

Findings from

THE CONDITION OF EDUCATION 1995

NO.

6

# THE COST OF HIGHER EDUCATION



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**U.S. DEPARTMENT OF EDUCATION**

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## THE COST OF HIGHER EDUCATION

Many important questions about higher education are related to its cost. Is higher education a good investment for students? Is higher education affordable to students from middle income families? Is higher education accessible to students from low income families? Is higher education a good value? How are the costs of higher education shared between students, their families, and government?

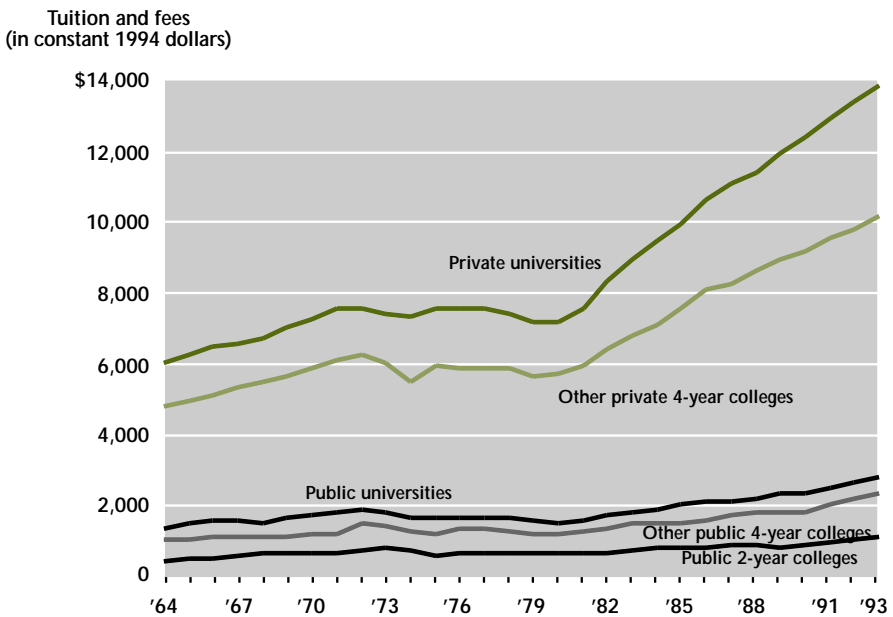
These questions are interrelated with some highly publicized issues. For instance, reports of tuition charges of \$20,000 or more have raised fears that college has become unaffordable. Some believe that federal financial aid policy should help more people finance their education. Others argue that too much federal financial aid is provided in the form of loans as opposed to grants. Further, as governments face increased pressure on their budgets, public higher education institutions have had to cope with smaller appropriations and are relying more on tuition as a source of revenue. Finally, average faculty salaries have recently been rising faster than inflation, but only after much of their purchasing power was eroded during the high inflation years of the 1970s.

Some of the statistical evidence concerning these questions and issues is summarized in this sixth publication in the series of *Findings from The Condition of Education*. Outlined below is a discussion of how changes in higher education revenue and expenditure are related to institutional enrollments, tuition and fee charges, and student financial aid, as well as the overall value of a higher education degree.

- Tuition and fees have increased at all types of higher education institutions over the last decade.

The cost of higher education to students has a direct impact on access, so that increases in cost are understandably of great concern to students, parents, and education policymakers. In the 1970s, tuition and fee charges remained relatively stable. Between 1980 and 1990, tuition charges increased at all types of higher education institutions.

### Average undergraduate tuition and fee charges at colleges and universities: 1964 to 1993



SOURCE: Institutional Characteristics Survey.

Tuition and fees in constant dollars grew at a rate of 3.1 to 5.6 percent per year between 1980 and 1990, depending on the type of institution. On the other hand, median family income did not keep pace with inflation. It fell in constant dollars from \$42,500 in 1980 to \$40,500 in 1993.<sup>1</sup> Since 1990 the rate of increase at public

institutions has been greater than that at private institutions or than it was previously. For example, at public universities, the annual rate of increase was 4.3 percent between 1980 and 1990, but 6.2 percent between 1990 and 1993.

**Average annual rate of increase in tuition and fees**  
(in constant dollars)

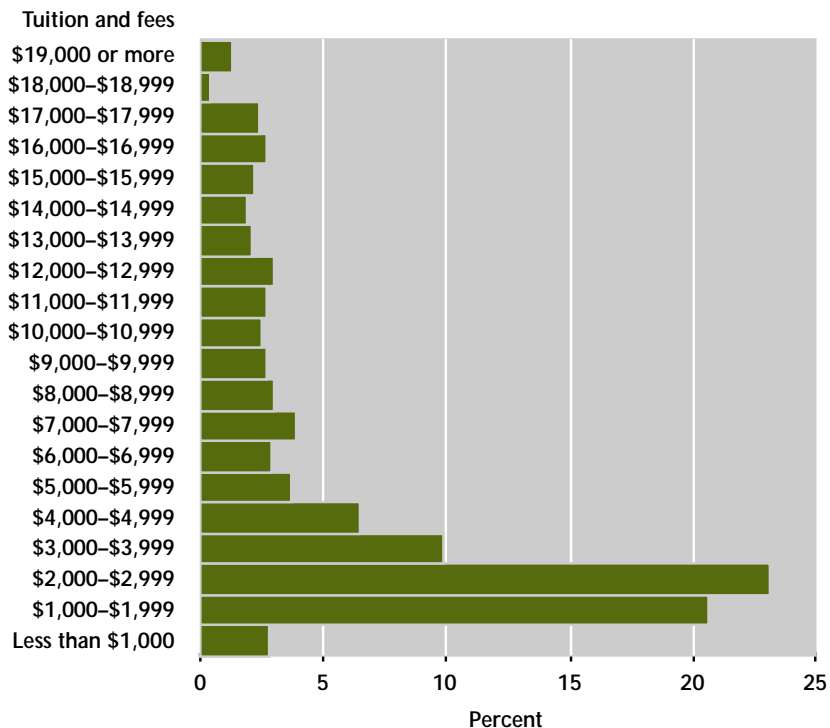
Type and control of institution	Academic years beginning		
	1980-90	1990-93	1980-93
Public		(percent)	
Universities	4.3	6.2	4.7
Other 4-year colleges	4.3	8.3	5.2
2-year colleges	3.1	7.4	4.1
Private			
Universities	5.6	3.6	5.1
Other 4-year colleges	4.8	3.5	4.5
2-year colleges	4.1	1.4	3.5

SOURCE: NCES, IPEDS Institutional Characteristics Survey.

When considering the possible effects of rising tuition charges on student access to higher education, it is important to keep in mind which types of institutions most students attend. In the fall of 1993, four out of five students in higher education were attending public institutions, which tend to have much lower tuition than private institutions. Also, only one in four of the students attending private institutions were attending universities where charges tend to be higher than those at other private 4-year colleges.<sup>2</sup>

Although college costs have escalated, in the 1992-93 academic year, most full-time, full-year undergraduates faced relatively low tuition and fee charges. Nearly one-half (47 percent) of undergraduates attending 4-year colleges and universities faced tuition and fee charges of less than \$3,000 per year, and nearly three-fourths (73 percent) paid less than \$8,000 per year. However, approximately one in five undergraduates did pay tuition of \$10,000 or more.<sup>3</sup>

**Distribution of tuition and fee charges  
to full-time, full-year undergraduate students  
attending 4-year colleges and universities: 1992-93**



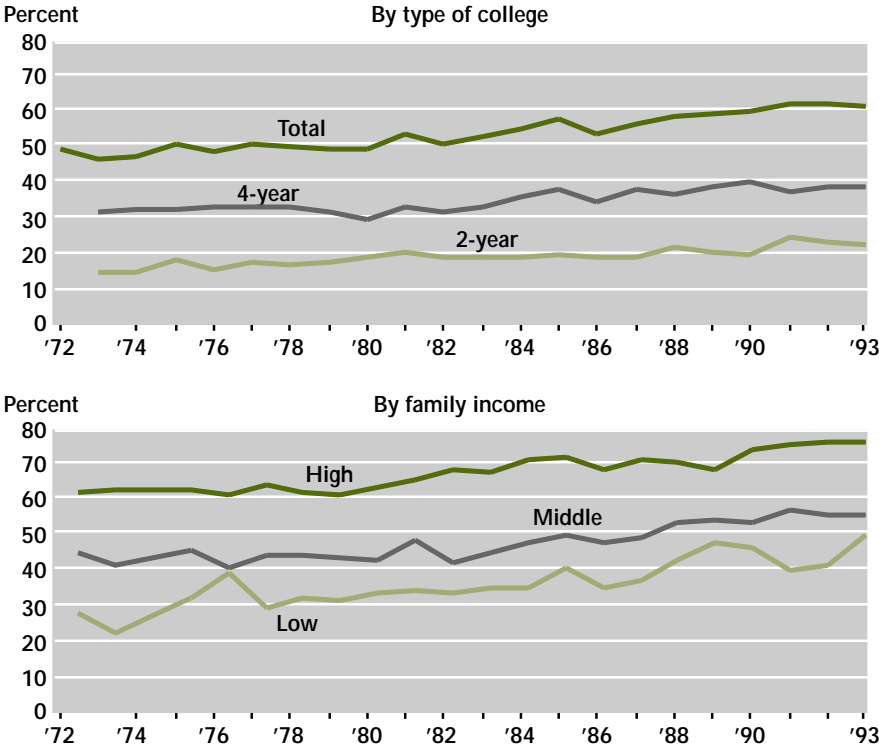
SOURCE: NCES, National Postsecondary Student Aid Survey.

- **Rising tuition charges appear to have little impact on students' higher education enrollment decisions.**

Despite increasing tuition charges, college-going rates have continued to rise. Overall the rates of recent high school graduates continuing on to higher education immediately following high school have climbed from 49 percent in 1980 to nearly 62 percent in 1993. Moreover, there is no evidence that students are switching to lower cost 2-year colleges. Between 1980 and 1993, the

percentage who enrolled in 2-year colleges did not rise very much: it climbed from 19 percent in 1980 to 20 percent in 1990 to 22 percent in 1993. Enrollment rates among low income families, who may be more affected by rising college tuition, also increased over the period, rising from 33 percent in 1980 (including both 4-year and 2-year colleges) to 47 percent in 1990, and 50 percent in 1993. However, only 50 percent of high school graduates from low income families went directly to college compared with 79 percent of graduates from high income families in 1993.

**Percentage of high school graduates enrolling in college immediately after high school: 1972 to 1993**



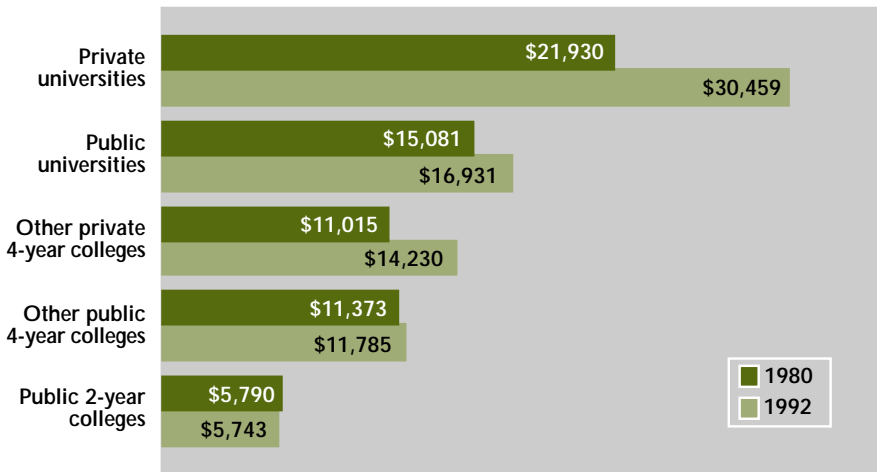
SOURCE: Bureau of the Census, October Current Population Surveys.

# HIGHER EDUCATION REVENUE

- Tuition and fee income has increased as a source of revenue in most types of higher education institutions.

With the exception of public 2-year colleges, average revenue per FTE student (in constant dollars) increased at all types of higher education institutions between 1980 and 1992. At private institutions, the increase was particularly dramatic. Over the period, revenue per FTE student increased from almost \$22,000 to \$30,500 at private universities, and from \$11,000 to \$14,200 at private 4-year colleges.

**Revenue per full-time-equivalent (FTE) student**  
(in constant 1994 dollars)



SOURCE: NCES, HEGIS and IPEDS Finance Surveys.

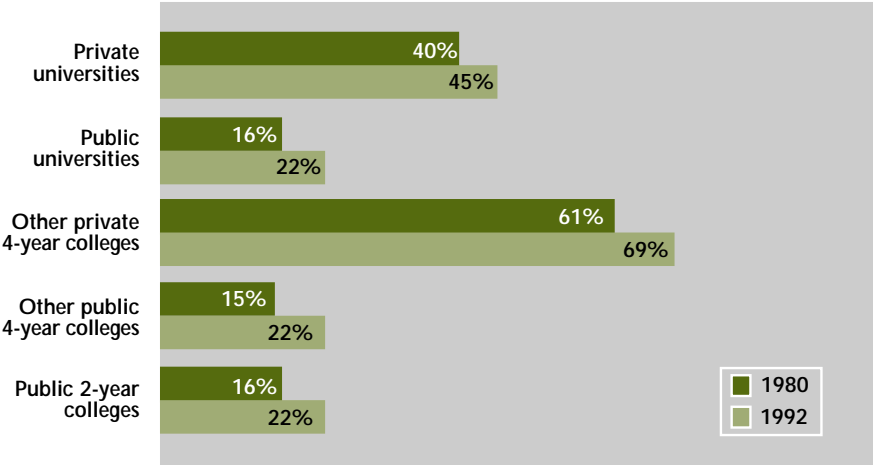
While revenue per FTE student increased or remained stable, government appropriations per FTE student fell (in constant dollars and as a percentage of total revenue). For public institutions, which rely heavily on government appropriations, the



decline was particularly large. For example, between 1980 and 1992, government resources fell in public 4-year colleges from \$7,600 to \$6,500 per FTE student, and from 67 percent to 55 percent of total revenue. Even with significant declines in government appropriations per FTE student, increases in tuition and other revenues meant that total revenue per FTE student in public institutions increased or remained stable.

The result of increasing tuition charges and declining government appropriations is that between 1980 and 1992 the share of revenue from tuition and fees increased at all types of institutions. Tuition and fees at public universities, expressed as a percentage of total revenue, increased from 16 percent in 1980 to 22 percent in 1992. At private institutions, which rely more heavily on tuition revenue, the share of revenue also increased. For example, at private universities, tuition and fee revenue climbed from 40 percent of total revenue in 1980 to 45 percent in 1992.<sup>4</sup>

**Tuition revenue as a percentage of total revenue**



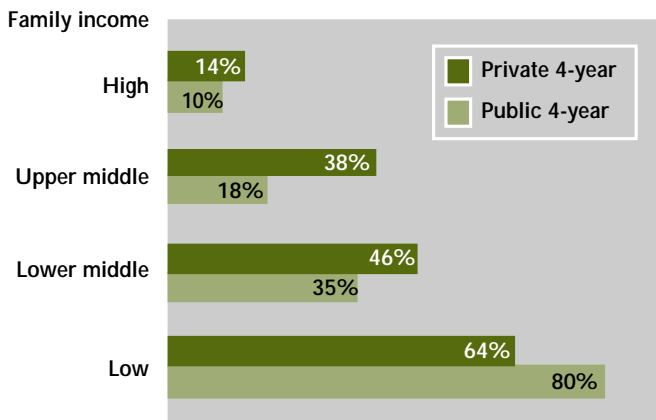
SOURCE: NCES, HEGIS and IPEDS Finance Surveys.

## STUDENT FINANCIAL AID

- Student financial aid, particularly from federal sources, defrays some of the cost to students of attending college.

During the 1992–93 academic year, the average amount of grant aid given to dependent full-time students attending public 4-year institutions was 29 percent of the average tuition charged them.<sup>5</sup> In effect, students received, on average, a 29 percent discount on tuition charges. Because the amount of grant aid is larger for students from low income families, this percentage was higher for students from such families (80 percent) than for students from high income families (10 percent).

### Average grant aid as a percentage of average tuition charged for dependent full-time undergraduates: 1992–93



SOURCE: National Postsecondary Student Aid Study: 1992–93.

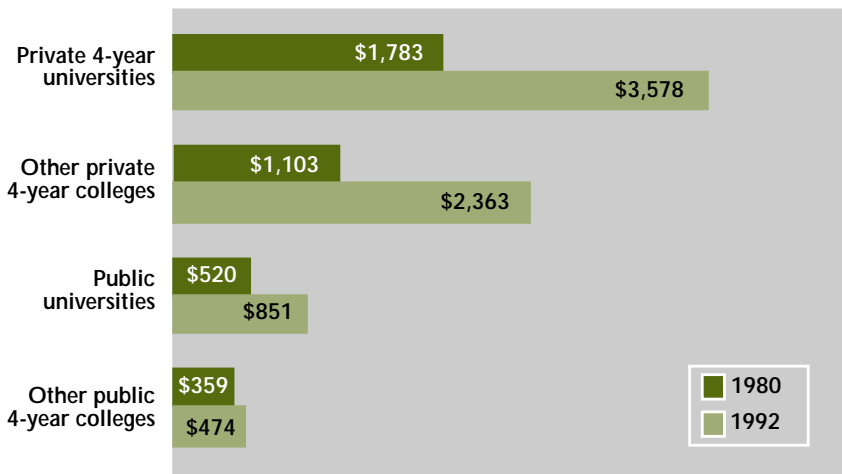
For those attending private 4-year colleges and universities, the patterns were similar. However, for students from low income families attending private 4-year institutions, the average

amount of grant aid received was a smaller percentage of their average tuition charges than for their counterparts attending public 4-year institutions (64 percent versus 80 percent).

- Most types of higher education institutions have increased the amounts they spend on scholarships and fellowships.

Institutions may use scholarship and fellowship awards to offset tuition and fee charges for students who might not attend without a reduction in tuition. Since 1980, private universities and other private 4-year colleges have at least doubled the amount of institutional aid awarded to students. While the amounts awarded at public institutions were lower, institutional support from public universities increased substantially.

**Institutional expenditure per FTE student  
for scholarships and fellowships**  
(in constant 1994 dollars)



SOURCE: NCES, HEGIS and IPEDS Finance Surveys.

## EXPENDITURES BY HIGHER EDUCATION INSTITUTIONS

- Expenditures per FTE student increased at most types of higher education institutions, but the percentage they increased varies widely.

Expenditures per FTE student increased only moderately between 1980 and 1992 at public institutions. For example, per student expenditures increased from about \$14,800 to about \$17,200 in constant dollars (about 16 percent) at public universities. At public 2-year colleges, expenditures rose and fell during the 1980s, but were at a similar level in 1992 as in 1980—about \$5,700. In contrast, expenditures rose substantially at private institutions, increasing from \$22,500 to \$32,200 (about 43 percent) at private universities, and from \$11,200 to \$15,000 (about 34 percent) at other private 4-year colleges.

**Expenditures per FTE in higher education**  
(in constant 1994 dollars)

Type and control of institution	1980	1992	Percent change since 1980
Private universities	\$22,529	\$32,242	43
Public universities	14,829	17,246	16
Other private 4-year colleges	11,213	15,029	34
Other public 4-year colleges	11,002	11,654	6
Public 2-year colleges	5,759	5,686	-1

SOURCE: NCES, HEGIS and IPEDS Finance Surveys.

- Expenditures for instruction per FTE student rose more slowly than total expenditures at most types of institutions.

Instruction is the largest category of expenditure for higher education institutions, but only at 2-year colleges does it reach half of all expenditures. Instructional costs per FTE student rose more slowly than total expenditures at most types of institutions. The exceptions were private universities and public 2-year colleges, where instruction was a similar share of total expenditures in both 1980 and 1992.

**Instructional spending as a percentage of total institutional expenditures**

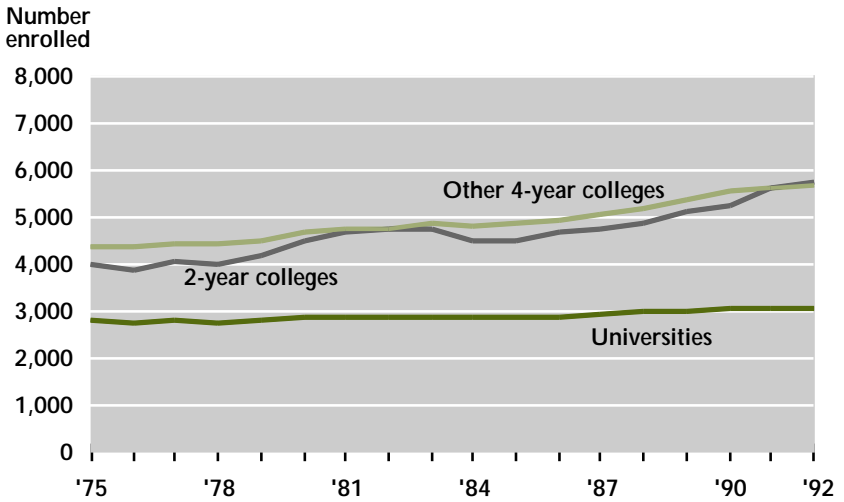
Type and control of institution	1980	1992	Change in share since 1980
Private universities	37.9	38.2	0.3
Public universities	38.8	36.0	-2.8
Other private 4-year colleges	36.7	33.1	-3.6
Other public 4-year colleges	44.9	43.2	-1.7
Public 2-year colleges	50.3	50.3	0

SOURCE: NCES, HEGIS and IPEDS Finance Surveys.

- Expenditures per FTE student are related to complex interactions among demographic, institutional, and economic factors.

As the large baby boom cohorts finished college, the size of high school graduating classes fell from 3.2 million in 1977 to 2.5 million in the early 1990s. While graduating classes were getting smaller, enrollments at higher education institutions only leveled off during the first half of the 1980s and then continued increasing. Universities were the exception, where enrollment grew very little between 1980 and 1992.<sup>6</sup>

### Total fall enrollment in institutions of higher education: 1975 to 1992



SOURCE: NCES, Fall Enrollment in Colleges and Universities and IPEDS, Fall Enrollment surveys.

Although student enrollment growth slowed during the 1980s, the number of staff employed in higher education increased. The result of the two trends was that the number of FTE staff per 100 FTE students, which had remained relatively constant between 1977 to 1983, climbed from 18 to 20 FTE staff members between 1983 and 1987 before stabilizing between 1987 to 1989.<sup>7</sup>

In 1991, there were approximately six FTE faculty, both instructional and research, six other professional staff, and eight other nonprofessional staff for every 100 FTE students in higher education.<sup>8</sup> In public elementary and secondary schools, there were six classroom teachers and another five staff for every 100 students.<sup>9</sup> Despite the similar number of faculty per 100 FTE students in higher education and elementary/secondary schools, many of the classes at colleges and universities were quite large. For example, in 1992, 30 percent of the undergraduate lower division classes at research universities had 50 or more students. At liberal arts institutions,

however, only 5 percent of such classes were this large. Between 1987 and 1992, there was little change in the percentage of undergraduate classes with more than 50 students.

**Percentage of classes in 4-year colleges and universities where class size is above 50 students: 1987 and 1992**

Level of class	Research		Doctoral		Comprehensive		Liberal arts	
	1987	1992	1987	1992	1987	1992	1987	1992
Undergraduate								
Lower division	32	30	20	21	9	10	4	5
Upper division	16	14	8	8	4	5	2	1
Graduate	7	9	4	9	2	4	1	1

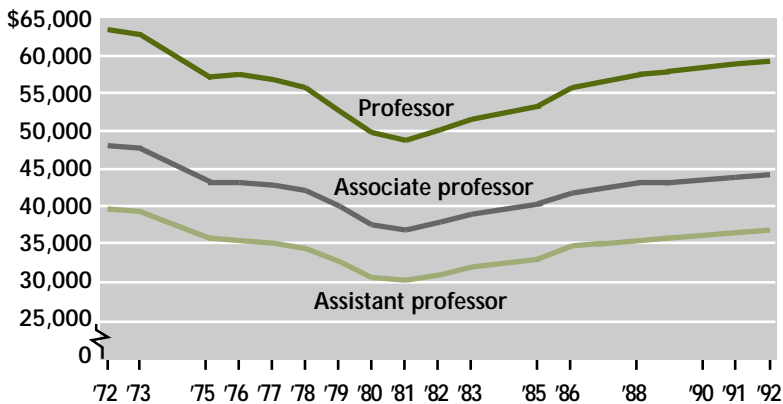
SOURCE: NCES, National Study of Postsecondary Faculty, 1988 and 1993.

A factor that could contribute to rising expenditures in some sectors of higher education is the rising price of resources used by institutions of higher education. When resource prices rise faster than inflation and institutions do not change the quantity of resources employed per FTE staff, then expenditures per FTE student rise. For example, if average faculty salaries rise faster than inflation, but institutions maintain a stable number of faculty per 100 students, then expenditures per FTE student would be expected to rise—barring a reduction in the price or utilization of some other resource such as equipment, buildings, or staff benefits. It is worthwhile to focus some attention on faculty salaries, because it is likely that most expenditures at higher education institutions are for staff, as opposed to buildings and equipment, and one in three staff are faculty.

Although average faculty salaries fell in constant dollars during the high inflation period of the 1970s, the trend reversed and average faculty salaries rose significantly during the 1980s.

For example, the average salary of full professors at public institutions fell from \$64,200 in 1972 to \$49,500 in 1981 (in constant 1993 dollars), and then rose during the 1980s to \$58,300 in 1992.<sup>10</sup> At private institutions, the patterns were similar. However, as noted above, expenditures for instruction, which include expenditures for all faculty time except the portion paid for by research grants and contracts, rose more slowly than total expenditures. This suggests that increased utilization or prices of other resources, including nonfaculty staff, had a larger effect on expenditures than increased faculty salaries.

**Average salaries of full-time faculty in institutions of higher education: 1973 to 1992**  
(in constant 1994 dollars)



SOURCE: NCES, HEGIS and IPEDS surveys of faculty salaries, various years.

Finally, a possible reason for the rise in the cost of higher education over the long term is a lack of increase in productivity in higher education. Whereas many sectors of the U.S. economy, particularly manufacturing and agriculture, have used technology and innovation to either increase the quantity or quality of goods provided with no corresponding increases in resources used, higher education is still provided in largely the same way it was when the nation was founded. When productivity growth in a particular sector of the economy lags behind that in the rest of the economy, the cost of providing that good or service increases.<sup>11</sup>

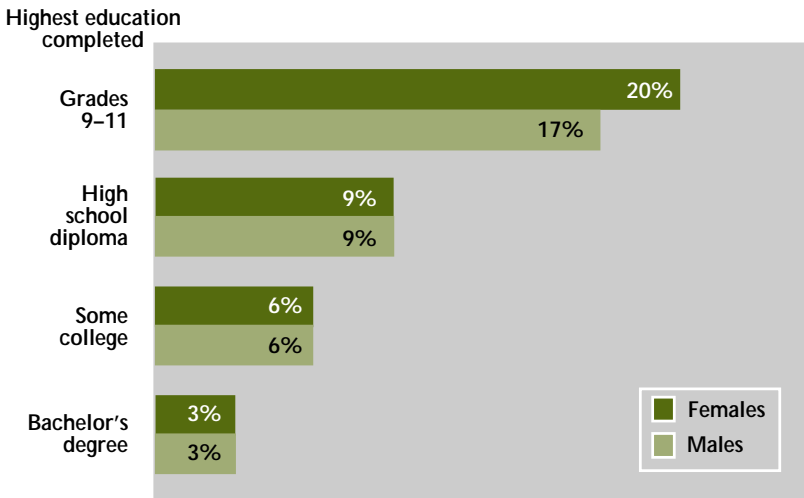


## LABOR MARKET OUTCOMES

- A higher education degree confers a substantial economic advantage to college graduates.

College graduates hold a relative advantage over high school graduates in the labor market. For example, unemployment rates for 25- to 29-year-olds in 1994 were lower for college graduates and those with some college than for individuals holding a high school diploma or less.

### Percentage of the population aged 25 to 29 years old who are unemployed: 1994

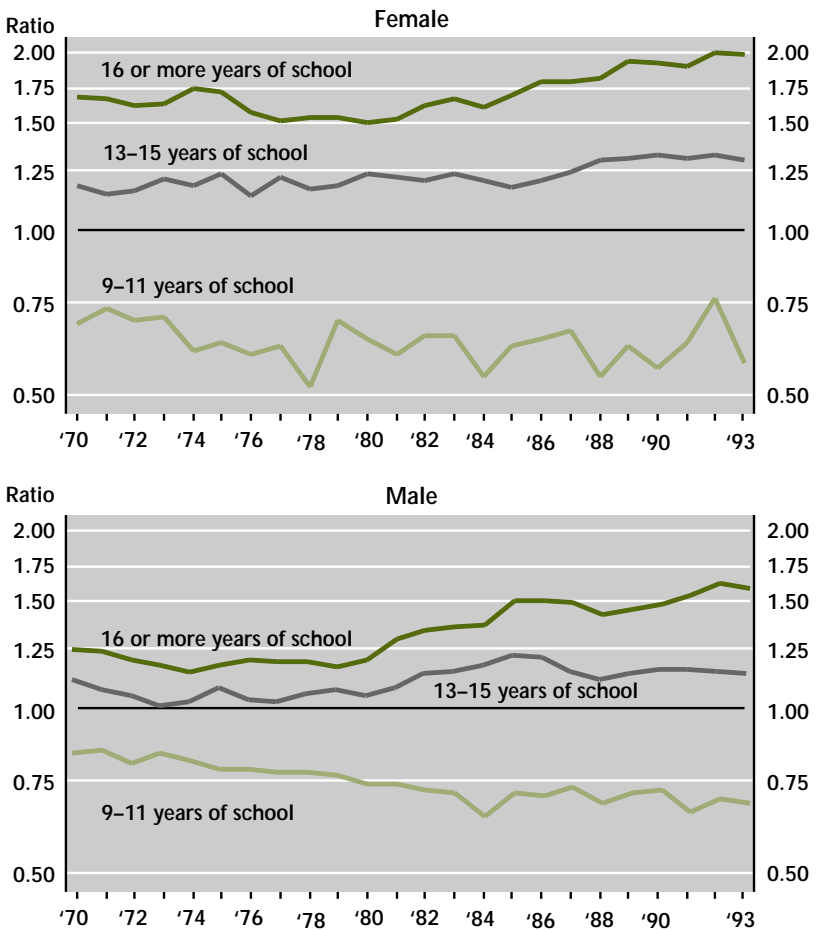


SOURCE: Bureau of the Census, March Current Population Survey, 1994.

- The earnings advantage of completing college increased between 1970 and 1993 for both male and female graduates.

While tuition rose substantially between 1980 and 1993, so did college enrollment rates. Perhaps these seemingly paradoxical trends are due to the increasing premium for completing college. Since 1970, the earnings advantage for 25- to 34-year-olds with a college degree has been consistently higher than for individuals completing some college (13–15 years of school), a high school degree, or less than a high school degree. Furthermore, the earnings premium for graduating from college was also rising, and may have outweighed any negative effect of rising tuition on enrollment rates.

**Ratio of median annual earnings of 25- to 34-year-old workers to those with 12 years of schooling: 1970 to 1993**



SOURCE: Bureau of the Census, March Current Population Surveys.

Among male workers, the earnings premium for completing college increased from 19 to 57 percent between 1980 and 1993; for female workers, it increased from 52 to 99 percent. However, these increases were largely due to a decrease in the average earnings of high school graduates, rather than an increase in the average earnings of college graduates. For example, the average earnings of male college graduates were about \$33,000 in both 1980 and 1993; however, the average earnings of male high school graduates fell from about \$28,000 to \$21,000 over the same period. Thus, young people today may need to acquire a college education as protection from a deteriorating labor market for workers who have only a high school education.

Note that females have generally realized a greater earnings advantage than males for completing college; that is, the percentage difference between the earnings of females with a college degree and the earnings of female high school graduates was greater than the corresponding percentage difference for males.

## SUMMARY

Despite the large increase in average tuition charges, higher education costs to students remain well below their total expenditures per student. At public institutions, average tuition charges are lower than expenditures for instruction per FTE student, i.e., excluding expenditures for administration, operation/maintenance of plant, libraries, and student services. At private universities, average tuition charges are similar to instructional expenditures per FTE student (\$13,700 versus \$12,300); however, at other private 4-year institutions, average tuition charges are higher than instructional expenditures per

FTE student (\$9,800 versus \$5,000), but less than total expenditures per FTE student (\$15,000). In most sectors of higher education, students are charged less on average than institutions spend for instruction, and some research suggests that students prefer to attend high spending institutions, particularly those where the difference between expenditures and tuition is the greatest.<sup>12</sup>

The cost of college for students includes more than the expenditures for tuition; it also includes forgone earnings. The earnings and experience given up to continue education are significant, possibly greater than the tuition that must be paid.<sup>13</sup> Even if the earnings of high school graduates between the ages of 18 and 23 are relatively low, they are nevertheless high when compared to average tuition charges, particularly those at public institutions. Thus, falling labor market opportunities for high school graduates may have reduced the cost of enrolling in higher education as much as rising tuition has increased it.

On the benefit side, large economic benefits, including lower rates of unemployment, higher earnings, better working conditions, and more generous fringe benefits appear to accrue to those who participate in higher education. In addition, at least one of these benefits—earnings—not only has been increasing in recent years but also appears to grow larger with age. In short, higher education still appears to be a good investment for students.

## REFERENCES

- <sup>1</sup>U.S. Bureau of the Census, *Current Population Reports*, Series P-60.
- <sup>2</sup>*Digest of Education Statistics, 1995*, table 168.
- <sup>3</sup>NCES, *National Postsecondary Student Aid Study: 1993*.
- <sup>4</sup>NCES, Higher Education General Information Survey (HEGIS), Financial Statistics of Institutions of Higher Education, and Integrated Postsecondary Education Data System (IPEDS), Finance Survey.
- <sup>5</sup>NCES, *National Postsecondary Student Aid Study: 1993*.
- <sup>6</sup>*Digest of Education Statistics, 1994*, table 170.
- <sup>7</sup>*The Condition of Education, 1992*, tables 54-2 and 54-3, and *Fall Staff in Postsecondary Institutions, 1991*.
- <sup>8</sup>*Digest of Education Statistics, 1994*, tables 216 and 196.
- <sup>9</sup>*Digest of Education Statistics, 1994*, table 82, or *The Condition of Education, 1992*, Indicator 53.
- <sup>10</sup>*The Condition of Education, 1994*, table 57-1.
- <sup>11</sup> This phenomenon is widely known in the economics profession as “Baumol’s disease.” See William J. Baumol, “Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis.” *American Economic Review*, 57 (June 1967), and W. J. Baumol and W. G. Bowen, *Performing Arts: The Economic Dilemma*, 1967. The “disease” is the inevitable rise as the economy grows and incomes increase in the cost of some goods or services that meet three criteria: 1) slower productivity growth than in the rest of the economy, 2) increasing (relative) demand as incomes grow, and 3) lack of good alternatives to the good or service. (Higher education may be in this category, but there are also plausible arguments for why it may not be included.) If these three criteria hold for higher education, then its cost is likely to increase over time without a commensurate increase in quality or quantity.
- <sup>12</sup>Ralph M. Bradburn, Duncan P. Mann, Michael S. McPherson, and Morton Owen Shapiro. “Understanding the ‘Quality’ Issue in U.S. Higher Education.” Washington, D.C.: Pelavin Associates, Inc. (paper prepared for Office of Planning, Budget, and Evaluation, U.S. Department of Education), October 1991.
- <sup>13</sup> Most analysis of the rate of return to education by economists builds on this fact. See, for example, Jacob Mincer. *Schooling, Experience, and Earnings*. Washington, D.C.: National Bureau for Economic Research, 1974.

For more information, see the following NCES publications:

*The Condition of Education, 1994.* Washington, D.C.: 1994.

*The Condition of Education, 1995.* Washington, D.C.: 1995.

*Digest of Education Statistics, 1994.* Washington, D.C.: 1994.

*Digest of Education Statistics, 1995.* Washington, D.C.: 1995.

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