS:96, NPSAS:08).

[6] All amounts in constant 2007 dollars.

FIGURE 6.

INSTITUTIONAL MERIT GRANTS AT PUBLIC AND PRIVATE NONPROFIT 4-YEAR INSTITUTIONS BY SELECTIVITY OF INSTITUTION for full-time undergraduates: 1995–96, 1999–2000, 2003–04, and 2007–08



NOTE: All estimates are for institutional non-need-based and merit aid except 1995–96, which is for merit aid only. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Foreign/international students, who are not eligible for federal aid, are excluded. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96, 1999–2000, 2003–04, and 2007–08 National Postsecondary Student Aid Studies (NPSAS:96, NPSAS:2000, NPSAS:04, and NPSAS:08).

4 How did state grant aid, both merit and need-based, differ by region in 2007–08?

Many states distribute merit aid to students based on their academic achievement. The stated goals of such programs generally include one or more of the following: encouraging academic achievement at the secondary and postsecondary levels; boosting college access and attainment (especially for in-state universities); and keeping talented students in the state for college (and thus reducing "brain drain") (Cohen-Vogel et al. 2008; Dynarski 2008; Heller 2002; Ness and Tucker 2008; Zhang and Ness 2010).[7] For example, Georgia has one of the oldest and largest state merit scholarship programs, the HOPE Scholarship program begun in 1993 (see page 13). Of the six states with state-level representation in the student aid survey, Georgia is the only state that had a substantial state merit aid program.

Across all states, among 2007–08 full-time undergraduates at public and private nonprofit 4-year institutions, 22 percent received state need-based grants and 10 percent received state merit aid (table 2). States with grant programs have different criteria for distributing grant aid and sometimes offer multiple grant programs, so the pattern of need-based versus merit grant receipt varies among states.

TABLE 2.

STATE MERIT AND NEED-BASED GRANTS for full-time undergraduates at public and private nonprofit 4-year institutions, and among recipients, average amount received by region: 2007–08

Region	Percentage who received[1]			Average amount received in any state grants
	Any state grants	State need-based grants	State merit grants	
Total	**30.7**	**21.7**	**9.7**	**$3,400**
Southeast (AL AR FL GA KY LA MS NC SC TN VA WV)	41.2	20.9	23.8	3,600
Mid Atlantic (DE DC MD NJ NY PA)	32.5	28.6	3.5	3,400
Great Lakes (IL IN MI OH WI)	28.8	19.5	10.2	3,200
Far West (AK CA HI NV OR WA)	25.5	20.6	2.0	4,700
Southwest (AZ NM OK TX)	25.2	22.4	3.3	3,400
Plains (IA KS MN MO NE ND SD)	21.9	17.5	4.9	2,500
New England (CT ME MA NH RI VT)	21.5	18.5	3.4	2,400
Rocky Mountains (CO ID MT UT WY)	15.4	8.7	7.9	2,300

Significantly higher than the total.

Significantly lower than the total.

[1] Students attending more than one institution were excluded.

NOTE: Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Foreign/international students, who are not eligible for federal aid, are excluded. Merit and need-based aid categories are not mutually exclusive – a student may receive both. Standard error tables are available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160.

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

[7] There is debate about whether merit aid programs are the most effective way to meet these aims (see Avery and Hoxby 2004; Binder, Ganderton, and Hutchens 2002; Cornwell and Mustard 2002; Cornwell, Lee, and Mustard 2005; Cornwell, Mustard and Sridhar 2006; Creech 1998; Dynarski 2002a, 2002b; Groen 2004; Henry and Rubenstein 2002; Long 2002; Longanecker 2002). Some studies have found that not all students benefit equally from the programs. Specifically, students' likelihood of receiving merit awards varies with their race, socioeconomic status, and the socioeconomic status of students in their high schools (Dynarski 2000, 2002a; Heller and Rasmussen 2002;Price 2001; Selingo 2001).

In 2007–08, there were 10 states with substantial merit scholarship programs (i.e., programs that awarded more than half of their aid on the basis of merit), and 6 of these states, including Georgia, were located in the Southeast region.[8] Twenty-four percent of students in that region received merit aid, compared with 10 percent nationwide (table 2). In addition, the Southeast states, the region with the largest number of merit aid programs, also had a larger percentage of students receiving any state grant than did the nation overall (41 percent and 31 percent, respectively).

The average state grant in the Southeast region, $3,600, was not measurably different from the national average of $3,400. Students in the Far West region received the highest average state grant, $4,700 (table 2).

An Example of State Merit Aid: Georgia's HOPE Scholarship

Established in 1993, Georgia's Helping Outstanding Pupils Educationally (HOPE) Scholarship Program is a merit-based scholarship program for Georgia students enrolled at eligible public or private colleges in Georgia. As the oldest and largest state-financed merit-based aid program, the HOPE program was considered an innovative reform in student aid and led 15 other states, including all Georgia's neighboring states, to establish similar programs (Cornwell, Mustard, and Sridhar 2006; Cornwell and Mustard 2002; Ingle, Cohen-Vogel, and Hughes 2007; Severson 2011). Georgia's program was cited as the model for the federal HOPE scholarship tax credit (The Augusta Chronicle 1997; Pianin and Harris 1997). Funded entirely by revenue from the Georgia Lottery for Education, the HOPE program awarded more than 2.3 million students roughly $4 billion in funding between FY 1996 and FY 2008 (Georgia Student Finance Commission n.d.).

To receive a HOPE scholarship in 2007–08, students had to graduate from a Georgia high school with a 3.0 GPA for a college preparatory diploma or a 3.2 GPA for other diplomas. Students could also become eligible after they started college if they earned a 3.0 GPA on 30-, 60-, or 90-semester hours of college degree-level coursework. To maintain eligibility for funding, HOPE Scholars had to have a cumulative GPA of at least 3.0 at the end of each spring term and make satisfactory academic progress as determined by their institution. If a student's GPA dropped below a 3.0, that student could regain his or her HOPE Scholarship by achieving a cumulative GPA of 3.0 with another semester of academic work.

Forty-five percent of full-time students at public or private nonprofit 4-year institutions in Georgia received state merit grants in 2007–08 (table 3). The average amount of these grants was $4,400. In contrast, 9 percent of full-time students at these institutions received state need-based grants, with an average grant of $970. Of dependent, full-time students, 33 percent with low incomes, 51 percent with low middle incomes, 55 percent with high middle incomes, and 49 percent with high incomes received state merit grants. Full-time, 4-year students in Georgia who received a state grant had a higher average college GPA (3.33) than did recipients of state grants nationwide (3.07) (table 4).

[8] A state is considered to have a large merit aid program if more than half of its financial aid is awarded based on merit, according to the National Association of State Student Grant and Aid Programs (NASSGAP) Annual Surveys. In 2007–08, these states were South Dakota, Georgia, Louisiana, Mississippi, South Carolina, Tennessee, Florida, New Mexico, Nevada, and Idaho.

TABLE 3.

GEORGIA MERIT AND NEED-BASED GRANTS for full-time undergraduates at 4-year institutions, and among recipients, average amount received: 2007–08

	Merit		Need-based	
	Percent receiving	Average amount	Percent receiving	Average amount
Total	**44.8**	**$4,400**	**9.3**	**$970**
Dependent student family income				
Low-income	32.7	3,900	12.8	970
Low middle-income	51.4	4,600	10.8	970
High middle-income	55.1	4,600	6.5	960
High-income	49.0	4,700	5.7	980

NOTE: Merit and need-based aid categories are not mutually exclusive—a student may receive both. High-income is defined as dependent students' parents with incomes above the 75th percentile; high middle-income is parents with incomes greater than the 50th but less than or equal to the 75th percentile; low middle-income is parents with incomes greater than the 25th but less than or equal to the 50th percentile and low-income is parents with incomes less than or equal to the 25th percentile. Estimates include students enrolled 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=2012160.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Studies (NPSAS:08).

TABLE 4.

STATE GRANT RECIPIENTS' GPA for full-time undergraduates at 4-year institutions in selected states: 2007–08

State	Average GPA
U.S. Total	3.07
California	2.99
Georgia	3.33
Illinois	2.95
Minnesota	3.18
New York	3.03
Texas	2.91

NOTE: These data include recipients of any type of state grant—merit, need-based, or both. These states, and only these, have state-level representative samples. Estimates include students enrolled 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=2012160.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

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http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012160

More detailed information on financing undergraduate education can be found in two sets of Web Tables produced by the National Center for Education Statistics (NCES) using data from the 2007–08 National Postsecondary Student Aid Study (NPSAS:08). These Web Tables include estimates of tuition, price of attendance, and financial aid shown by the enrollment and demographic characteristics of students and type of institution attended. Additional information on trends in financing undergraduate education, based on data collected in 1995–96, 1999–2000, 2003–04, and 2007–08 can be found in a third set of Web Tables.

Web Tables—Student Financing of Undergraduate Education: 2007–08 (NCES 2010-162). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2010162

Web Tables—Undergraduate Financial Aid Estimates by Type of Institution in 2007–08 (NCES 2009-201) http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009201

Web Tables—Trends in Student Financing of Undergraduate Education: Selected Years 1995–96 to 2007–08 (NCES 2011-218). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011218

Readers may also be interested in the following NCES publication related to the topic of this Statistics in Brief:

Horn, L., and Peter, K. (2003). *What Colleges Contribute: Institutional Aid to Full-Time Undergraduates Attending 4-Year Colleges and Universities* (NCES 2003-157). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003157

TECHNICAL NOTES

Survey Methodology

The estimates provided in this Statistics in Brief are based on data collected through the 1995–96, 1999–2000, 2003–04, and 2007–08 National Postsecondary Student Aid Studies (NPSAS:96, NPSAS:2000, NPSAS:04, and NPSAS:08). NPSAS covers broad topics concerning student enrollment in postsecondary education and how students and their families finance their education. In 1996 and 2000, students provided data through instruments administered over the telephone, and in 2004 and 2008, 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 has been conducted every 3 to 4 years since 1986–87. The NPSAS:96, NPSAS:2000, NPSAS:04, and NPSAS:08 target population includes students enrolled in postsecondary institutions in the United States and Puerto Rico at any time between July 1st and June 30th of the survey year.[9] In NPSAS:2000, NPSAS:04, and NPSAS:08 the population was also limited to students enrolled in Title IV institutions.[10] Table A-1 provides the sizes of the undergraduate and graduate components of the target population.

Table A-1 also lists the institution sampling frames for NPSAS:96, NPSAS:2000, NPSAS:04, and NPSAS:08, which were constructed from contemporary Institutional Characteristics, Fall Enrollment, and Completions files of the Integrated Postsecondary Education Data System (IPEDS). The sampling design consisted

TABLE A-1. Target populations, unweighted number of participating institutions, and unweighted number of study members: NPSAS:96 to NPSAS:08

NPSAS year	Sampling frame	Target undergraduate population (in millions)	Target graduate student population (in millions)	Participating Institutions	Number of undergraduate study members	Number of graduate study members
NPSAS:96[1]	1993–94 IPEDS	16.7	2.8	800	41,500	7,000
NPSAS:2000	1998–99 IPEDS[2]	16.6	2.7	1,000	49,900	11,800
NPSAS:04	2000–01 IPEDS	19.1	2.8	1,400	79,900	10,900
NPSAS:08	2004–05 IPEDS	20.9	3.5	1,700	113,500	14,200

[1] NPSAS:96 was the last survey to include institutions that were not eligible for Title IV funds.
[2] Supplemented by 1996–97 IPEDS Completions file because NPSAS:2000 served as a base year for Baccalaureate and Beyond Longitudinal Study (B&B).
SOURCE: Riccobono, J.A., Whitmore, R.W., Gabel, T.J., Traccarella, M.A., Pratt, D.J., and Berkner, L.K. (1997). *National Postsecondary Student Aid Study, 1995–96 (NPSAS:96) Methodology Report* (NCES 98-073). National Center for Education Statistics, U.S. Department of Education. Washington, DC. Riccobono, J.A., Cominole, M.B., Siegel, P.H., Gabel, T.J., Link, M.W., and Berkner, L.K. (2001). *National Postsecondary Student Aid Study, 1999–2000 (NPSAS:2000) Methodology Report* (NCES 2002-152). National Center for Education Statistics, U.S. Department of Education. Washington, DC. Cominole, M.B., Siegel, P.H., Dudley, K., Roe, D., and Gilligan, T. (2006). *2004 National Postsecondary Student Aid Study (NPSAS:04) Full-Scale Methodology Report* (NCES 2006-180). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC. Cominole, M.B., Riccobono, J.A., Siegel, P.H., and Caves, L. (2010). *2007–08 National Postsecondary Student Aid Study (NPSAS:08) Full-scale Methodology Report* (NCES 2011-188). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

[9] 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.
[10] "Title IV institutions" refers to institutions eligible to participate in federal financial aid programs under Title IV of the Higher Education Opportunity Act of 2008.

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 enrollment during the survey year. Table A-1 includes the approximate number of institutions participating in each of the survey years, and the corresponding weighted institution unit response rates. In NPSAS:08, eligible sampled students were defined as study respondents if at least 11 key data elements were available from any data source. Similar definitions of study respondents were developed for each of the earlier NPSAS administrations. See the methodology reports, listed below, for detailed descriptions of these definitions. The approximate number of undergraduate and graduate students who were study respondents in each survey year is also reported in table A-1.

Table A-2 provides a summary of weighted response rates across NPSAS administrations. There are several types of participation/coverage rates in NPSAS. For the student record abstraction phase of the study (referred to as computer-assisted data entry or CADE), institution completion rates vary across different types of institutions and depend on the method of data submission (field-CADE, self-CADE, and data-CADE). Overall student-level CADE completion rates (i.e., the percentage of NPSAS-eligible sample members for whom a completed CADE record was obtained) are reported in Table A-2 as "Student survey (analysis file)." This table also contains weighted response rates to the student interview (i.e., the percentage of sample members who completed either a full or partial interview ["Student survey (student interview)"]). Estimates were weighted to adjust for the unequal probability of selection into the sample and for nonresponse.

TABLE A-2. Base-weighted response rates for NPSAS surveys: NPSAS:96 to NPSAS:08

Component	Institution list participation rate	Student response rate	Overall[1]
NPSAS:96			
Student survey (analysis file[2])	91	93	88
Student survey (student interview)	91	76	70
NPSAS:2000			
Student survey (analysis file[2])	91	97	89
Student survey (student interview)	91	72	66
NPSAS:04			
Student survey (analysis file[2])	80	91	72
Student survey (student interview)	80	71	56
NPSAS:08			
Student survey (analysis file[2])	90	96	86
Student survey (student interview)	90	71	64

[1] Institution list participation rate times student response rate.
[2] NPSAS analysis file contains analytic variables derived from all NPSAS data sources (including institutional records and external data sources) as well as selected direct student interview variables.
NOTE: The student interview response rates for NPSAS:96 and NPSAS:2000 are for telephone interviews only. The response rates for student interviews in NPSAS:04 and NPSAS:08 include all interview modes (self-administered web-based, telephone, and in-person interviews).
SOURCE: Riccobono, J.A., Whitmore, R.W., Gabel, T.J., Traccarella, M.A., Pratt, D.J., and Berkner, L.K. (1997). *National Postsecondary Student Aid Study, 1995–96 (NPSAS:96) Methodology Report* (NCES 98-073). National Center for Education Statistics, U.S. Department of Education. Washington, DC. Thurgood, L., Walter, E., Carter, G., Henn, S., Huang, G., Nooter, D., Smith, W., Cash, R.W., and Salvucci, S. (2003). *NCES Handbook of Survey Methods* (NCES 2003-603). National Center for Education Statistics, U.S. Department of Education. Washington, DC. Burns, S., Wang, X., and Henning, A. (Eds.) (2011). *NCES Handbook of Survey Methods* (NCES 2011-609). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

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 must be taken into account when calculating variance estimates such as standard errors. NCES's online application 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:96, NPSAS:2000, NPSAS:04, and NPSAS:08 methodology, see the following reports:

- *National Postsecondary Student Aid Study, 1995–96 (NPSAS:96) Methodology Report* (http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=98073)
- *National Postsecondary Student Aid Study 1999–2000 (NPSAS:2000) Methodology Report* (http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2002152)
- *2004 National Postsecondary Student Aid Study (NPSAS:04) Full-scale Methodology Report* (http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006180)
- *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). This means that nonresponse bias analysis could be required at any of three levels: (1) institutions, (2) study respondents, or (3) items.

For more information on response rates and nonresponse bias analysis for selected variables from NPSAS:2000

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*, find the appropriate survey sample and then search for the variables of interest by subject or 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=2012160.

Label	Name
Attendance status	ATTNSTAT
Citizenship status	CITIZEN2
Cumulative college grade point average	GPA
Dependency status	DEPEND
Federal aid eligibility status	T4ELIG (filter for 1995–96 only)
Grants (total)	TOTGRT
Income percentile, dependent students	PCTDEP
Institution sector	AIDSECT
Institution type	SECTOR4
Institutional grants total	INGRTAMT
Institutional need-based grants	INSTNDR (1995–96) and INSTNEED (other years)
Institutional non-need-based and merit grants	INSMERIT (1995–96) and INSTNOND (other years)
Need-based aid (total)	NEEDAIDR (1995–96) and NEEDAID (other years)
Non-need-based aid (total)	TOTNOND1 (1995–96), TOTNOND2 (1999–2000), and TOTNOND3 (2003–04 and 2007–08)
NPSAS institution region	OBEREG
Race/ethnicity	RACE
SAT combined score	TESATDER
Selectivity	SELECTV2
State grants (total)	STGTAMT
State need-based grants	STATNEED
State non-need-based and merit grants	STATNOND

and NPSAS:04, please see the relevant NPSAS methodology report, listed above. For NPSAS:2000, *National Postsecondary Student Aid Study 1999–2000 (NPSAS:2000), CATI Nonresponse Bias Analysis Report* provides additional information.[11] Note that for NPSAS:2000, nonresponse bias analysis for computer-assisted telephone interview (CATI) nonresponse was conducted at the student level and not at the item level. Nonresponse bias analysis was not conducted for NPSAS:96.

For NPSAS:08, the institution and study respondent response rates were 90 percent and 96 percent, respectively, and thus nonresponse bias analysis was not required at those levels. Nonresponse bias analysis is required for variables based in whole or in part on student interviews, however, because 71 percent of sample members responded to the student interview. The following NPSAS:08 variables used in this report had response rates below 85 percent: TOTGRT (61 percent), PCTDEP (55 percent), and TESATDER (75 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, gender, 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 these three variables indicated that respondents differed from nonrespondents on 73 percent to 80 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. 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 these three variables were significant, indicating that the nonresponse bias was reduced through imputation.

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 TOTGRT (total amount of all grants received) were obtained from federal databases and institutional records and have very high response rates. Some components of TOTGRT, however, are types of grants that are often disbursed directly to students and not through institutions (e.g., employer aid). 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, employer aid was received by relatively few students and was a small compo-

[11] This publication can be retrieved from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=200203.

nent of the total. For example, 52 percent of all undergraduates received any grants (TOTGRT) and the median among all undergraduates was $300. In comparison, 8 percent received any employer aid (EMPLYAM3), with a median among all undergraduates of $0. Therefore, despite the low response rate of this component, any bias it contributes 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.

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.

[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.

[13] No adjustments were made for multiple comparisons.

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