

C A M B R I D G E A S S O C I A T E S L L C

THE GROWING IMPORTANCE OF ENDOWMENT

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THE GROWING IMPORTANCE OF ENDOWMENT

Introduction

For colleges and universities, the past decade has been one of remarkable developments. Endowments have grown at an unprecedented rate, the beneficiaries of both exceptional investment returns and unusually generous gifts. Program offerings have expanded, powered by faculty growth and increased course and degree offerings. With the construction of new dormitories, student centers, and athletic facilities, and the expansion of student support personnel, the quality of student life has been enhanced. And financial aid has risen sharply.

The combined effect of these elements has been to magnify the importance of endowment. The data in the following report suggest that colleges with proportionally more endowment enjoy stronger pricing power and greater capacity to bridge the widening gap between operating revenues and operating expenditures. This gap continues to grow as the result of declining average effective price (net tuition per FTE student) combined with the expanding "enrichment" of program and student life. As the gap has grown, endowment spending (or "payout") has filled the breach.¹

Clearly, the presence of a proportionally larger endowment provides financial comfort to those institutions so positioned. At the same time, the abrupt end to the sustained bull market of the 1990s increases the prospect that volatility in investment returns may put endowment support of operations at greater risk. Hence endowment has become more important not only as the primary source of financing of the operating deficit, but also as a greater source of risk to operations.²

For the three years for which we have detailed data, 1998 to 2000, we make the following key observations:

¹ This analysis is based upon the changes from 1998 to 2000 in the financial situation of participants in the Cambridge Financial Indicators (CFI) database, as well as prior financial information collected since 1991. In 1997 the database was redesigned to build off the "IPEDS" data collection process, so as to reduce the effort for participating schools. Unfortunately, the use of IPEDS (Integrated Postsecondary Education Data System) also forced us to exclude institutions with an academic medical center, since the IPEDS data does not show education-related and medicine-related activities separately. Of the 60 institutions participating in the CFI database, 36 have participated all three years, and these are the source of most of the specific observations in this paper.

² The specific risk associated with endowment is "shortfall risk." This is in addition to the ordinary risks faced by for-profit businesses as well as nonprofit institutions: market risk (e.g., enrollment and pricing), operating risk (fixed costs) and financial risk (debt).

- (1) "Pricing power"—the ability to raise net tuition (after financial aid) per student to keep pace with inflation—is not a straight function of net tuition level. It is strongest at the highest and lowest levels, and weakest in the middle range of tuition.
- (2) In the years between 1998 and 2000, the vast majority (86%) of these colleges reduced their degree of reliance upon revenues from operations, and increased their use of gifts and endowment "payout" to support operations.
- (3) Therefore, the "subsidy" for students grew, as colleges maintained or expanded their offerings while providing more financial aid, restraining their tuition growth, or both.
- (4) Clearly related is the fact that when the expense base exceeds the operating revenue base, even an identical percentage increase in operating revenues and expenses results in a widening gap between the two—resulting in a forced growth in the subsidy each year.
- (5) As the subsidy grows, seemingly inexorably, it becomes important for the institution to evaluate its "shortfall risk"—the risk that its investment portfolio will fail to generate the returns built into its operating budget. The question is whether its investments are structured in a manner consistent with its risk tolerance.³
- (6) "The rich get richer:" the schools with the highest endowment per faculty and student are also the ones that are able to command a higher net tuition per student.
- (7) These "higher price" schools significantly expanded their staffing (FTE faculty and staff) during this period, while the "mid-range" schools registered only modest expansion. Plant expansion for both groups was less than 3%, but construction underway at many campuses suggests it will likely rise in the future.
- (8) Consistent with an over 15% growth in mean total revenue (i.e., including endowment payout and gifts) and constrained plant expansion, the risk level at the schools actually declined by nearly 6%, as measured by fixed cost coverage.⁴

³ See the Cambridge Associates research report, *Portfolio Risk Measurement: Shortfall and Relative Risk Analysis* (December 2001).

⁴ Ratio of revenues to "fixed costs:" debt service, plant operation and maintenance, and tenured faculty compensation.

Differential Pricing Power

Net tuition is the amount of tuition revenue collected by an institution after subtracting "forgone tuition" in the form of financial aid. Financial aid may be awarded on the basis of need, merit, or the "leveraging" of financial aid dollars using probabilistic models, but in all cases it is offered in order to induce or to enable a student to attend the college. Hence net tuition reflects both the underlying costs and the amount of financial aid necessary for the college to attract the particular students it seeks.

*In this report, we use the term **effective price** to refer to "net tuition per FTE student," because this is the average amount that students actually (effectively) paid to attend the college or university. We categorize colleges as "higher price" if the average effective price is over \$15,000; "lower price" if it is under \$10,000; and "mid-range" if it is between \$10,000 and \$15,000.⁵*

The ability to raise net tuition per student in *real* terms (after inflation) is a measure of the college's ability to keep pace with *inflationary* increases in its costs—i.e., before any increase in operating costs beyond inflation, or any expansion or enrichment of its offerings during that year. This kind of "pricing power" was evident in all higher price and lower price colleges. But among the mid-range colleges, only half were able to raise prices in pace with inflation. Exhibit 1 illustrates these differences in pricing power:

- Institutions with higher effective prices were able to raise those prices considerably more: an average of 9.6%, well beyond the inflation rate of 5.8%.
- Similarly, those with lower effective prices also easily outpaced inflation, registering a growth rate in net tuition revenue per student of 12.6%.
- However, for those colleges with net tuition per student between \$10,000 and \$15,000, one-half actually experienced a *negative* real change in their effective price.

Thus, it appears that the pricing outlook is bleakest for the mid-range institutions. We might surmise that colleges and universities collecting more than \$15,000 per student are perceived to be higher quality and/or more selective, and hence able to persuade students and their families to pay the higher price. Ironically, as we will see later, these schools are also the ones with the higher endowment ratios. Those in the mid-range may be perceived to be less selective or to have fewer offerings, and therefore suffer more from direct competition with state universities. Meanwhile, those in the lowest range (below \$10,000) may be perceived to be a relatively "good value" for students seeking *private* higher education and a smaller campus community.

⁵ In business parlance these would be called "price points."

Differences in financial aid policy may also be an explanatory factor. In recent years, financial aid has evolved from the primarily need-based system of the 1960s, '70s, and early '80s, to a system in which a variety of criteria may influence a college's financial aid grants. Increasingly, financial aid is granted for competitive reasons. Competing financial aid offers put downward pressure on the effective price at virtually all colleges and universities. Many colleges have found that they can raise their effective average price more readily by "leveraging" their financial aid dollars: awarding financial aid on the basis of statistically calculated incentives to attend, rather than on the basis of need or strict merit. However, "financial aid leveraging" generally provides only a one-time boost to the effective price; a substantial boost cannot be expected each year.

The Growing Subsidy: A Trend Away From Operating Revenues

Running a college or university has never been a money-making proposition. Revenues from operations—tuition, room, board, research grants, and any other payments for services rendered—fail to cover the full costs of operations. Nevertheless, the vast majority of colleges and universities rely upon operating revenues to cover the preponderance of their costs. With very few exceptions, they draw at least 50% of their revenues from such sources. A slight majority of the institutions in our survey draw over 75% from such sources.

For all but five of the institutions that participated in our survey for the three consecutive years, this has been a period of declining reliance upon revenues from operations, and growing reliance upon endowment and gifts. In other words, in a "business" that routinely operates at a loss, that loss has widened, to be offset by funds from sources other than operations. Clearly the extension of this trend will lead to growing pressure on endowment spending and on fund-raising efforts, at a time when economic and capital market conditions have made these funding sources more problematic.

Exhibit 2 shows the widespread decline in the percentage of revenues from operations, from 1998 to 2000.

Income Base and Expense Base: A Widening Gap

Endowment and gifts provide a "subsidy" to all students, whether or not they are on financial aid. The "subsidy" is simply the difference between the cost of educating, housing, counseling, feeding, and providing other services to students; and the student revenues collected in the form of tuition, room, board, and other fees. Financial aid expands the subsidy further. Because the expense base is larger than the revenue base—in some cases, substantially larger—any given percentage increase in expenses will far outstrip, in dollar terms, a comparable percentage increase in revenues. The essential dilemma of

setting tuition is that any increase in the effective price (net tuition revenue per student) is destined to fall short of the increase in expenses. Thus, even if the effective price clearly outpaces inflation—as it has for most colleges in the study—and even if expenses grow at a rate no faster than revenues, *the gap between operating revenues and expenses continues to widen.*

This problem is illustrated in Exhibit 3. Here we see that for the mid-range colleges (effective price between \$10,000 and \$15,000), expenses grew at virtually the same rate as operating revenues—a considerable achievement. Yet, even so, the average operating loss of these schools grew by over 12% from 1998 to 2000. In other words, even the discipline of holding expense growth to operating revenue growth could not halt the growth of the operating deficit.

Hence colleges face either the prospect of relying ever more heavily upon endowment and gifts, or the task of reducing the expense base. Neither scenario is comforting. In the short run, it appears that both fundraising and capital market returns will be attenuated. Excessive reliance upon endowment can compromise the financial equilibrium—the long-term financial strength—of a college. However, reducing the expense base is an arduous task, because colleges and universities operate in a decision-making environment populated by many outspoken constituencies with mutually incompatible interests. It is a challenge to leadership that is more difficult than in most businesses.

Exhibit 3 shows that at the higher price colleges (higher average effective price), revenue growth did not come close to expense growth, and so the average operating loss leapt by 18%. These colleges drew far more upon gifts and endowment. At the four lower-priced colleges, revenue growth far outpaced expense growth, and hence the operating loss grew by only 7.4%. Yet this underscores the point: the operating deficit expands even where there has been rapid growth in operating revenues.

Endowment Matters

The problem of widening deficits leads naturally to a discussion of endowment. One of the sharpest differences among private colleges and universities is the degree to which their operations can be subsidized by endowment. Since the endowment supports both faculty and students, the most meaningful endowment ratio is one that includes both groups in the denominator. Among the 36 institutions in this three-year comparative study, the highest ratio of endowment support per student + faculty was over \$26,000; the lowest was only \$776. The trends suggested (and only suggested) by this study confirm the role of endowment as perhaps the most important factor in strategic financial strength. A strong endowment enables a college or university to expand its program offerings and facilities, and to market and recruit intensively, thereby attracting high-quality students even while charging a higher effective price. It would seem to be a case of the rich getting richer.

Thus, for the higher price colleges, the average endowment support per student + faculty was \$7,289. For the mid-range colleges, it was only slightly over half that amount: \$3,924. And for the lower price colleges, it was less than half of that: \$1,751. These are very significant multiples. They suggest that the higher price colleges (again, we refer to higher average *effective* prices) will continue to try to bridge the widening operating gap by relying upon endowment and gifts. Lower price colleges will continue to try to exert very stiff cost disciplines. But those in the mid-range group are faced with daunting competition from the higher price colleges, expressed in the form of both programs and financial aid, as well as from state universities and the lower price colleges. Keeping up with this competition is a very expensive undertaking for this group.

Cost Structure: Staffing Growth Exceeds Plant Growth

The colleges and universities in our study also differed widely in terms of number of faculty and staff (relative to students) and extensiveness of plant (relative to students, faculty, and staff). For example, in 2000 some colleges had one faculty or staff member for every *two* students or so, while others had only one for every *six* students—a threefold difference in terms of staffing intensity. Similarly, some had over 1,000 gross square feet of plant for every person connected with the campus (students, faculty, and staff), while others managed to operate with less than 200 gross square feet—approximately a fivefold difference. Clearly, the "richer" offerings must be financed either out of operations (typically higher tuition) or from endowment and gifts.

A review of the changes in cost structure over the past three years shows that the higher price colleges increased their staffing substantially—by over 18%. Faculty and staff were added such that the number of students per FTE faculty/staff declined from approximately four to approximately three. Meanwhile, the mid-range colleges increased staffing by only 4%. Whereas the higher price colleges were staffed scarcely more intensively than the mid-range colleges in 1998, by 2000 they had appreciably intensified their staffing. Table 7A in our data report, *Cambridge Financial Indicators, Fiscal Year 2000 Data* report contains details.

In terms of plant utilization, the higher price colleges have approximately 30% more square feet per FTE student/faculty/staff. During this period, physical plant utilization declined only very modestly, about 2%. There was no material difference between the higher price and mid-range colleges. However, with ambitious building plans either underway or on the drawing board for many colleges, we expect plant utilization to fall in the near future; unless, of course, enrollments and other FTEs rise along with the expanded plant.

Hence, colleges saw a slight decline in "aggregate productivity" (see Tab 11 of the *Cambridge Financial Indicators, Fiscal Year 2000 Data* report), more in the area of staff utilization than in plant utilization. The dip in productivity is related, of course, to the widening operating deficits discussed earlier.

A Slight Moderation in Risk

Fixed cost coverage increased at most of the schools in the survey, attributable mainly to a growth in total revenues, including endowment payout and gifts, of over 15% on average. This was coupled with an 11% average growth in plant operating expenses and a 12% growth in tenured faculty compensation. While debt service rose by over 26%, on average, the dollar amount of debt service averages less than one-quarter the amount of tenured faculty compensation. It is interesting to note that the percentage growth in fixed costs was steepest at the "lower price" schools, and most restrained at the "higher price" schools.

Conclusion

The CFI data reviewed in this report continue to suggest that there are "market segments" among private liberal arts colleges and universities. Most notably, there are observable distinctions among colleges with higher effective prices, those with lower effective prices, and those in the mid-range, with respect to amount of student subsidy, pricing power, operating deficits, staffing levels, and plant utilization. Of course, more years of data will be necessary to confirm the emerging trends. Moreover, in a time of economic recession and capital market volatility, unexpected developments may appear. Nevertheless, our examination of these market segments suggests that those in the higher price group have competed on the basis of "enrichment" (broad programs, extensive facilities), while those in the lower price group have competed on "price" (more limited programs and facilities, and therefore lower tuition). The third, mid-range group has competed hard on both enrichment and price; in this case, financial aid.

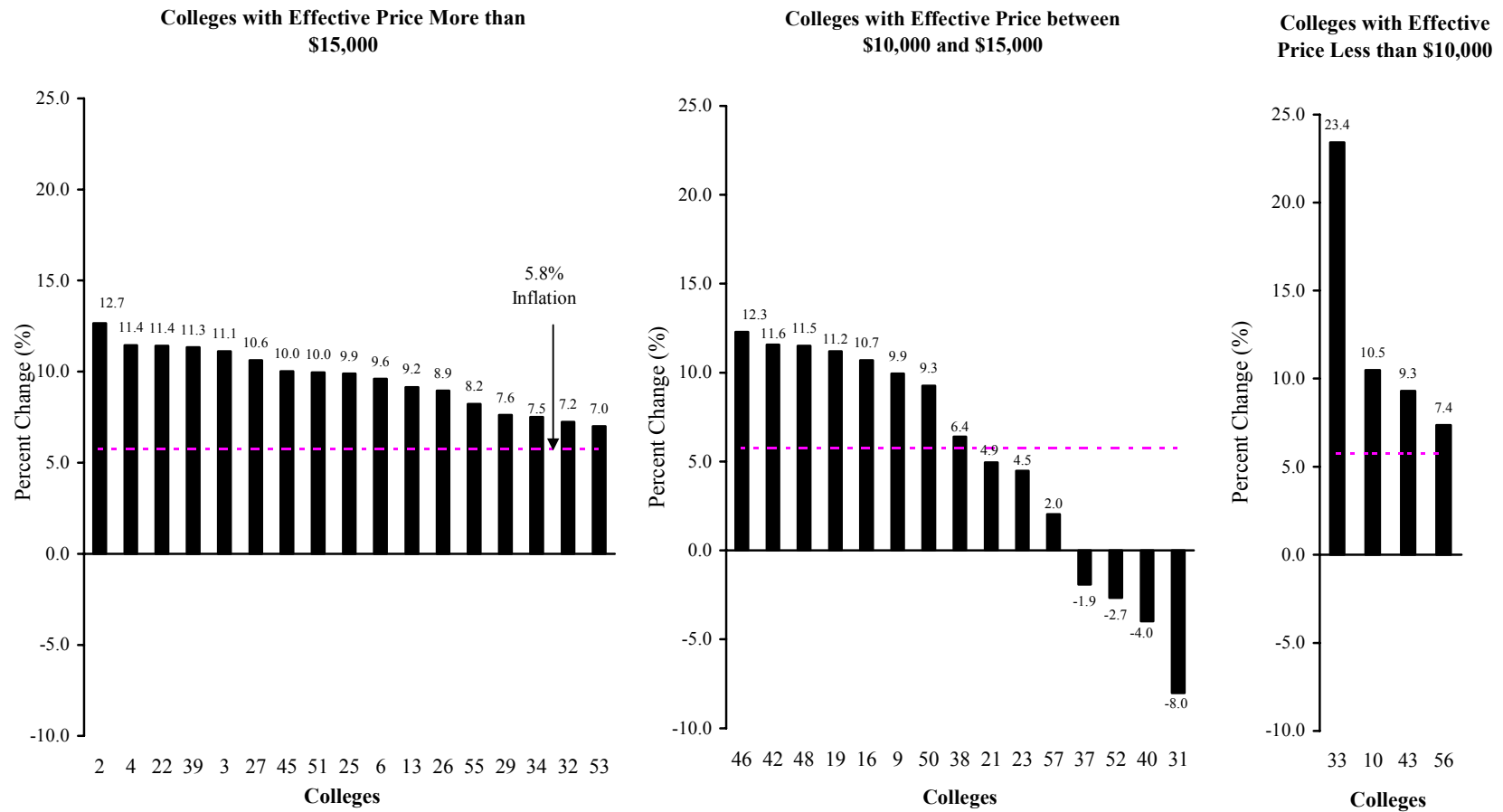
Now that the well-endowed colleges and universities appear to be stepping up their price competition along with their program competition, there will be greater financial pressure on the less endowed schools. This raises the difficult question of whether it is strategically viable for the mid-range institutions to compete with rich and high-cost offerings (more and better programs and facilities), but without comparable endowment support to sustain such a strategy in the long run.

For the institutions in our study, endowment support has become a growing part of the revenue structure. As evident in Exhibit 4, among the three major sources of revenues to colleges, endowment provides the lion's share of the subsidy that enables colleges to function with operating deficits and to provide "financial aid," in effect, even to students who pay full tuition. And as colleges grow more dependent upon endowment, they become more vulnerable to adverse developments in the capital markets. Hence, we direct their attention to the task of portfolio risk measurement within the context of shortfall risk analysis.⁶

⁶ See footnote 3.

Exhibit 1

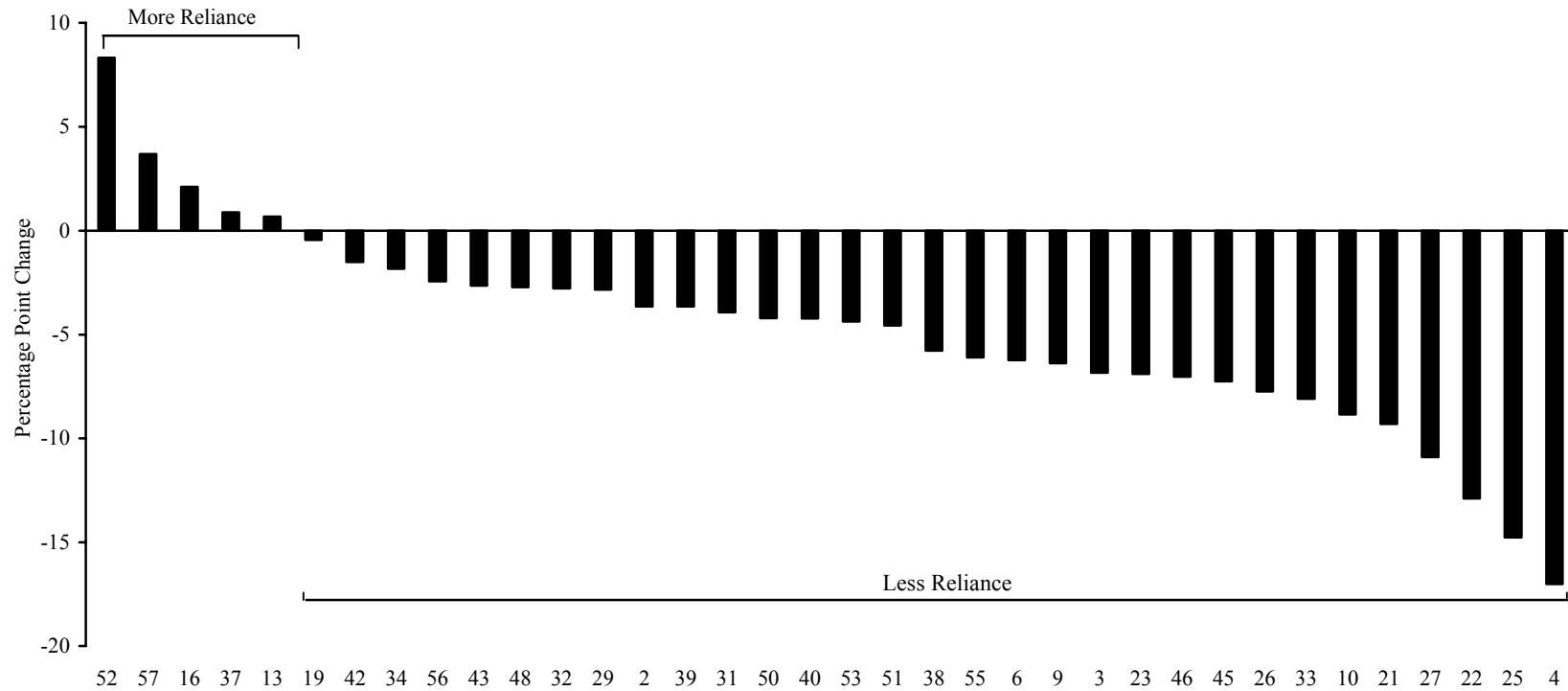
GROWTH/DECLINE IN EFFECTIVE PRICE PER STUDENT
1998 to 2000



Note: Institution codes are from *Cambridge Financial Indicators, Fiscal Year 2000 Data* report.

Exhibit 2

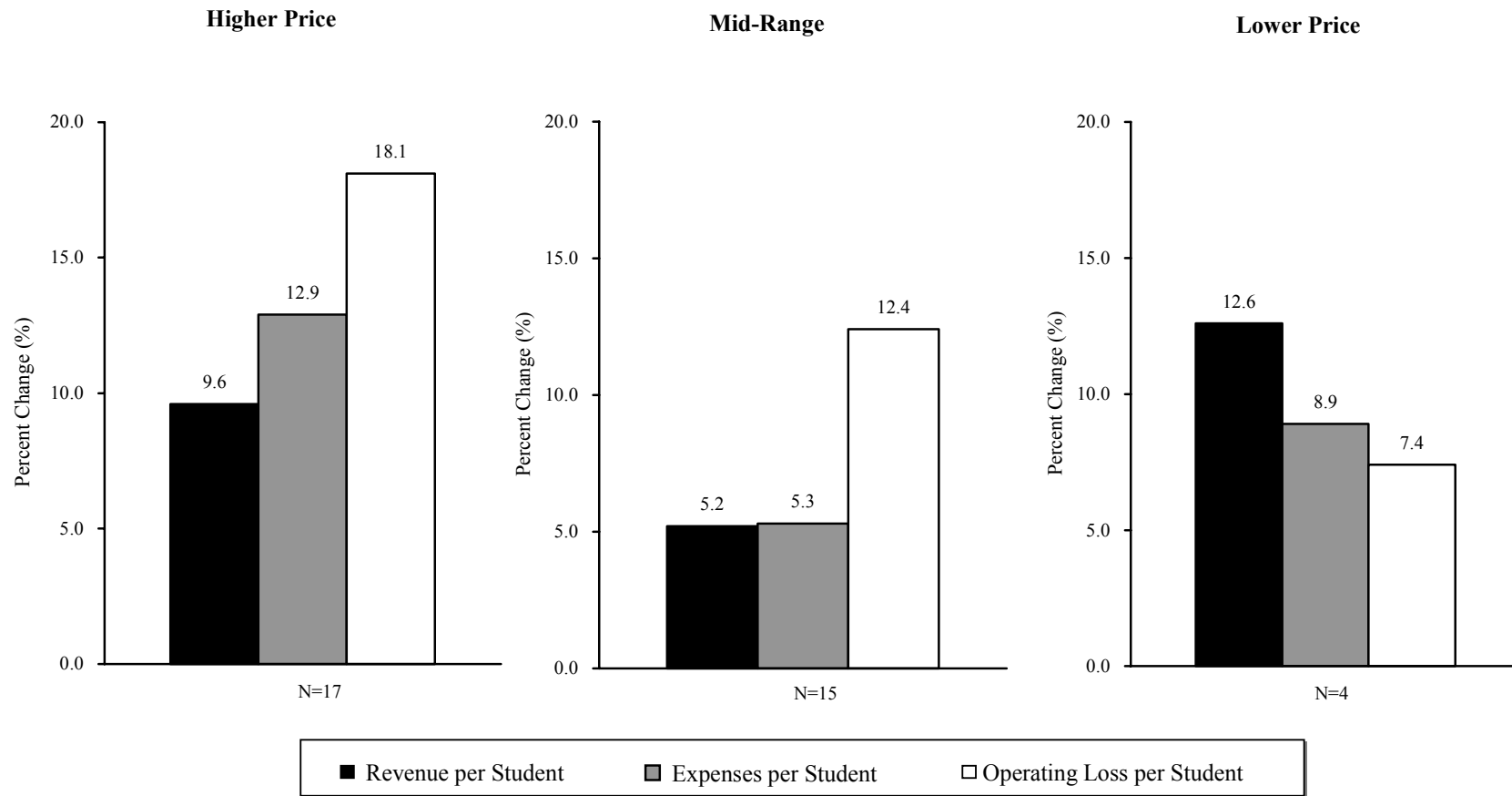
**CHANGE IN RELIANCE UPON REVENUES FROM OPERATIONS
(Percentage Point Change from 1998 to 2000)**



Note: Institution codes are from *Cambridge Financial Indicators, Fiscal Year 2000 Data* report.

Exhibit 3

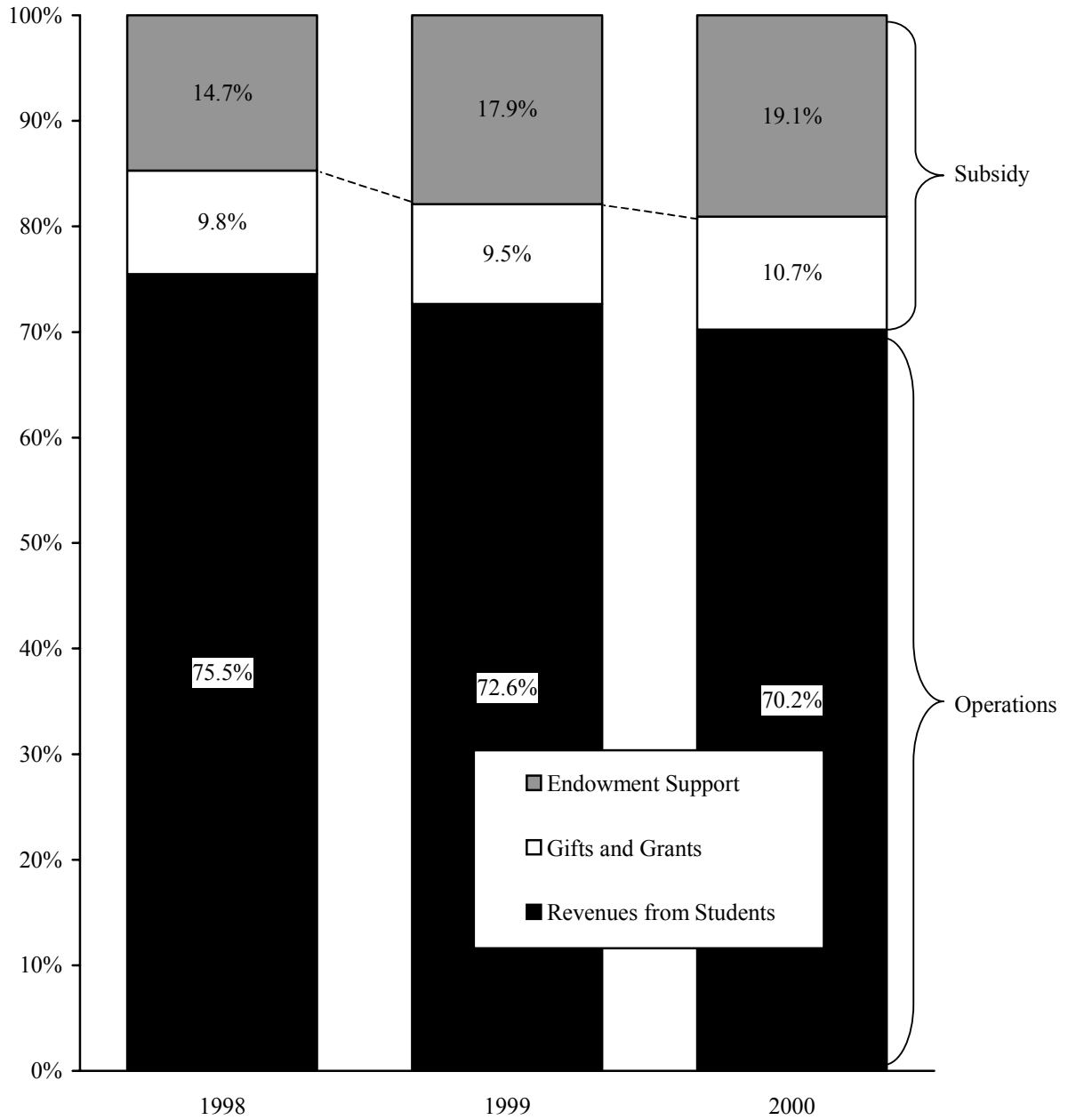
**AVERAGE GROWTH IN NET TUITION REVENUE/STUDENT, EXPENSES/STUDENT
AND OPERATING LOSS PER STUDENT
1998 to 2000**



Note: Per Full Time Equivalent Student. (FTE)

Exhibit 4

**THE GROWING IMPORTANCE OF ENDOWMENT
AMONG THE MAJOR SOURCES OF REVENUE**



Notes: Endowment Support includes "Other investment Income." The graph excludes research and "other" revenues, which together constitute less than 8% of the total and are virtually unchanged over the three years.