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Boom Times for Selective Institutions

The economy bloomed like a plant that had been cut back and could now grow quicker and stronger. Our economic program brought about the longest peacetime expansion in our history: real family income up, the poverty rate down, entrepreneurship booming, and an explosion in research and new technology.

Ronald Reagan, 1989¹

THE FACT THAT motivates the present study is the extraordinary increase in per-student expenditures and tuition levels in private colleges and universities beginning about 1980. The preceding chapter reviews a number of explanations for this escalation, but the question that remains unanswered is, Why did the escalation happen when it did? Before examining in detail the four institutions in this study, it is necessary to focus on the time period during which these dramatic increases in spending and tuition occurred. Was this period unusual in any way? To what extent are the trends observed in the sample institutions likely to be characteristic of private institutions in general?

In order to provide a historical context for the detailed analyses to follow, this chapter begins by noting several developments that occurred over the period covered by the current study, roughly corresponding to the decade of the 1980s. Following this review is a detailed examination of the increases in tuitions at the four sample institutions, and comparisons with a broader range of similar colleges and universities. A brief concluding section notes the connection among these various developments.

WHAT WAS DISTINCTIVE ABOUT THE 1980s?

As higher education officials entered the 1980s, they anticipated that a dominant theme of the decade would be demographic decline,

with the number of 18-year-olds expected to fall by 25 percent between 1979 and 1992. To almost everyone's surprise, owing to increases in the enrollment rates of most demographic groups, enrollments did not decline.² Moreover, the decade turned out to be a prosperous one indeed, buoyed by a confluence of several largely independent favorable trends in the economy. Private colleges and universities as a whole enjoyed a surge in demand, as measured by the number of applications they received.³ In setting the context for the empirical analysis that follows, it is useful to review several of the most important developments of the 1980s that affected higher education in general and private research universities in particular. Six developments are noted: (1) the improvement in the economic well-being of the most affluent households, (2) the increase in the economic returns to college training, (3) the concentration of top students in selective colleges and universities, (4) the slowdown in overall inflation in the economy, (5) the rise in real faculty salaries, and (6) the change in the nature of federal support for university research and student financial aid.

Economic Gains Among the Affluent

The 1980s was an especially good decade for those on the top rungs of the economic ladder. In the words of Phillips (1990, p. xii), the decade witnessed "the triumph of upper America." The most prominent bellwether of this improvement was a robust increase in incomes at the top of the income distribution. During the 15-year period covered in the present study, between 1977 and 1992, the mean income of families in the top quintile of the income distribution increased at an annual rate of 1.1 percent, after inflation. By comparison, the incomes of the remaining four-fifths of families barely grew, increasing at only 0.2 percent per year.⁴ As illustrated in Figure 3.1, the success enjoyed by those at the top of the income distribution began well before the 1980s. Although the trajectory of the top quintile's average income was not an unbroken string of increases, the overall pattern was one of strong growth, which contrasts markedly with the stagnation of everyone else's incomes during this period.

The well-being of the affluent also received a boost from the tax cuts of 1981 and 1986; the marginal tax rate in the highest income classes dropped over the decade from 70 percent to 28 percent.⁵ These reductions partly were offset by a broader definition of taxable income, but it appears that the net effect of the tax changes was

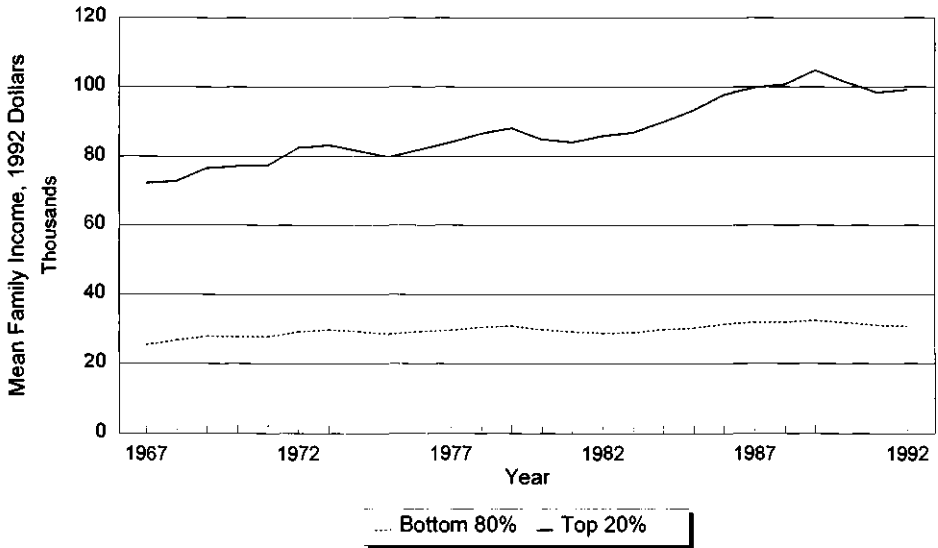


Figure 3.1 Mean Incomes, Top 20 Percent and Others, 1967–1992.

Source: Table 3A.1.

to reduce the effective average tax rates for those in upper-income classes.⁶

A similar increase in the relative well-being of the most affluent households occurred in wealth holding. The 1980s was a decade of solid gains in both stocks and owner-occupied housing, two of the most important sources of wealth for households. After a decade of tepid advance, stock prices rose rapidly during the 1980s: the S&P 500 increased by 181 percent during the 1980s, compared with only 43 percent during the previous decade (U.S. Council of Economic Advisers 1993, p. 453). House prices rose as well, spectacularly in a few metropolitan areas.⁷ Another form of wealth the value of which skyrocketed during the decade was art, with Sotheby's aggregate art index increasing more than threefold from 1980 to 1989 (Phillips 1990, Appendix J). In the midst of these advances, the wealthiest households appear to have done especially well. Data from the Survey of Consumer Finances suggest that the share of total net worth held by the wealthiest 1 percent of households increased from 31.5 percent in 1983 to 37.1 percent in 1989 (U.S. House of Representatives 1992a, p. 1566).

Not only were the incomes and wealth of the most affluent families increasing, their average family size fell disproportionately, further increasing their ability to bear the financial burden of college

for their children. Between 1977 and 1992, the average size of all families fell 5.1 percent, from 3.33 persons in 1979 to 3.16 in 1992. Over the same period, the average size of families with incomes of \$65,000 or more in 1992 dollars (roughly the lower bound for the top quintile of families) fell from 3.72 to 3.38, a decrease of 9.1 percent.⁸ With fewer children to put through college, these affluent families had even more resources to finance the college educations of those children whom they did send.

These facts have special relevance for the set of selective institutions that constitute the main focus of the present study. In addition to having unusually high average test scores and strong high school records, the students at these colleges and universities tend to be more affluent than the average college student, and considerably more so than the average high school graduate.⁹ Thus, the improvement in the well-being of those at the top of the income distribution fueled their demand for consumption of many kinds, including elite higher education.

Increase in the Economic Returns from College

Among the benefits of attending college is the likelihood that a student's lifetime earnings will increase as a result. On average, college graduates earn more than similarly situated individuals who do not have a college degree. Although it is not a simple matter to determine what portion of this earnings advantage is attributable directly to college education, as distinct from other personal characteristics possessed by college graduates, movements in this earnings advantage do reflect variations over time in the financial rewards of college training. Like other investments that require financial sacrifices in order to reap future rewards, a college education can be said to pay off for most students and, to the extent that higher earnings signify greater productivity, for society. One ready indicator of the rate of return to a college education is the earnings advantage that college graduates enjoy over high school graduates. During the 1970s, this earnings advantage fell noticeably, leading to concerns that America was "overinvesting" in college education.¹⁰ After hitting its nadir around 1980, however, the college earnings advantage rebounded sharply, rising more or less steadily through the decade.¹¹

Table 3.1 presents earnings data for the four years examined in the present study, comparing mean earnings of high school graduates with those of college graduates holding only a bachelor's degree. For men, the percentage difference in the two earnings levels, corre-

TABLE 3.1
 Mean Earnings, by Education, for Full-Time, Year-Round Workers,
 Ages 25–34, Selected Years

	1977	1982	1987	1992
Men				
High school graduates (\$)	14,086	19,036	22,990	24,441
College graduates (\$)	16,818	24,773	32,555	37,612
Percentage difference (%)	19	30	42	54
Women				
High school graduates (\$)	8,983	13,408	16,237	18,918
College graduates (\$)	11,207	17,586	24,080	28,979
Percentage difference (%)	25	31	48	53

Source: Data are from U.S. Bureau of the Census, *Current Population Reports, Series P-60, Money Income of Households, Families, and Persons in the United States* (Washington, DC: U.S. Government Printing Office). For data for 1977: No. 118 (1979), Table 47; for data for 1982: No. 142 (1984), Table 47; for data for 1987: No. 162 (1989), Table 35; and for data for 1992: No. 184 (1993), Table 29.

Note: High school graduates include those with four years of high school or a high school diploma only. College graduates include those with four years of college or a bachelor's degree only.

sponding roughly to the college earnings advantage, increased from 19 percent in 1977 to an impressive 54 percent by 1992. The pattern for women was much the same, with the difference growing from 25 to 53 percent. The size of the gap in 1992 is the highest recorded in 25 years. Although this rebound may have had more to do with a decline in the earnings of high school graduates than with an increase in those of college graduates, it nevertheless highlights one aspect of the increase in the demand for college. The extent to which this growing earnings gap increased the demand for elite colleges and universities such as those studied in this book is unclear.

Growing Concentration of Top Students

Not only did a college degree become a more valuable commodity during the 1980s, but places at elite, mostly private colleges and universities apparently became relatively more attractive as well. Cook and Frank (1993) present data suggesting that these elite institutions enrolled an increasing share of the nation's best students. As an illustration, they calculated the share of freshmen with high SAT verbal scores who enrolled in a group of highly selective colleges and universities, a group that together enrolled about 25,000, or about 2.5

percent of all freshmen in the country. Between 1979 and 1989, this group's share of all freshmen with SAT verbal scores of 700 or higher increased markedly, from 32 to 43 percent. Similarly, the finalists in the Westinghouse Science Talent Search increasingly became concentrated in a small number of elite institutions. Using the results of previous econometric analyses of college applications, Cook and Frank show that the probability of a high school senior with a high SAT score applying to at least 1 of a group of 33 private selective institutions increased between 1976 and 1987. For example, the probability that a hypothetical student with a combined score of 1300 would apply to one of these institutions increased from .36 to .56 (Cook and Frank 1993, pp. 131–3). Although the average number of applications per student also was increasing over time, this increase is another indication of the apparent growth in the attractiveness of places in selective institutions, particularly among the strongest applicants.

A Surprising Slowdown in Inflation

One feature of the rosy economic environment of the 1980s was a marked deceleration in the overall rate of inflation. As the 1970s ended, inflation had accelerated sharply, for the second time in the decade. In the three years beginning with 1979, buffeted by sharp increases in the cost of fuel, the CPI experienced annual jumps of 9.0, 13.3, and 12.5 percent, respectively. As suddenly as it had begun, however, this inflation cooled: from 1982 to 1990, the CPI grew at an annual rate of only 3.8 percent (U.S. Council of Economic Advisers 1994, pp. 335, 339).

How might this slowdown in inflation have affected colleges and universities? Faculty certainly had little trouble comparing their salary increases with the inflation rate; as the figures presented below indicate, faculty lost ground during the late 1970s. What may be of more importance for higher education finance is the extent to which changes in inflation—both the acceleration and the subsequent slowing—were unanticipated. Not only was the inflation of the late 1970s severe, but it exceeded the rates predicted by most macroeconomic models. Then, for most of the 1980s, the reverse pattern occurred: widely accepted forecasts of inflation were too pessimistic, and consistently so. This pattern of persistent overestimation of inflation is illustrated in Figure 3.2, which compares two-year averages of actual inflation with forecasts that had been published by the Congressional Budget Office (CBO) for the corresponding periods. For example,

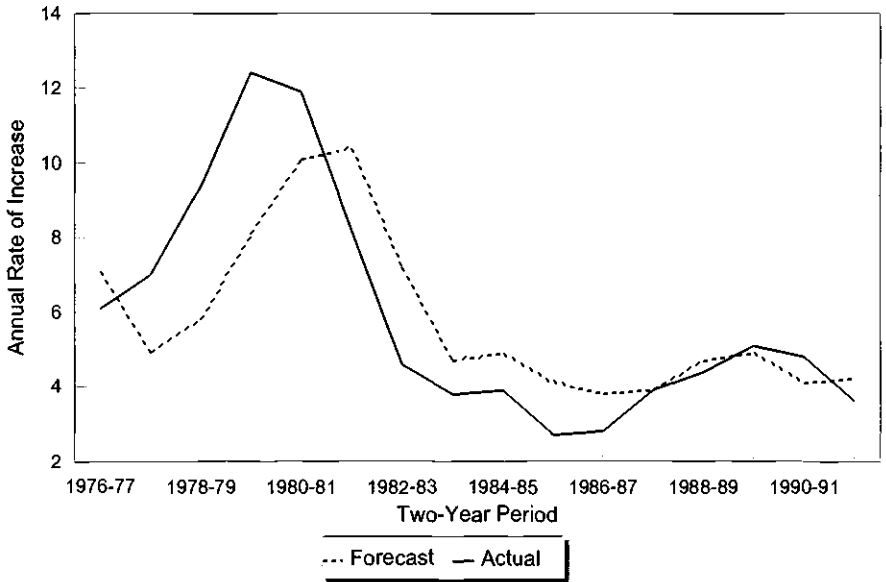


Figure 3.2 Forecast Versus Actual Inflation.

Source: Table 3A.2.

the CBO's forecasts of inflation for the calendar years 1976 and 1977, each made 12 months before the corresponding year was to begin, averaged 7.1 percent. Actual inflation for the two years averaged 6.1 percent, for an overstatement of one percentage point. As the figure shows, forecasts of inflation were too low for the period from 1977-78 through 1980-81 and were too high until 1987-88. The average error in the period of underestimation was 3.0 percent; the average error in the period of overestimation was 1.5 percent.

That this pattern of forecast errors, resulting in consistently pleasant inflation surprises, may have affected the real increases in spending is a reasonable supposition, especially if institutions tended to be slow to respond. Administrators developing budgets for a fiscal year necessarily must begin to work at least 12 months before that year begins and therefore must rely on forecasts of inflation. Any attempt to target expenditures in terms of real levels will necessitate adding expected inflation. This behavior certainly would apply to the setting of such important parameters as the overall increases for wages and salaries and the increase in tuition and fees. If budgets were set, year after year, using inflation projections that consistently overestimated actual inflation, real spending would tend to rise faster than intended. Whether such surprises would have similar effects for a

number years running is unclear, but evidence shows that, for at least one of the institutions covered in the present study, the impact of consistent overestimates of inflation did not go unnoticed. The minutes of Carleton College's budget committee reveal a recurrent complaint by students on the committee—that budget projections using inflation assumptions that subsequently proved to be too high had the effect of increasing tuition more than planned. In 1986, the committee agreed that inflation assumptions thereafter would be adjusted if such overestimates occurred.¹²

The Rebound in Real Faculty Salaries

Owing to their large share of university budgets, faculty salaries inevitably exert a prodigious influence on overall university costs. After a decade during which they lost ground to inflation, faculty salaries moved ahead in real terms throughout the 1980s. The relatively high rates of inflation in the 1970s eroded real faculty salaries. As shown in Figure 3.3, general price inflation outstripped the annual increases in average faculty salaries between 1971/72 and

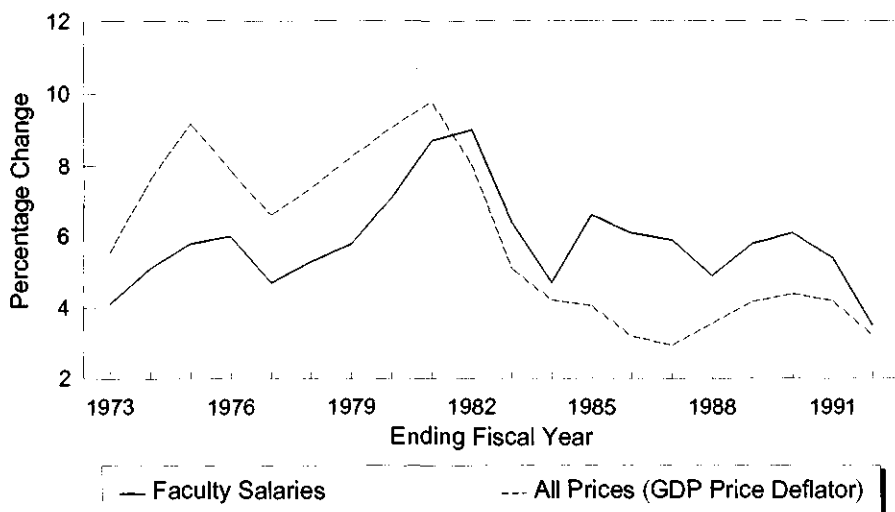


Figure 3.3 Annual Increase in Faculty Salaries and Prices.

Source: *Academe* (March/April 1992) Table 1; and U.S. Council of Economic Advisers (1993) p. 352.

Note: The years shown on the horizontal axis refer to the change from the previous academic year. For example, 1973 refers to the change between the 1971/72 and 1972/73 academic years.

1980/81, leading to a 16 percent decline in the average faculty salary over the period. However, this relationship was reversed beginning with the 1981/82 academic year. Whether a result of an effort to restore the buying power lost during the recent inflationary period or of the surprisingly low inflation that now characterized the economy, or a combination of the two factors, real faculty salaries rebounded smartly, as shown in Figure 3.4. Between 1980/81 and 1991/92, both the average faculty salary and the salary of full professors alone increased in real terms by 18 percent. For assistant professors, the increase was 20 percent. By 1992, these average salaries, when calculated in real terms, stood roughly where they had been 20 years before.¹³

As significant as it was, when compared with the trajectories of earnings in other professional groups, this improvement in the real salaries of faculty was by no means extraordinary. For example, in the period from 1980 to 1992, when the earnings of full professors increased at an average annual rate of 1.3 over inflation, the real earnings of nonsupervisory attorneys increased at a 1.1 percent annual rate, those of chief legal officers at 1.4 percent, and those of physicians at 2.3 percent.¹⁴ According to Bok (1993, Figure 4-1,

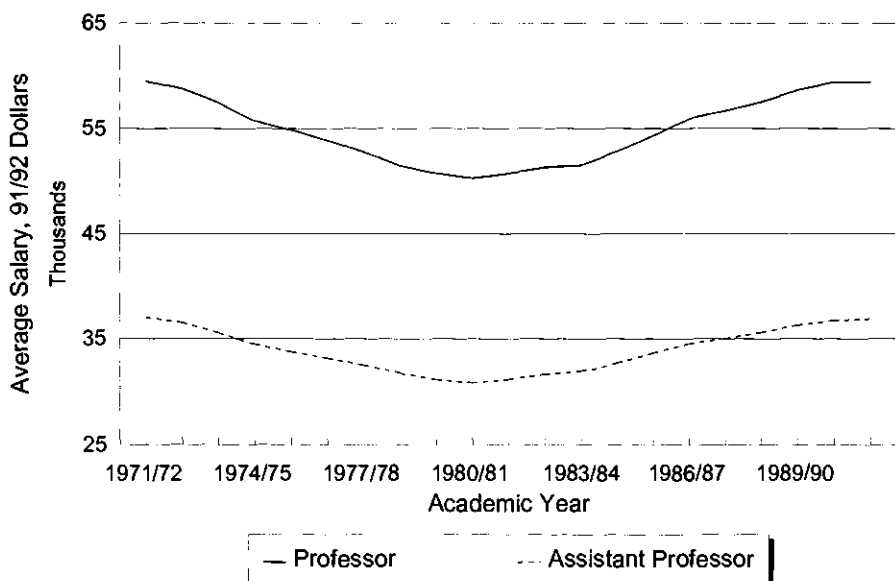


Figure 3.4 Average Faculty Salaries, Two Levels.

Source: Table 3A.4.

p. 66), some groups fared even better, notably surgeons, Wall Street lawyers, and chief executive officers of Fortune 500 companies.

The rebound in faculty salaries is reflected in the broader index of input prices measured in the HEPI, shown in Figure 3.5, which gives substantial weight to faculty salaries and other wage payments.¹⁵ From the perspective of a given college or university, are faculty salaries and the prices of other important inputs properly viewed as an exogenous force to be reckoned with, as in the textbook firm, which purchases inputs in competitive factor markets? Certainly this model of competitive factor markets appears to fit the bill when it comes to buying most manufactured equipment or to the hiring of new faculty in the national market for academic labor. For these inputs, the institutions wishing to hire or purchase have little choice but to pay the salaries and other prices set by the market. But, because they are among the largest firms in their local markets, many colleges and universities hold some of the power of the monopsonist, particularly in the case of faculty and staff who are tied to a locality; to this extent, an institution can exert some control over the salaries and prices that it pays for some inputs.¹⁶

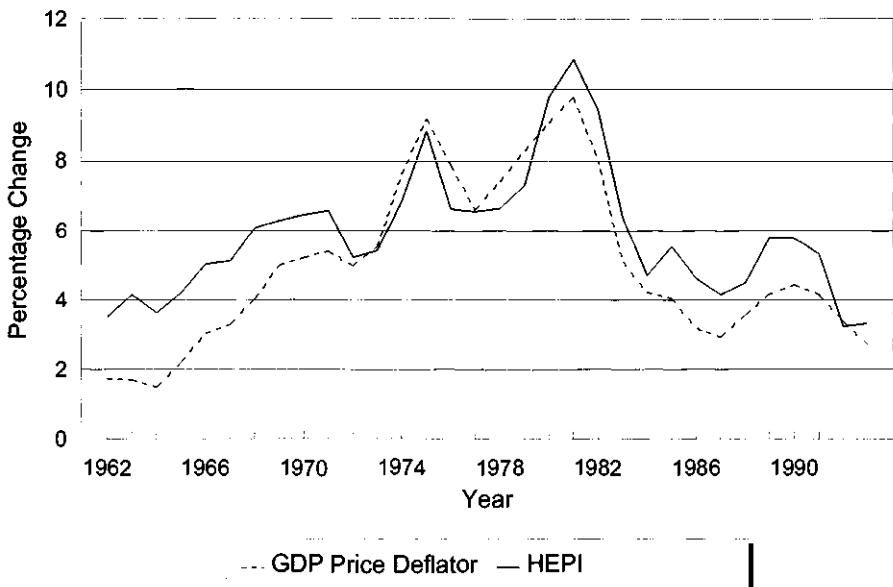


Figure 3.5 Inflation: All Prices and the HEPI.

Source: Data are from Research Associates of Washington (1994).

Trends in Federal Support

Federal programs are a significant source of revenue for higher education in general and for research universities in particular, accounting for about 15 percent of current fund revenue of private colleges and universities in 1991/92 (U.S. Department of Education 1994, Table 318, p. 326). The largest share of these funds supports student financial aid and university research. Figure 3.6 plots the real value of federal expenditures for university research and for other post-secondary programs (the most important of which were the cost of grants and loans to students) from 1965 to 1992. As the graph shows, the most prominent trend in this federal spending was the leveling off that occurred after 1975, following a decade of rapid growth. Between 1975 and 1992, research funding, including that

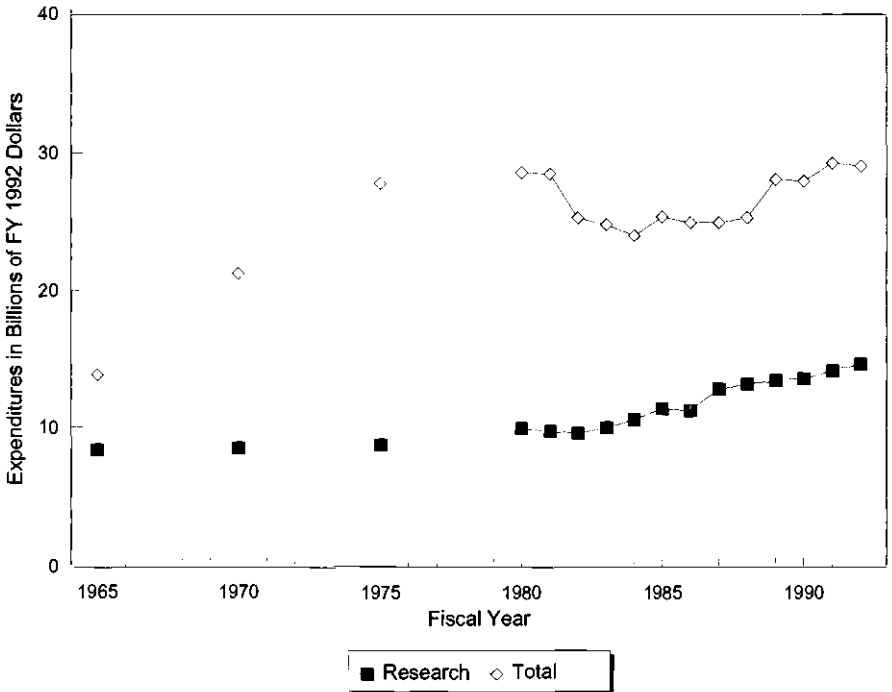


Figure 3.6 Federal Expenditures on Higher Education.

Source: Data are from U.S. Department of Education (1992), Table 345.

Note: Research refers to research at educational institutions. Total includes research as well as on-budget federal support for postsecondary institutions.

sponsored by the National Science Foundation, increased by \$5.9 billion, in constant 1992 dollars, whereas other spending fell by \$4.7 billion. Because it did not grow in real terms, federal funding as a percentage of revenues of private colleges and universities fell during the 1980s, from 18.8 percent in 1980/81 to 15.3 percent in 1991/92 (U.S. Department of Education 1994, Table 318, p. 326).

Two aspects of federal support of research appear to have made it more difficult for the top research universities to receive support for their research projects during this period. First, as Geiger and Feller (1993) have shown, there was a subtle redistribution of research activity among universities, with the premier research universities accounting for a shrinking share of total research expenditures. As an illustration, the share of all academic R&D expenditures accounted for by the top 30 institutions fell from 45.1 percent in 1979/80 to 42.3 percent in 1989/90 (Geiger and Feller 1993, Table 2). Second, equally subtle changes in the awarding of federal grants had the effect of increasing the share of costs borne by institutions. Quite apart from negotiated indirect cost rates, it apparently became much more common for federal granting agencies to ask universities for matching expenditures or cost sharing in the process of awarding grants.¹⁷ Regardless of whether negotiated indirect costs systematically fail to cover the full costs of research, as some have argued,¹⁸ these trends had the effect of reducing the importance of federal support to the top research universities.

As for other federal support, the most prominent shift was away from grants and toward loans as the preferred form of student financial aid. Counting loans at their face value, total federal student financial aid decreased slightly between 1980/81 and 1988/89, from \$20.6 to \$19.9 billion. This 3.7 percent decline was the combination of a 31 percent increase in loans and a 36 percent decrease in grants and college work-study. If the cost of loans was valued at one-half the face value of the loans, then total federal support would have decreased by 14.7 percent (Clotfelter et al. 1991, pp. 99–100).¹⁹ Because econometric studies suggest that financial aid affects the enrollment decisions of college applicants, it is reasonable to believe that these changes had an impact on enrollment patterns.²⁰

THE ESCALATION IN TUITIONS AT THE SAMPLE INSTITUTIONS

As we have seen, beginning in the late 1970s the tuition levels charged by private colleges and universities surged, and all four institutions examined in the present study participated in this trend.

For the 1976/77 academic year, Harvard charged \$4,100 in tuition and mandatory fees. By 1991/92, the comparable charge had risen to \$16,560, a fourfold increase, representing an average annual growth rate of 9.3 percent. Nevertheless, among the four institutions, Harvard's growth was the slowest. Duke's average rate was 10.1 percent, Chicago's was 10.2 percent, and Carleton's was 10.4 percent. Even accounting for the inflation over this period (5.7 percent per year using the GDP price deflator), these increases in tuition represented substantial increases in real dollars. Figure 3.7 plots the rise in the inflation-adjusted levels of tuition and fees for the four institutions over the period 1976/77 to 1992/93 and adds for comparison the average level for all the members of the Consortium on Financing Higher Education (COFHE), a group of private, selective institutions. It is readily apparent not only that the levels marched relentlessly upward, but that they did so in close formation. Except for occasional jumps—such as Harvard's and Carleton's in the academic year ending in 1983, Chicago's in 1987, and Duke's in 1989—the four institutions more or less retained their positions and did not diverge from the general trajectory denoted by the average for all COFHE institutions.

The apparent bunching of tuitions and tuition increases is consistent with the observations of Rothschild and White (1993), who note that colleges and universities are aware of price differences and avoid large divergences from institutions that they view as competing for the same students. In the case of highly selective institutions, such as those studied here, the authors argue that the relevant market of potential students is largely a national one. They further point out that both colleges and universities in a given market are competing for some of the same students; universities are simply "multi-product enterprises that operate in many markets," one of which is the market for undergraduate education (Rothschild and White 1993, p. 23). Although this portrait of market awareness resonates with most economists, little research on this behavior has been conducted, other than that related to the Justice Department's investigations into the collaboration among institutions over financial aid awards. Moreover, that collaboration applies to the pricing of education for individual students more than it does to the setting of the "sticker price" that is represented by published tuition and fees.

Nevertheless, close observation of individual institutions lends weight to the notion that colleges and universities do pay close attention—both to the prices of their competitors and to how their own price may affect the demand by potential matriculants. Comparisons are feasible because data on the tuitions charged by competing insti-

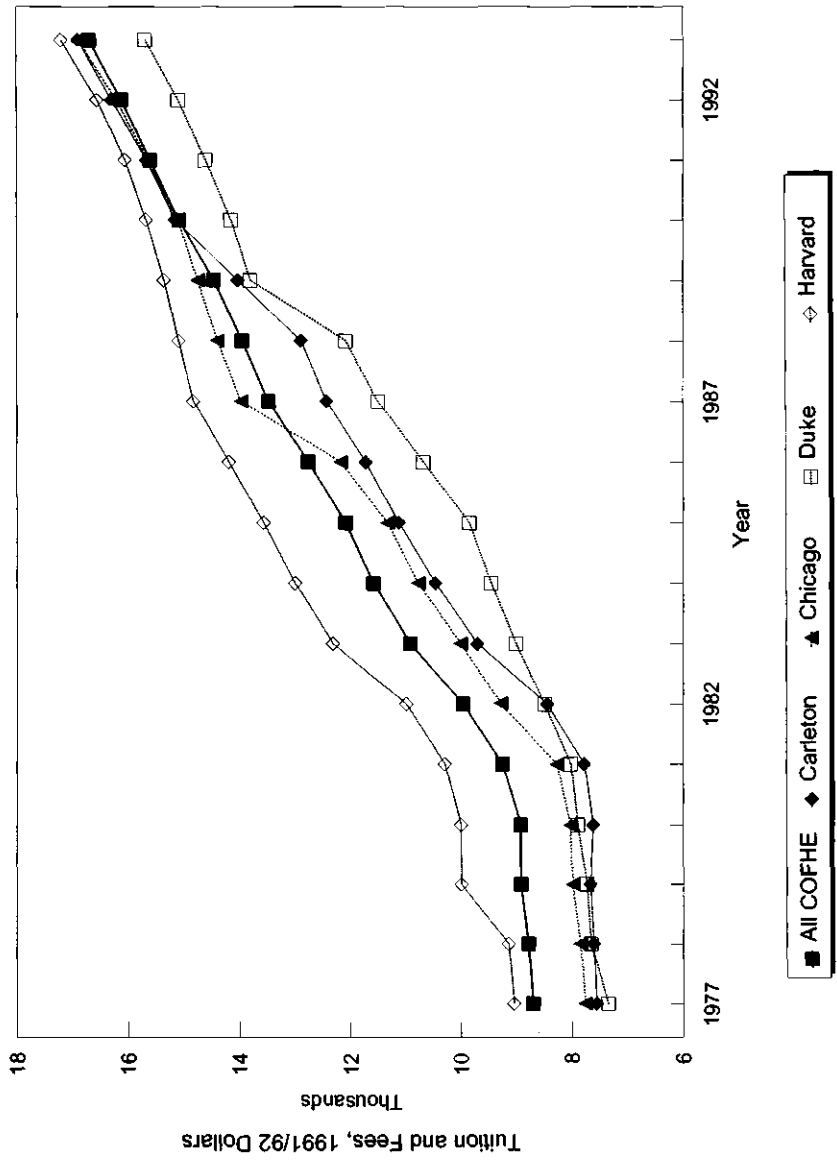


Figure 3.7 Tuition and Fees, Four Institutions and All COFHE Institutions.

Source: Table 3A.5.

Note: The GDP price deflator was used to deflate.

tutions are easily obtained from informal contacts, surveys carried out by such associations as COFHE or published college guides, such as *Peterson's* and *Barron's*. Information on admissions outcomes, measured by numbers of applications, acceptances, and matriculants, is also readily available. Institutions appear to pay close attention to this information and to consider the likely impact of their pricing decisions on their admissions as well as on their budgets.

Carleton College whose budget committee deliberated in recorded sessions about these issues, provides an illuminating example of how one institution viewed itself in this market. The college routinely used three groups of institutions for comparison: (1) a group of Midwestern colleges, (2) a group of highly selective national colleges, and (3) a group of highly selective national universities.²¹ Throughout the period covered by this study, Carleton had the highest tuition among the first group but was below the average of each of the other two. In setting its tuition each year, the college appeared to be very aware of its place in these rankings and endeavored not to institute any policy that would change its position dramatically. In one meeting, the college's pricing strategy was described explicitly as one of maintaining a tuition level between those of the Midwestern colleges and the national colleges, a strategy that could be consistent with this balancing of effects.

Not only was Carleton aware of its competitors' prices, the budget committee's deliberations revealed considerable interest and not a little sophistication regarding the effects of tuition increases on ability to attract good applicants. The director of admissions routinely was invited to give advice about the likely effect of contemplated tuition increases. During these sessions, he brought studies that have become a staple for admissions offices in private selective institutions, including "overlap" analyses of the success in attracting students who had been accepted both to Carleton and to similar institutions, as well as surveys of accepted students that asked why they did or did not enroll at Carleton. With respect to the tuition ranges under discussion at Carleton during this time, the prevailing belief appeared to be that tuition increases would not have a serious impact on the number or quality of the students applying to Carleton, but that applicants' perceptions of the quality of the college would have such an impact.²² In fact, one report presented to the committee in 1980 called for a policy of "aggressive pricing."²³ In 1988, Carleton president Stephen Lewis urged the committee to endorse an extraordinary tuition increase, arguing that it would enable the college to reduce the spending rate on the endowment.²⁴ In another discussion, administrators expressed confidence that tuition increases

could be undertaken without harm, because Carleton's tuition was inexpensive relative to those of national institutions.²⁵

To put this line of discussion into the context in which the institutions themselves were operating during this period, it is useful to review some of the basic indicators of success in undergraduate admissions. A fear underlying discussions surrounding the setting of tuition, which is alternately spoken and implicit in the reported meetings of the Carleton budget committee, is that excessive increases will hurt the ability of the admissions office to attract able students. To track admissions strength and comparative selectivity, colleges and universities pay especially close attention to two indicators: (1) the percentage of applicants to which an institution offers admission; and (2) the percentage of accepted applicants who choose to matriculate, the latter being known as the "yield rate." Other measures of the quality of matriculants also are used widely to indicate selectivity, such as average standardized test scores or the percentage of students with high rankings in their high schools.

Table 3.2 presents admissions data for the four institutions over the period of study. By most standards, all four are very selective indeed, with acceptance rates ranging from 57 to 17 percent in 1992, and yield rates from 31 to 74 percent. For all the institutions with the exception of Harvard, these measures show clear trends: acceptance rates declined, suggesting greater selectivity, and yield rates declined as well. The latter trend would seem to indicate decreasing success in attracting matriculants. This interpretation is doubtful, however, given the strong evidence that high school students, especially those applying to selective colleges and universities, were applying to a higher average number of institutions than in previous years. Assuming that this increase in applications was directed at a fairly constant set of institutions and that enrollments did not increase, a fall in yield rates was the inevitable result. Yet, among the four institutions studied here, Harvard seems to have been immune from this particular effect. The third indicator shown in the table, the percentage of students who were in the top 10 percent of their high school classes, suggests an increase in the quality of entering classes at Carleton and Duke and no trend in those of the remaining two universities.

Despite sharp increases in tuition over this 15-year period, therefore, none of the four institutions examined here seems to have experienced any obvious ill effects. What did result, for all four, were increases in the percentage of undergraduates who received need-based financial aid. Because the formula that all the institutions used to calculate financial aid was based on the difference between the

TABLE 3.2

Selected Admissions Indicators for Four Institutions, Four Sample Years

	1976/77	1981/82	1986/87	1991/92
Carleton				
Percentage of applicants accepted	70	51	48	57
Yield rate ^a	50	47	39	33
Percentage of students in top 10% of high school	60	66	76	74
Percentage of students receiving financial aid	45	57	57	58
Chicago				
Percentage of applicants accepted	60	46	44	45
Yield rate ^a	45	39	42	31
Percentage of students in top 10% of high school	NA	69	78	69
Percentage of students receiving financial aid	60	66	67	80
Duke				
Percentage of applicants accepted	39	36	26	29
Yield rate ^a	50	44	47	43
Percentage of students in top 10% of high school	75	73	76	88
Percentage of students receiving financial aid	29	30	37	38
Harvard				
Percentage of applicants accepted	18	16	17	17
Yield rate ^a	76	74	71	74
Percentage of students in top 10% of high school	98	90	95	95
Percentage of students receiving financial aid	66	67	70	74

Source: *Peterson's Guide to Four-Year Colleges* (Princeton, NJ: Peterson's Guides 1978, 1983, 1988, and 1993).

^aMatriculants as percentage of accepted applicants.

NA: not available.

costs of attendance (of which tuition is the largest component) and estimates of families' ability to pay, it is not surprising that an increasing proportion of applicants would become eligible for such assistance during a period in which tuitions increased faster than incomes.

LOFTY AMBITIONS IN A TIME OF PLENTY

As the previous chapter suggests, one consequence of the organizational peculiarities of private research universities is an all-encompassing striving for excellence, one that suffuses the culture of the institution, manifests itself in a continually revised list of worthy but unfunded projects, and is restrained only by the limited nature of the available resources. During the 1980s, this insatiable appetite for excellence encountered market forces highly favorable to their satisfaction by means of increases in tuition—the principal source of revenue for virtually all private research universities. Events conspired to make the acceptance to one of the 50 most selective colleges and universities a commodity with few peers—one that was rationed not by price, but by “merit.” These institutions, already enrolling a disproportionate share of the nation’s high-income students as well as its most able students,²⁶ found the demand for spots in their entering classes stimulated by good economic times among affluent households and by an apparently heightened appreciation for the type of education that they were offering. The coincidence of these developments is suggested in Figure 3.8, which plots average tuition at private universities and the mean income of the most affluent 20 percent of families. After increasing modestly in real terms during the

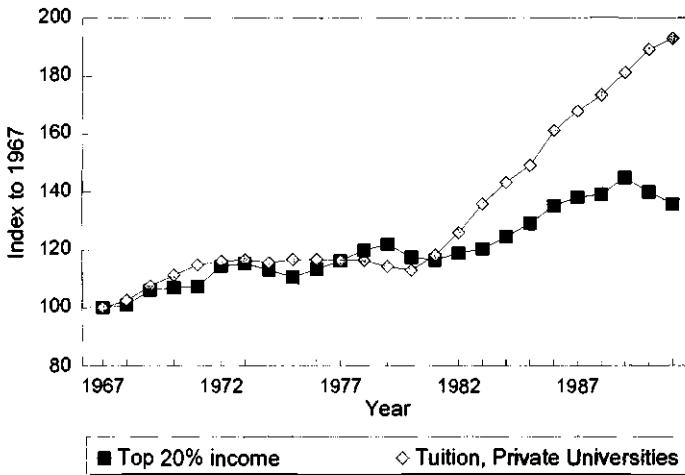


Figure 3.8 Tuition and Top Quintile Average Income.
 Source: Table 3A.1: U.S. Department of Education (1992), Table 301.
 Note: Indices are relative to 1967 real values.

1970s, both tuition and mean income accelerated after about 1980. These trends do not prove anything about causation, but they do provide one possible explanation for why demand for the limited places at selective institutions increased after 1980.

Although they in no way determined behavior, these circumstances certainly made it easier for private institutions to raise tuitions at rates faster than those which would have been necessary simply to maintain existing levels of quality.²⁷ Because virtually all the selective institutions individually decided to increase their tuition at similar rates, and all provided similar need-based financial aid to undergraduates, no single institution damaged its ability to attract able students. The result was an increase in tuition-based revenues all around, some of which would be used to make up for shortfalls in federal funding.

If correct, this interpretation of events offers at most a partial explanation for increases in outlays during the 1980s. It may suggest the means by which selective institutions were able to raise tuitions, but it does not explain *why* this happened. It is hoped that a closer examination of a few such institutions will provide a fuller and more satisfying answer to this question.

Appendix 3.1

Supplementary Tables for Chapter 3

TABLE 3A.1
Mean Family Incomes, Selected Percentile Ranges, 1967–1992,
in Constant 1992 Dollars

Year	Mean Family Income, 1992 Dollars		
	All	Top 20%	Others
1967	34,859	72,253	25,511
1968	35,983	72,900	26,754
1969	37,674	76,549	27,955
1970	37,728	77,192	27,862
1971	37,705	77,412	27,778
1972	39,894	82,534	29,234
1973	40,491	83,226	29,807
1974	39,768	81,601	29,310
1975	38,810	79,814	28,559
1976	39,846	81,962	29,317
1977	40,545	84,040	29,671
1978	41,760	86,631	30,542
1979	42,310	88,165	30,846
1980	40,869	84,915	29,858
1981	40,234	84,202	29,242
1982	40,198	85,881	28,777
1983	40,597	86,921	29,016
1984	41,931	89,970	29,921
1985	42,956	93,356	30,356
1986	44,707	97,784	31,438
1987	45,553	99,875	31,973
1988	45,788	100,736	32,051
1989	46,962	104,844	32,492
1990	45,785	101,338	31,897
1991	44,539	98,406	31,072
1992	44,483	99,252	30,791

Source: Data are from U.S. Bureau of the Census, *Current Population Reports*, Series P60, No. 184, *Money Income of Households, Families, and Persons in the United States: 1992* (Washington, DC: Government Printing Office, 1993), Table B-7; and author's calculations.

TABLE 3A.2
Comparison of CBO Forecasts with the Actual Rate of Inflation

<i>Two Year Period</i>	<i>CBO Forecast of Two-Year Average Inflation Rate, in CPI</i>	<i>Actual CPI Two-Year Average from CBO</i>	<i>Overestimate</i>	<i>Underestimate</i>
1976-77	7.1	6.1	1.0	—
1977-78	4.9	7.0	—	2.1
1978-79	5.8	9.4	—	3.6
1979-80	8.1	12.4	—	4.3
1980-81	10.1	11.9	—	1.8
1981-82	10.4	8.2	2.2	—
1982-83	7.2	4.6	2.6	—
1983-84	4.7	3.8	0.9	—
1984-85	4.9	3.9	1.0	—
1985-86	4.1	2.7	1.4	—
1986-87	3.8	2.8	1.0	—
1987-88	3.9	3.9	—	—
1988-89	4.7	4.4	0.3	—
1989-90	4.9	5.1	—	0.2
1990-91	4.1	4.8	—	0.7
1991-92	4.2	3.6	0.6	—

Source: Data are from U.S. Congressional Budget Office (1993), Table A-2.

TABLE 3A.3
Annual Increases in Faculty Salaries and Prices

<i>Period</i>	<i>Percentage Change in</i>	
	<i>Faculty Salaries</i>	<i>All Prices (GDP Price Index)</i>
1971/72 to 1972/73	4.1	5.5
1972/73 to 1973/74	5.1	7.6
1973/74 to 1974/75	5.8	9.2
1974/75 to 1975/76	6.0	7.9
1975/76 to 1976/77	4.7	6.6
1976/77 to 1977/78	5.3	7.4
1977/78 to 1978/79	5.8	8.3
1978/79 to 1979/80	7.1	9.1
1979/80 to 1980/81	8.7	9.8
1980/81 to 1981/82	9.0	8.0
1981/82 to 1982/83	6.4	5.1
1982/83 to 1983/84	4.7	4.2
1983/84 to 1984/85	6.6	4.0
1984/85 to 1985/86	6.1	3.2
1985/86 to 1986/87	5.9	2.9
1986/87 to 1987/88	4.9	3.6
1987/88 to 1988/89	5.8	4.2
1988/89 to 1989/90	6.1	4.4
1989/90 to 1990/91	5.4	4.2
1990/91 to 1991/92	3.5	3.2

Source: Data are from *Academe* (March/April 1992), Table 1; and U.S. Council of Economic Advisers (1993), p. 352.

TABLE 3A.4
Average Faculty Salaries, in 1991/92 Dollars

<i>Year</i>	<i>Full Professor</i>	<i>Associate Professor</i>	<i>Assistant Professor</i>	<i>Instructor</i>	<i>All Ranks</i>
1971/72	59,505	44,884	37,016	29,952	43,491
1972/73	58,809	44,742	36,513	29,489	42,900
1973/74	57,489	43,738	35,557	28,690	41,897
1974/75	55,717	42,430	34,429	27,805	40,606
1975/76	54,858	41,658	33,738	27,351	39,904
1976/77	53,880	40,915	33,137	26,863	39,192
1977/78	52,779	40,155	32,491	26,364	38,428
1978/79	51,481	39,242	31,782	25,814	37,554
1979/80	50,744	38,500	31,123	25,183	36,879
1980/81	50,297	38,056	30,849	24,916	36,520
1981/82	50,747	38,325	31,153	24,954	36,847
1982/83	51,325	38,763	31,656	25,333	37,302
1983/84	51,517	38,833	31,896	25,550	37,477
1984/85	52,834	39,714	32,681	26,080	38,399
1985/86	54,328	40,760	33,637	26,767	39,485
1986/87	55,950	41,897	34,543	27,280	40,626
1987/88	56,731	42,401	34,991	27,344	41,153
1988/89	57,619	43,431	35,606	27,641	41,798
1989/90	58,680	44,231	36,262	27,912	42,487
1990/91	59,441	44,719	36,732	28,140	42,997
1991/92	59,428	44,753	36,866	28,270	43,030

Source: Calculations using *AAUP Bulletin 58* (summer 1972), p. 197, Table 13; *Academe* (March/April 1992), p. 8, Table 1; and U.S. Council of Economic Advisers (1993), p. 352.

TABLE 3A.5
Tuition and Fees, Four Sample Institutions and COFHE Average,
1976/77–1993/94

<i>Year</i>	<i>Average Tuition and Fees</i>					<i>Ratio of 1991/92 Prices to Current Prices</i>
	<i>All COFHE</i>	<i>Carleton</i>	<i>Chicago</i>	<i>Duke</i>	<i>Harvard</i>	
1976/77	3,942	3,425	3,517	3,330	4,100	2.21
1977/78	4,275	3,702	3,817	3,725	4,450	2.06
1978/79	4,699	4,037	4,207	4,073	5,265	1.90
1979/80	5,126	4,375	4,612	4,535	5,745	1.74
1980/81	5,834	4,903	5,215	5,055	6,490	1.59
1981/82	6,786	5,755	6,320	5,785	7,490	1.47
1982/83	7,818	6,951	7,164	6,450	8,820	1.40
1983/84	8,644	7,810	8,043	7,059	9,700	1.34
1984/85	9,389	8,640	8,802	7,650	10,540	1.29
1985/86	10,226	9,398	9,756	8,556	11,370	1.25
1986/87	11,115	10,250	11,521	9,485	12,225	1.21
1987/88	11,916	11,015	12,300	10,320	12,890	1.17
1988/89	12,867	12,485	13,125	12,286	13,665	1.12
1989/90	14,009	14,070	14,025	13,143	14,560	1.08
1990/91	15,091	15,160	15,135	14,133	15,530	1.03
1991/92	16,124	16,296	16,212	15,101	16,560	1.00
1992/93	17,149	17,360	17,346	16,121	17,674	0.97
1993/94	18,140	18,405	18,207	17,163	18,745	0.96

Source: Consortium on Financing Higher Education (1994), Appendix A; and Consortium on Financing Higher Education (various years).

Note: Figures refer to tuition and mandatory fees.