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Institutional Need-based and Non-need Grants: Trends and Differences Among College and University Sectors

By Donald E. Heller and
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This study uses data from the National Postsecondary Student Aid Survey to analyze the use of need-based versus non-need financial aid awarded by colleges and universities in 1989 and 1995. Descriptive and trend analyses were used to examine differences in the use of these types of aid among varying institutional types, and to examine how financial aid awards have changed for full-time undergraduate students from different income backgrounds.

Financial assistance for college students has existed in this country almost as long as higher education itself. Wick (1997), McPherson and Schapiro (1998), and Holtschneider (1997) describe how a number of colleges established scholarships during the colonial era and in the early part of the 19th century. The earliest scholarships were often awarded based on the academic merit of individual students, with some consideration given to financial need (Hauptman, 1990).

This practice was carried on into the 20th century largely by the private elite colleges and universities, most of whom were located in the northeastern region of the United States. Recognizing the inequities of this system, and with no common method for determining financial need, 95 of these private institutions banded together in 1954 to establish the College Scholarship Service (CSS) as part of the College Entrance Examination Board. CSS developed a formula for institutions to share to help determine financial need. Armed with this and the recognition of the inequities of merit-based aid, most private institutions shifted their awarding of scholarships to a system based on financial need.

Historically, public institutions have relied upon general state appropriations to hold down tuition prices and ensure an affordable college education for all. Beginning in the 1980s, however, public tuition prices began to rise at rates far in excess of both inflation and growth in family incomes in the United States. Although public tuition prices at both 4-year institutions and community colleges fell in real terms in the late 1970s, they rose at an annual rate of 4.3% and 3.2% respectively in real dollars in the 1980s, a period when median family incomes grew at a rate of only 1% per year (Heller, 1997). The situation worsened in the first half of the 1990s, when real tuition rates

at public institutions grew over 6% annually, and family incomes grew less than 0.5% per year (Heller, 1997). In response to these changes, many of these institutions increased their spending on financial aid awarded from their own funds. Table 1 shows the increase in expenditures in three categories at public and private colleges and universities in the United States. Between fiscal years 1989 and 1995, total expenditures per student increased less than 40% at both categories of institution. Spending on scholarships from all sources increased 67% at public institutions and 76% at private institutions, while spending on financial aid from institutional sources increased 114% and 104%, respectively.¹

TABLE 1
Change in Spending per Student (Current Dollars)
FY 1989 to FY 1995

Institutional Control	Total Expenditures per Student	Total Scholarship Expenditures per Student	Institutional Scholarship Expenditures per Student
Public	34.4%	67.2%	114.1%
Private (non-profit)	38.7%	76.4%	103.7%
Total	35.7%	71.1%	104.2%

Source: Authors' calculations from National Center for Education Statistics (various years-a and various years-b).

This study uses data from the National Postsecondary Student Aid Study (NPSAS), conducted for the National Center for Education Statistics (NCES), to answer the following research questions:

- How did the awarding of need-based versus non-need grants change between 1989 and 1995?
- How have these changes affected the awarding of grants to students from different income groups?
- How has the use of these types of grants changed for different types of institutions?

The NPSAS surveys are a nationally representative sample of institutions and students enrolled in colleges and universities, and thus present a rich resource for examining national trends in the awarding of need-based and non-need financial aid.

Related Research

There has been little recent empirical research on the use of non-need grants awarded from institutional funds. A decade ago

¹ The IPEDS surveys do not collect data separately for undergraduate and graduate financial aid expenditures. However, there was little public or institutional policy change regarding the provision of financial aid for graduate education during this time period to account for such a large increase in spending (relative to overall expenditure increases). Thus, it seems fair to conclude that a major portion of the increase was due to increases in the provision of institutional financial aid for undergraduates.

Baum and Schwartz (1988) examined the use of merit aid in the students sampled in the High School and Beyond Survey of 1980. They found that while the majority of financial aid was still being awarded based on financial need, "at the margin, however, the system allocates aid to meritorious students" (p. 132). Ehrenberg and Murphy (1993) examined the provision of financial aid by elite colleges and universities in light of the Justice Department's investigation and subsequent lawsuit against the Overlap Group of colleges that met annually to compare financial aid awards for admitted students (*United States of America v. Brown University, et al.*, 1992). The authors concluded that "financial aid policies based solely on need at selective private colleges and universities in the United States are likely to be nearing their end" (p. 72). Wick (1997) reviewed research conducted since the 1970s that examined the distribution of institutional aid between need-based and non-need components, but only one of these studies used nationally-representative samples of institutions and students (and very limited information was provided from that study). McPherson and Schapiro (1994 and 1998) studied this trend, but their work examined the phenomenon at earlier time periods and with limited subsets of institutional types. Anecdotal stories about individual institutions (i.e., "Cornell Drifts Closer to Awarding Merit Scholarships," 1996; Gose, 1996; Shea, 1996) indicate that more institutions may be using merit aid as a way of recruiting certain types of students, or at the least, the practice is attracting more widespread media attention.

Methodology

Data Sources

The NPSAS surveys were conducted for NCES during four academic years (1986-87, 1989-90, 1992-93, and 1995-96). The 1989-90 and 1995-96 survey data were analyzed for this study to track the changes over time in the use of need-based versus non-need financial aid.² The purpose of NPSAS is to provide information on how students across the United States pay for college, including data about financial aid awards. In each of the NPSAS years, data were collected for a stratified national sample of undergraduate and graduate students from over 800 institutions. There were approximately 47,000 and 41,000 undergraduate respondents for the two collection years, respectively, used in this study. To be eligible for inclusion in the NPSAS study, students needed to be enrolled in courses or programs leading to college credit, an award, or a degree.

In each of the NPSAS years, student financial aid and other information was collected from institutional records, as well as from surveys of students and their families. The over

² The 1986-87 survey did not have reliable measures for the awarding of need-based versus non-need aid. For clarity of presentation, "1989" will be used to represent the 1989-90 survey, and "1995" to represent the 1995-96 survey.

800 colleges and universities were from nearly every institutional type: public, private non-profit, and proprietary; less-than-two-year, two-year, and four-year; and nearly every Carnegie classification. For more information about NPSAS see the methodology reports produced for each survey year (NCES, 1992; NCES, 1997).

In certain instances, relevant institutional information not contained in the NPSAS data sets were obtained from the Integrated Postsecondary Education Data System (IPEDS) surveys, also maintained by NCES.

Measures

The NPSAS data sets contain numerous variables measuring need-based and non-need financial aid awards from a variety of sources (state government, federal government, private, and institutional). This study focuses on the variables contained in each data set that measure need-based and non-need grants awarded from institutional funds. In each data set, grants that are based solely on the determination of merit or other circumstances not related to financial need are categorized as *institutional non-need grants*. Such awards include grants and scholarships for academic, artistic, athletic, and other forms of merit. *Institutional need-based grants* are awards that are based on financial need, but that may include a non-need component.

The data sets also include important information about the institution at which a student is enrolled (e.g., tuition costs and institutional type) as well as information about students' financial status (e.g., dependency status and family income). These measures will be used to determine if the trends in awarding need-based versus non-need grants vary by institutional type and family income.

The sample of students used in the present study included students from public and private four-year institutions. Students from proprietary schools were excluded since the use of financial aid at these institutions is less prevalent and generally motivated by factors other than those found at more traditional institutions of higher education. A further limitation placed on the sample was that only students from the research, doctoral, comprehensive, and liberal arts Carnegie classifications were included, excluding students from specialty institutions such as: theological seminaries; schools of art, music, and design; and schools with programs exclusively in the health professions or technology and engineering. Only full-time dependent students were included in the samples, as these students represent the population of interest for this study.

The final limitation placed upon the sample was to exclude students who received an athletic scholarship, a form of non-need grant. Athletic scholarships differ from most other non-need awards in that they tend to be larger and can drastically affect the other forms of financial aid received by a student. Generally, the use of athletic scholarships is limited to institu-

tions who are members of Divisions I and II of the National Collegiate Athletic Association (NCAA) and is regulated by the NCAA and athletic conferences. Their inclusion in the analysis could mask changes in other forms of non-need aid. Consequently, it is desirable to eliminate these scholarships from an analysis of non-need awards.

The estimated means and populations presented in the next section (and standard errors in the Appendix) were calculated taking into account the sampling weights and stratification schema in each of the NPSAS surveys. For more information, see National Center for Education Statistics (1992, 1997).

Trends in Awarding Need-based and Non-need Grants

Trends Across All Four-Year Institutions

This section addresses the changes in the awarding of institutional need-based and non-need grants at four-year institutions from 1989 to 1995. In general, the number of awards and the average size of awards increased over these years. Increases varied substantially by award type, students' family income level, and institutional type.

For the purposes of this study, students were divided into low, middle, and high income categories. Low income students were from families whose incomes were in the lowest quartile of family incomes, middle income students were from the two middle quartiles, and high income students were from the top quartile.³

According to the NPSAS data, the total number of full-time dependent students attending four-year institutions in the United States decreased 3% between 1989 and 1995, from 4,003,992 to 3,892,092. In contrast, the number of students receiving any type of institutional grant (shown in panel 1 of Table 2) increased 29%, from 846,583 to 1,089,770, indicating that the proportion of all students who received an institutional grant increased during this period. Table 2 also presents the number of grants, and the average size of each, for all students and for students from each of three income groups who received: 1) any type of institutional grant; 2) a need-based grant; or 3) a non-need grant.⁴ The size of the average grant received increased

³ Family incomes were from the year prior to the NPSAS survey. The income groups (in current dollars) were:

	1988	1994
Low income	Less than \$21,832	Less than \$25,047
Middle income	\$21,832 to \$60,000	\$25,047 to \$72,462
High income	Above \$60,000	Above \$72,462

⁴ Students who received a need-based grant may also have received a non-need grant, and vice-versa. The difference between the number of grants of any type, and the sum of the need-based and non-need grants, represents the overlap of students who received both a need-based and non-need grant. For the need-based and non-need panels, the mean amounts shown are for that type of grant only. For the panel of students receiving any grant, the means represent the sum of need-based and non-need grants.

TABLE 2
Institutional Grant Awards at All Four-Year Institutions

	Number of Grants			Mean Grant Amount		
	1989	1995	Change	1989	1995	Change
Students Receiving Any Grant						
Low income	249,136	288,583	16%	\$2,529	\$4,191	66%
Middle income	477,519	606,374	27%	2,665	4,494	69%
High income	119,928	194,813	62%	2,833	4,108	45%
All income groups	846,583	1,089,770	29%	2,649	4,345	64%
Students Receiving Need-based Grants						
Low income	202,644	254,269	26%	\$2,567	\$3,930	53%
Middle income	353,348	516,378	46%	2,737	4,125	51%
High income	77,112	152,441	98%	2,956	3,657	24%
All income groups	633,104	923,088	46%	2,709	3,994	47%
Students Receiving Non-need Grants						
Low income	69,104	55,910	(19%)	\$1,590	\$3,760	136%
Middle income	178,176	157,285	(12%)	1,715	3,781	121%
High income	51,261	59,661	16%	2,181	4,069	87%
All income groups	298,541	272,856	(9%)	1,766	3,840	117%

Note: Standard errors for the mean grant amount estimates can be found in Appendix Table A-1.

64%, from \$2,649 to \$4,345, with the largest increase going to students from middle income families.⁵

The increase in the number of students receiving awards is attributable to a substantial increase in the number of need-based grants awarded, shown in panel 2 of Table 2. The total number of students receiving these grants increased 46% from 1989 to 1995. While the number of grants increased for all income groups, the increase in the number of high income students receiving these grants (98%) was more than double that of middle income students (46%), and almost four times that of low income students (26%). The number of students receiving non-need grants decreased 9% overall. The number of awards to high income recipients increased 16% while the number of recipients decreased for low and middle income students (19% and 12%, respectively).

The amount of the average need-based and non-need award increased within each income category from 1989 to 1995, and the mean non-need grant increased at a greater rate than the mean need-based grant for each income group. As a result,

⁵ Between the 1989-90 and 1995-96 academic years, the Consumer Price Index increased 21.7% and the Higher Education Price Index increased 23.1% (NCES, 1999, Table 38).

while the mean non-need grant in 1989 across all income categories (\$1,766) was only two-thirds the amount of the average need-based award (\$2,709), by 1995 the two had achieved near parity (\$3,840 non-need and \$3,994 need-based). Within income categories, the largest increase in the average amount of need-based and non-need grants occurred for low income students (53% and 136%, respectively) followed by middle income students (51% and 121%) and then high income students (24% and 87%). While high income students saw the largest increases in the number of institutional grants they received, low income students saw the largest increases in the amount of their mean need-based and non-need awards.

Increases in the numbers of award recipients and the average amount of the awards resulted in increased spending by institutions on these types of awards. Overall, spending at four-year institutions on need-based grants to dependent students increased 115% from approximately \$1.72 billion in 1989 to \$3.69 billion in 1995. Non-need grant spending increased 99% from \$0.53 billion in 1989 to \$1.05 billion in 1995.

The increases in spending were not spread evenly across income levels. In 1995, 145% more was spent on need-based grants for high income students than in 1989, as compared to increases of 120% and 92% for middle and low income students, respectively. Similarly, the total amount spent on non-need grants increased at a higher rate for high income students (117%) and lower rates for middle income (95%) and low income (91%) students.

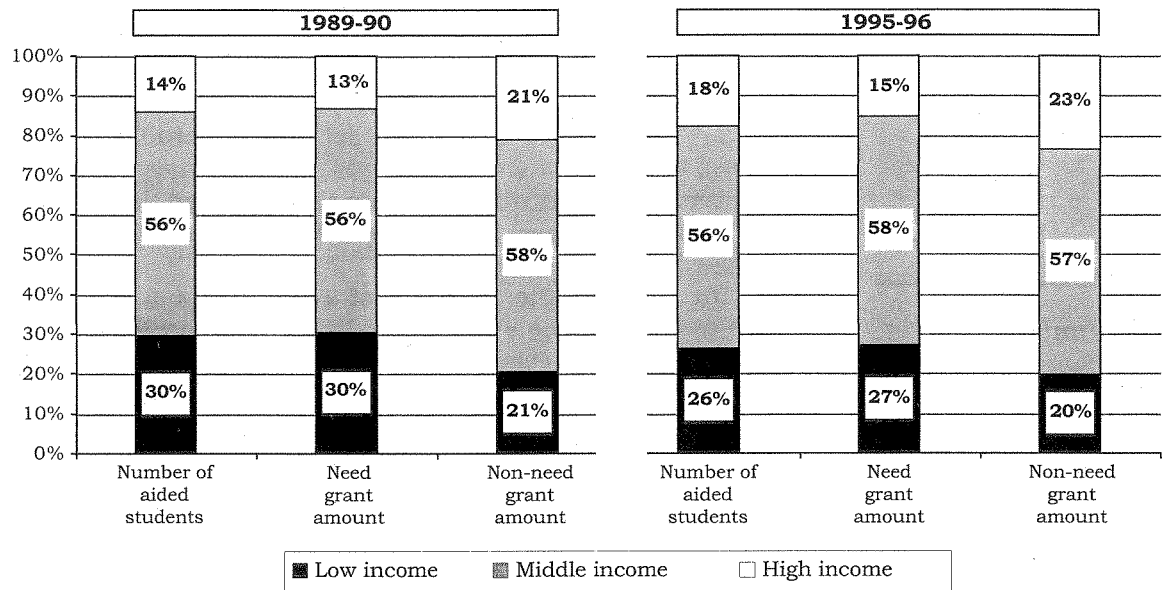
Figure 1 illustrates how the differences in the rates of increase for the totals spent on each type of award changed the distribution of the dollars granted to the different income groups. The first column of each panel shows the distribution of all students who received any institutional grant award. The second column shows the distribution of total need-based grant dollars, and the third column shows the distribution of non-need grant spending. Presented is the representation of students from each income group among all institutional grant recipients, along with each income group's share of the total grant dollars of each type awarded. High income students, who represented 14% of all grant recipients in 1989, received 21% of the non-need grant dollars awarded. Low income students saw a drop in their representation among all grant recipients from 1989 to 1995, as well as a decrease in their share of the total dollars received for both need-based and non-need grants.

Trends in Different Types of Institutions

The trends described in the previous section vary when you examine particular types of institutions. Table 3 shows the number of need-based and non-need awards, and the average size of each, for each of the three income groups in public

“Beginning in the 1980s, public tuition prices began to rise at rates far in excess of both inflation and growth in family incomes in the United States.”

FIGURE 1
Distribution of Grant Spending - All Institutions



institutions.⁶ While the number of need-based grants increased by at least 50% for each income group, the number of non-need awards decreased for each. Average grant amounts increased for every group, although the mean need-based award increased at a faster rate than the mean non-need award. The largest growth in the average grant amount (both need-based and non-need) was among the lower income groups, although the largest average grants (need and non-need) went to students in the highest income group.

The period from 1989 to 1995 saw more of an emphasis on the use of non-need grants in private institutions (Table 4), as compared to the pattern in public institutions. Although the number of need-based grants awarded by private institutions grew for all income groups, the growth was not as rapid as at the public institutions. The number of non-need grants awarded grew for both the middle and high income groups (the number awarded to low income students declined 11%), while public institutions saw a decrease in the number of non-need grants for students from all income groups. The growth rate in the number of awards at private institutions, both need-based and non-need, increased as the income brackets increased, with high income students seeing the fastest growth in the number of awards of both types.

⁶ Data on the number of and mean amount for grants of any type for Tables 3 - 5 are available from the authors.

TABLE 3
Institutional Grant Awards at Public Institutions

	Number of Grants			Mean Grant Amount		
	1989	1995	Change	1989	1995	Change
Students Receiving Need-based Grants						
Low income	79,621	127,889	61%	\$1,006	\$2,148	114%
Middle income	116,298	192,896	66%	1,118	1,983	77%
High income	17,942	45,621	154%	1,223	2,182	78%
All income groups	213,861	366,406	71%	1,085	2,065	90%
Students Receiving Non-need Grants						
Low income	29,059	19,966	(31%)	\$1,122	\$2,250	101%
Middle income	77,967	44,316	(43%)	1,225	2,026	65%
High income	16,168	16,032	(1%)	1,637	2,315	41%
All income groups	123,194	80,314	(35%)	1,255	2,139	71%

Note: Standard errors for the mean grant amount estimates can be found in Appendix Table A-1.

TABLE 4
Institutional Grant Awards at Private Institutions

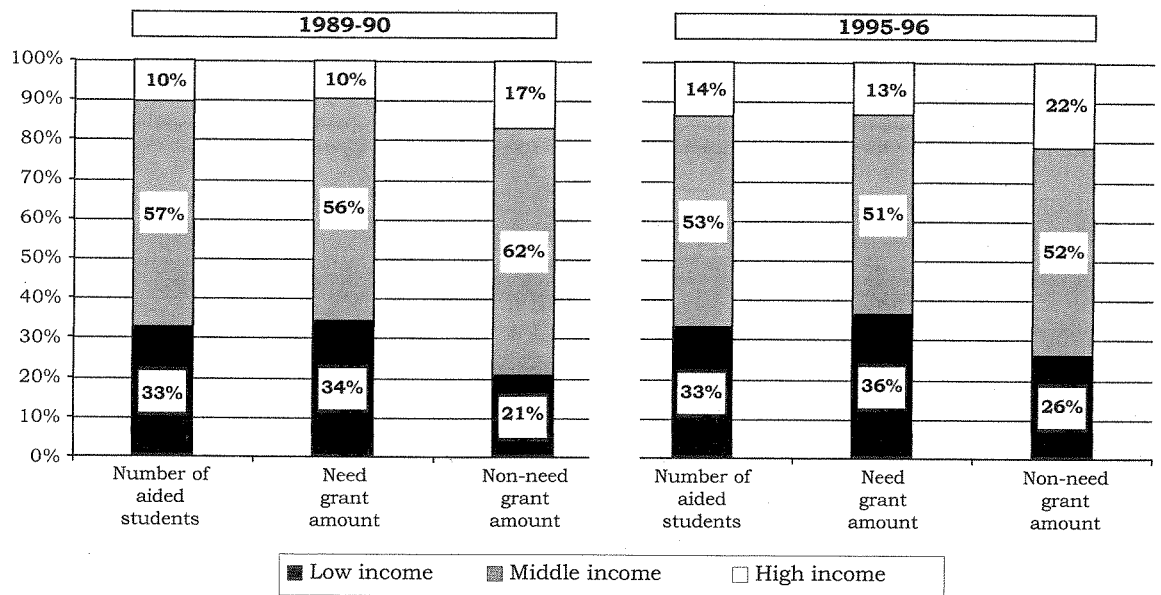
	Number of Grants			Mean Grant Amount		
	1989	1995	Change	1989	1995	Change
Students Receiving Need-based Grants						
Low income	123,023	126,380	3%	\$3,577	\$5,733	60%
Middle income	237,051	323,482	37%	3,531	5,403	53%
High income	59,170	106,820	81%	3,482	4,288	23%
All income groups	419,244	556,682	33%	3,538	5,264	49%
Students Receiving Non-need Grants						
Low income	40,045	35,944	(10%)	\$1,930	\$4,599	138%
Middle income	100,209	112,969	13%	2,097	4,470	113%
High income	35,093	43,629	24%	2,432	4,713	94%
All income groups	175,347	192,542	10%	2,126	4,549	114%

Note: Standard errors for the mean grant amount estimates can be found in Appendix Table A-1.

For each income group in private institutions, the amount of the average non-need grant grew faster than did the average need-based grant amount. While the size of the average need-based grant grew faster in public institutions, the size of the average non-need grant grew faster in private institutions. Although high income students were awarded the smallest need-based grants on average, they received the largest non-need awards.

Figure 2 shows the distribution of institutional grant spending among the three income groups at public institutions in 1989 and 1995. Low income students received a slightly disproportionate share of all need-based grant dollars awarded in both years, with their share of the total increasing from 34% in 1989 to 36% in 1995. The non-need dollars, however, flowed disproportionately to high income students in both years. Both high income and low income students increased their share of non-need dollars in 1995 at the expense of middle income students (who saw their share of non-need dollars decrease from 62% to 52%).

FIGURE 2
Distribution of Grant Spending – Public Institutions

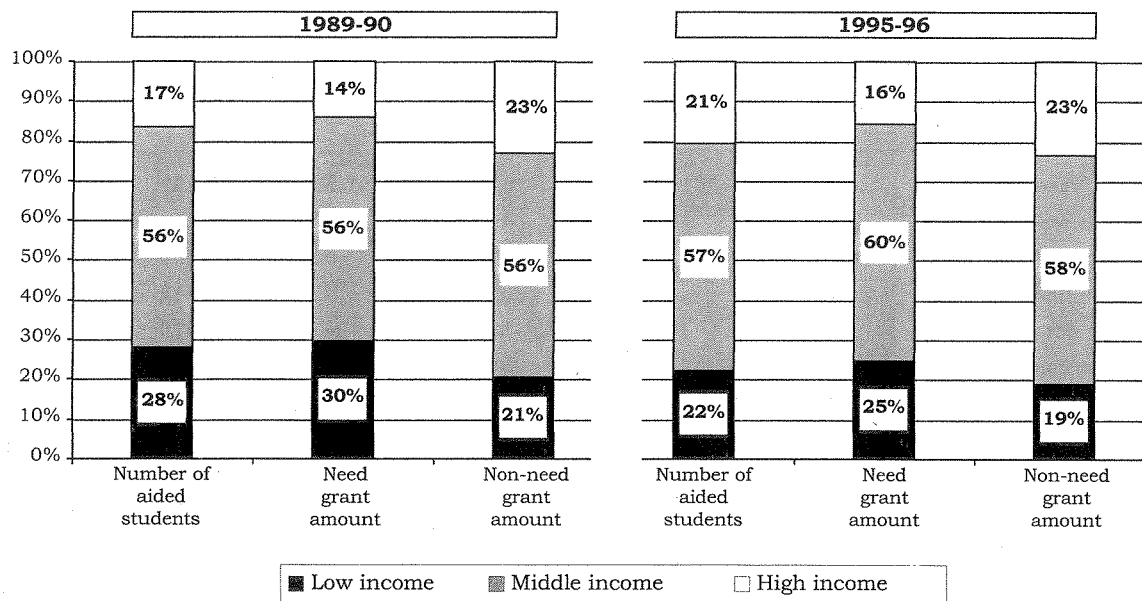


The pattern in private institutions (shown in Figure 3) is similar, with low income students receiving a disproportionate share of the need-based grant dollars, and upper income students receiving a disproportionate share of non-need grant dollars.

Table 5 shows the number of grants and average size by Carnegie classification and control.⁷ The number of need-based

⁷ There are very few public liberal arts institutions, so for this classification we combined public and private into one group, but created separate categories for liberal arts I and liberal arts II institutions. Liberal arts I institutions award 40% or more of their baccalaureate degrees in liberal arts disciplines and are more restrictive in their admissions criteria. Liberal arts II institutions award fewer than 40% of their degrees in liberal arts disciplines and are less restrictive in admissions. For more information, see Carnegie Foundation for the Advancement of Teaching (1999). Tests of significance of the differences in the mean awards among institutional types are available from the authors.

FIGURE 3
Distribution of Grant Spending – Private Institutions



awards increased in every institutional type except private doctoral institutions, and the largest growth was among public research (87%) and doctoral (83%) universities. Public research and doctoral institutions also saw the largest growth in the size of the average need-based award. In contrast to the increase in the number of need-based awards, the number of non-need grants decreased in four of the eight types of institutions. For all but one of the classifications with an increase in the number of non-need awards, that increase was less than the growth in the number of need-based awards. The size of the average non-need award increased in every category, with the largest increases among the liberal arts and comprehensive institutions.

Figure 4 shows the total dollars spent on need-based and non-need awards in each year. The institutions included in these Carnegie classifications spent a total of \$2.24 billion on institutional grants of both types in 1989 and \$4.73 billion in 1995, an increase of 111%. Need-based grants increased from \$1.72 billion to \$3.69 billion (115%), while non-need grant spending increased from \$0.53 billion to \$1.05 billion (99%). The largest percentage increase in overall spending was in public doctoral institutions, whose spending increased 287%. The smallest increase was in private doctoral institutions, where spending increased 5%. Total grant spending in every other type of institution increased by at least 70% during this period. When comparing total spending across different categories, it is im-

TABLE 5
Institutional Grant Awards by Carnegie Classification

Carnegie Classification and Control	Number of Grants			Mean Grant Amount		
	1989	1995	Change	1989	1995	Change
Need Grants						
Public research	105,838	198,215	87%	\$1,279	\$2,393	87%
Private research	60,155	86,458	44%	6,359	8,516	34%
Public doctoral	28,605	52,399	83%	956	2,456	157%
Private doctoral	55,625	44,679	(20%)	4,325	5,512	27%
Public comprehensive	65,732	101,730	55%	931	1,373	47%
Private comprehensive	113,717	145,639	28%	2,429	4,316	78%
Liberal arts I	91,700	127,289	39%	4,499	6,667	48%
Liberal arts II	111,713	166,679	49%	1,608	2,907	81%
Non-need Grants						
Public research	58,814	32,994	(44%)	\$1,411	\$ 2,263	60%
Private research	17,550	22,728	30%	4,551	6,658	46%
Public doctoral	13,187	15,482	17%	1,051	1,988	89%
Private doctoral	18,263	12,970	(29%)	2,380	3,973	67%
Public comprehensive	45,556	22,335	(51%)	1,158	2,435	110%
Private comprehensive	52,610	52,171	(1%)	1,959	3,969	103%
Liberal arts I	27,611	42,357	53%	2,392	5,150	115%
Liberal arts II	64,650	71,819	11%	1,311	3,618	176%

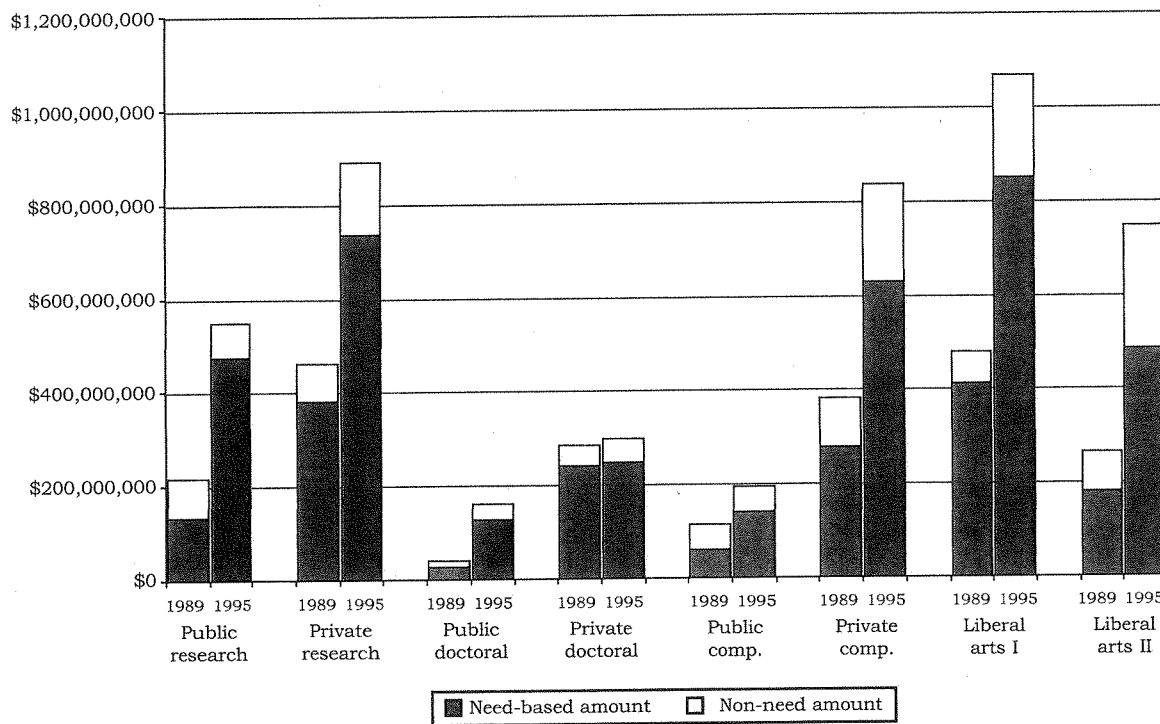
Note: Standard errors for the mean grant amount estimates can be found in Appendix Table A-2.

portant to note that there are large differences in the number of institutions (and enrolled students) across categories.

Another pattern evident in Figure 4 is that the proportion of grant spending dedicated to non-need awards increased from 1989 to 1995 in private doctoral, liberal arts I, and liberal arts II institutions. The other categories saw decreases in this proportion, with the largest decreases in public colleges and universities, driven primarily by the large increases both in the number and average amount of need-based awards in these institutions in 1995 (detailed in Table 5).

Another measure of how institutions use their institutional grant dollars is to compare the mean need-based and non-need grants. Figure 5 shows the mean non-need grant as a percentage of the average need-based grant award. Two patterns are evident: 1) public institutions tend to award larger non-need grants relative to need-based grants than do most types of private institutions; and 2) in most types of institutions, the mean non-need grant grew relative to the average need-based grant between 1989 and 1995.

FIGURE 4
Total Dollars Spent on Need-based and Non-need Grants

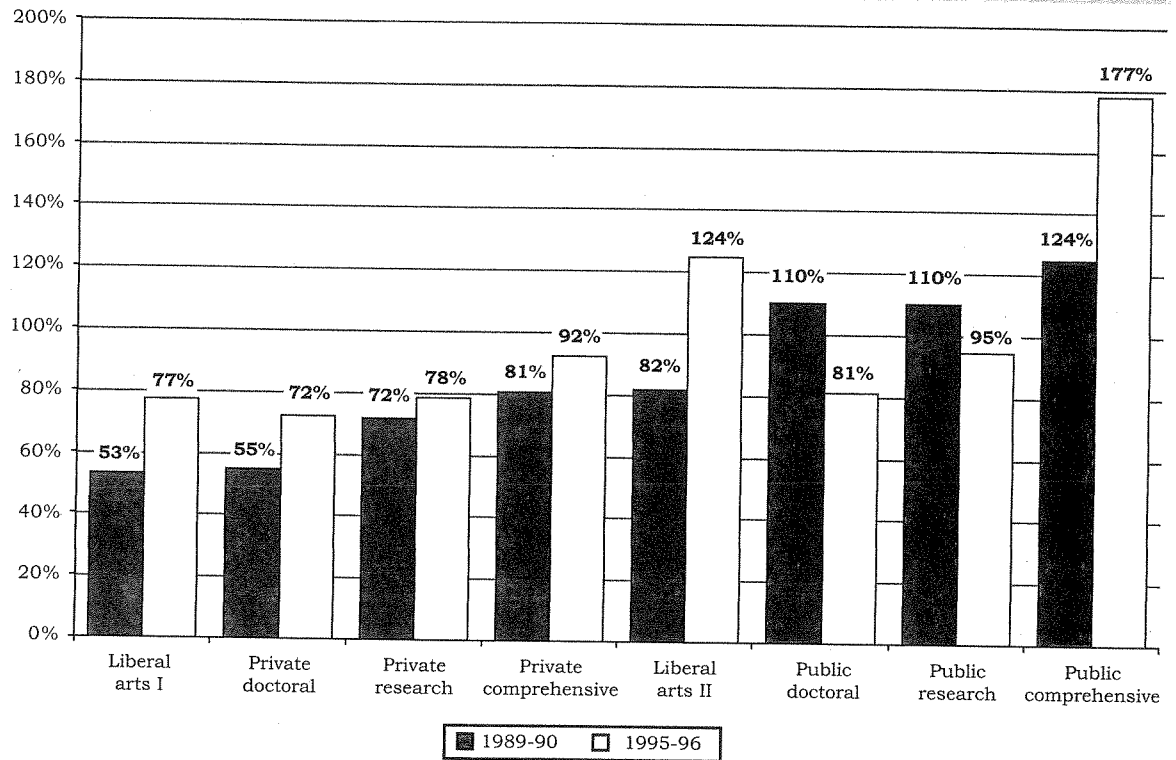


Discussion and Conclusions

The period from 1989 to 1995 saw important changes in how institutions award need-based and non-need grants, and these changes varied at different types of institutions and for students from different income categories. In all four-year institutions, the number of need-based grant awards grew faster than the number of non-need awards, while the average amount of the non-need grant awards grew faster. Institutions have more flexibility in deciding who will receive a non-need grant, in contrast to need-based grants, most of which adhere to the federal need analysis methodology or a close approximation of it. This trend may indicate that institutions in 1995 were using their non-need grants more strategically for enrollment management purposes (e.g., while they were awarding fewer non-need grants, they were awarding larger ones to try to influence the enrollment of desirable students). This pattern was particularly evident at private institutions, as shown in Table 4, where for every income group, the increase in the average non-need award was more than twice the rate of need-based awards. In addition, these institutions increased the number of non-need grants they awarded to all income groups other than low income students.

Another interesting trend is that the growth in the

FIGURE 5
Average Non-need Grant as a Percentage of Average Need-based Grant



number of need-based awards was largest among high income students, for whom the number of these awards grew at a rate three times that of low income students. This indicates that institutions were beginning to shift their need-based awards up the income ladder, awarding more grants proportionally to high income students in 1995 than in 1989. The largest growth in the number of need-based grant awards was at public institutions, confirming the trend described in the introduction as these institutions began to award financial aid to students from their own funds to compensate for the large tuition increases in the early 1990s.

Seven of the eight types of institutions among the Carnegie classifications included in this study increased both the number and average size of need-based grants between 1989 and 1995; there were large differences in the rate of change. The amount of the average non-need grant grew fastest at the liberal arts and comprehensive institutions (both categories of which are comprised overwhelmingly of private institutions) while the number of these awards grew more slowly than the number of need-based awards (or decreased). This indicates that

these institutions may be more prominently using non-need grants for the enrollment management purposes described in the news accounts cited earlier.

In public institutions, the percentage of total grant spending distributed to non-need awards decreased from 1989 to 1995. The decreases among public institutions were driven by the aforementioned increases in both the number and mean amount of need-based grants. These changes may indicate a policy shift by these institutions to use their own resources to supplement other need-based financial aid, such as Federal Pell Grants and state scholarship awards, to compensate students for the large tuition increases during this period. Private institutions, which had slower rates of tuition growth in the 1990s, saw smaller changes in the distribution of grant spending between need-based and non-need.

Although overall spending shifted proportionally towards need-based grants, the mean non-need award grew relative to need-based awards in six of the eight Carnegie types. This trend again indicates that institutions may be using non-need grants more strategically to support the enrollment management goals of attracting particular types of students.

This study is only the first attempt to compare the use of need-based and non-need grants by colleges and universities in the United States. Further research by the authors will include an examination of the racial patterns in the awarding institutional aid, as well as multivariate analyses of the NPSAS data sets to examine the relationship between different types of financial aid packages and type of institution attended.

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APPENDIX TABLE A-1
Standard Errors for Tables 2, 3, and 4

Standard Error of Mean Grant Amount

	Table 2		Table 3		Table 4	
	All Institutions		Public Institutions		Private Institutions	
	1989	1995	1989	1995	1989	1995
Students Receiving Any Grant						
Low income	\$166	\$278	-	-	-	-
Middle income	143	210	-	-	-	-
High income	164	204	-	-	-	-
All income groups	138	200	-	-	-	-
Students Receiving Need-based Grants						
Low income	\$193	\$306	\$86	\$176	\$265	\$503
Middle income	169	231	88	138	219	332
High income	210	210	149	263	237	260
All income groups	167	220	66	119	215	324
Students Receiving Non-need Grants						
Low income	\$127	\$287	\$207	\$286	\$162	\$377
Middle income	109	233	123	217	171	259
High income	174	307	459	330	154	324
All income groups	99	213	130	185	144	239

APPENDIX TABLE A-2
Standard Errors for Table 5

	<u>Standard Error of Mean Grant Amount</u>	
	1989	1995
Students Receiving Need-based Grants		
Public research	\$109	\$168
Private research	409	547
Public doctoral	93	335
Private doctoral	890	558
Public comprehensive	91	94
Private comprehensive	155	358
Liberal arts I	387	1,041
Liberal arts II	132	252
Students Receiving Non-need Grants		
Public research	\$187	\$277
Private research	690	1,041
Public doctoral	186	327
Private doctoral	281	589
Public comprehensive	241	355
Private comprehensive	234	256
Liberal arts I	251	305
Liberal arts II	129	464