

## The Future Economic Challenges for the Liberal Arts Colleges

OVER THE LAST TWENTY-FIVE YEARS, America's liberal arts colleges have endured a steady shrinkage of their traditional market. The number of high-school graduates declined by 21 percent, from 3.2 million in 1976 to 2.5 million in 1993, promoting a ferocious competition for applicants. More recently, a rising tide of competition from alternative providers of education services—beginning with the vigorous expansion of public colleges and universities in the 1960s and continuing now with the abrupt entry of venture capitalists into the world of for-profit education—has put a squeeze on the market for private liberal arts colleges. Schools that once subsisted on a combination of genteel poverty among the faculty, tweedy relationships between admissions deans and prep school headmasters, and “old school” ties with the alumni now depend on four-color brochures, marketing directors, meticulously planned capital campaigns, and elaborate pricing and discount policies that make airline pricing look straightforward by comparison.

It is not surprising that during this period of dramatic change the number of schools that could by any plausible measure be called “liberal arts colleges” dropped sharply (although the number that found it useful to hang onto that sobriquet held steady). The two hundred or so such institutions that remain (of a total of more than three thousand colleges and universities in the United States) can look forward to some promising opportunities, including the reversal of the decline in the population

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of young people; a continued strong market demand for educated workers; and a higher-education marketplace in which their commitment to residential education and personal attention to students makes their offerings increasingly distinctive. Yet in realizing those opportunities, the liberal arts colleges continue to struggle on several fronts. They face a public that is skeptical about rising college costs and pricing policies that are seen as unfairly “redistributive”; an education economy in which new information technologies are transforming how and why people need schooling; and a competitive environment that favors resource-wasting maneuvers for tactical advantage over strategic investments in quality.

#### HOW DID WE GET HERE?

Immediately after World War II, private colleges and universities educated about half of all U.S. students, and probably 40 percent of these students were in liberal arts colleges. Moreover, before the Cold War upsurge in federal support for research, the undergraduate programs of leading private universities had much more in common with those of liberal arts colleges than is true today.

Beginning with the World War II- and Korean War-era G.I. Bills and continuing through the baby-boom years of the 1960s, the notion that a college education was a natural aspiration for middle-class families took hold. College enrollments, which totaled only about 2.3 million in 1950, rose to 8.6 million by 1970. Most of that increase was absorbed in a rapidly expanding public higher-education sector, so that by the time the last of the baby boomers entered college, fewer than a quarter of all college students were in private colleges and universities.

During the 1970s, the economic returns to college education ebbed as the huge cohorts of baby-boom college graduates flooded the labor market. That decline in returns, coupled with the near cessation of overall college population growth as the baby boomers reached adulthood, led to a fearsome scramble for college students throughout the disco era. Private colleges found themselves unable to raise tuitions fast enough to keep up

with rising inflation, and the salaries of college professors fell by 17 percent in real terms from their peak in 1972 to a low in 1980.

Liberal education suffered notably in market popularity as stories of English majors driving cabs made the rounds and students sought the seemingly greater security of professional and vocational majors. The percentage of America's college graduates majoring in a traditional liberal arts discipline fell from 38 percent in 1970–1971 to 25 percent in 1994–1995.<sup>1</sup> Faced with this change in student interests, public and private universities shifted their commitments rapidly, though hardly painlessly, toward undergraduate professional programs.

Perhaps more surprisingly, the liberal arts colleges followed suit. The Carnegie Foundation publishes an elaborate classification of America's colleges and universities, sorted by their programs and degree levels. The economist David Breneman looked at the curricular offerings of the 540 colleges classified by Carnegie in 1987 as "liberal arts colleges." He proposed a rather modest criterion for regarding a college as committed to liberal education: at least 40 percent of its students should major in a liberal discipline.<sup>2</sup> And the result of Breneman's inquiry? Only 212 of these so-called liberal arts colleges passed that test.

The remainder—the majority—had transformed themselves, some quietly, some with fanfare, into schools specializing in business, computing, nursing, and the like, often equipping themselves with large populations of adult and part-time students. It is no accident that in its latest published classification, the Carnegie Foundation has dropped the term "liberal arts colleges" altogether and simply refers to these schools as "baccalaureate" institutions.

The result is that today, in a vastly expanded higher education marketplace, fewer than 250,000 students out of more than 14 million experience education in a small residential college without graduate students, where a substantial fraction of their colleagues major in a liberal discipline. If one made the definition of a "liberal arts college" more stringent, focusing on places where the majority of students major in the liberal arts and live on campus, and where admission is moderately selective (turning down, say, more than a third of those who apply),

the numbers would drop further. Indeed, by this standard, the nation's liberal arts college students would almost certainly fit easily inside a Big Ten football stadium: fewer than 100,000 students out of more than 14 million. The question of whether anybody should care if this dwindling segment of American postsecondary education were to shrink further is one to which we will return.

#### THE FINANCING OF LIBERAL ARTS COLLEGES

Liberal arts colleges are, with rather few exceptions, part of the private nonprofit sector in American higher education. Table 1 provides data on how various types of colleges and universities in both sectors raised and dispersed their revenues.<sup>3</sup> (These data rely on the expansive definition of liberal arts colleges built into the Carnegie classification system.) Public institutions generally receive half or more of their operating revenues from state government appropriations, allowing them to charge tuitions that are markedly below true costs. As a result, public-college tuition revenues, net of the institutional spending on

Table 1. Breakdown of Expenditures and Revenues, 1994 (percent)

	<i>Research &amp; Doctoral</i>		<i>Comprehensive</i>		<i>Liberal Arts</i>		<i>Two-Year</i>
	Public	Private	Public	Private	Public	Private	Public
<i>Expenditures</i>							
Instruction and self-supported research	39.53	43.29	48.48	43.85	46.46	40.12	51.70
Funded research	21.82	18.79	3.02	2.91	1.56	1.03	0.18
Public service	8.48	3.35	4.26	1.76	4.67	0.92	2.37
Academic support	6.63	5.27	6.55	5.49	6.49	5.10	6.21
Library	3.32	3.50	3.99	3.71	3.86	4.34	2.68
Student services	4.27	4.88	8.60	12.70	9.36	14.45	10.32
Institutional support	8.25	12.81	13.97	19.39	15.60	22.24	15.86
Operations and maintenance	7.70	8.12	11.13	10.19	12.01	11.80	10.69
<i>Revenues</i>							
Federal grants and contracts	18.79	27.09	5.96	4.92	5.31	2.66	5.73
State and local grants and contracts	3.42	3.87	3.62	4.35	5.06	4.74	4.86
State and local appropriations	49.98	0.86	56.90	0.69	56.64	0.37	66.50
Endowment income	1.65	12.84	0.00	5.28	0.00	16.13	0.00
Net tuition revenue	26.15	55.34	33.51	84.75	32.99	76.09	22.91

Source: McPherson and Schapiro, *The Student Aid Game*.

student aid, provide generally between a quarter and a third of operating revenues.

In private higher education, tuition plays a much bigger role. Major research universities and other doctoral-granting universities get more than a quarter of their revenues from federal research grants and contracts, helping to hold their reliance on net tuition to around 55 percent of revenues. Liberal arts colleges, by contrast, get more than three-quarters of their revenues from tuition, net of the revenues they rebate to students in the form of student-aid grants. Much of the rest of their revenues, about 16 percent in 1994, derive from income on endowment. However, that resource is very unevenly distributed among liberal arts colleges, with the twenty richest colleges accounting for more than half of all endowments in that sector and the forty richest colleges accounting for three-quarters of the total.

Liberal arts colleges are distinctive in their expenditure patterns as well. Although their spending on instruction is comparable to that at other types of private colleges, their spending on student services and “institutional support”—the administrative infrastructure—accounts for well over a third (37 percent) of all spending, compared to just 18 percent at private research and doctoral universities. This reflects in part the strong attention to student needs that is characteristic of liberal arts colleges, but perhaps as important is the small scale of these places: the much larger research and doctoral universities (average enrollment: 8,439) can spread the overhead of deans and vice presidents over a lot more students than can the liberal arts colleges (average enrollment: 1,316). This problem of scale—the other face of the greater personal attention liberal arts colleges provide—may be important to the future of the sector, a point we return to later.

The management of tuition and student aid is a key factor in the finances of liberal arts colleges. In 1993–1994, the average liberal arts college received \$10,823 in tuition revenues per student, but immediately rebated \$2,882 to students in the form of institutionally financed aid grants. The percentage of tuition dollars rebated in this way has grown from 18.5 percent in 1986–1987 to 26.6 percent in 1993–1994. For a sector that is so

dependent on tuition from students and their families to finance the educational effort, this trend is problematic.

Why are these colleges handing back their precious tuition dollars in the form of aid? The data in table 2 shed significant light on this trend. This table shows how the college destinations of first-time, full-time college freshmen vary with family income at two different points in time, 1981 and 1997. The group of private four-year colleges in this table is considerably broader than the category of liberal arts colleges as classified by Carnegie, for it includes a number of schools with extensive master's-level programs. Still, the numbers are suggestive of important trends, and the subgroup of "highly selective" four-year colleges consists almost wholly of liberal arts colleges.

Examination of the data for 1997 makes clear that income is a major determinant of where Americans begin college. Just over half of the students from the richest families enroll at private institutions, while only 19 percent of students from the poorest families do. The likelihood of attending a private four-year college also rises with income, although not as sharply as the likelihood of attending a private university. Among highly selective institutions, the relation of attendance to income is even more pronounced, in part because the academic qualifications of high-school graduates are correlated closely with income. Fewer than one in a hundred students from families with incomes below \$60,000 begin their undergraduate work at a highly selective four-year college, while students from the richest group are more than six times as likely to do so.

What is of special interest from the standpoint of the financing of liberal arts colleges is the comparison of the 1981 and 1997 data. What does not appear in these data is the often-alleged phenomenon of "middle-class melt"—the speculation, often presented as fact, that rising tuitions are driving middle-income students from private into public colleges and universities. In fact, a slightly larger percentage of students from middle- and upper-middle-income families began their college careers at private universities and private four-year colleges in 1997 than was true in 1981. Although middle-income parents complain about the price tag, they continue to find ways to send

Table 2: Distribution of Freshman Enrollment by Income Background across Institutional Types, Fall of 1981 versus Fall of 1997

	Lower <\$20	Lower Middle \$20-\$30	Middle \$30-\$60	Upper Middle \$60-\$100	Upper \$100-\$200	Richest >\$200	All Groups
<b>1997</b>							
<i>Private</i>							
University	2.5%	3.1%	3.8%	6.2%	11.9%	21.1%	5.8%
Low Select	(1.0)	(1.3)	(1.6)	(2.3)	(3.4)	(4.5)	(2.0)
Medium Select	(0.6)	(0.7)	(0.9)	(1.5)	(3.1)	(5.7)	(1.5)
High Select	(0.9)	(1.1)	(1.4)	(2.3)	(5.4)	(10.9)	(2.4)
4-Year Colleges	12.6%	14.9%	16.5%	17.8%	21.1%	26.6%	17.1%
Low Select	(10.1)	(11.8)	(12.3)	(12.1)	(12.2)	(12.2)	(11.9)
Medium Select	(2.0)	(2.4)	(3.2)	(4.2)	(5.9)	(8.5)	(3.8)
High Select	(0.6)	(0.7)	(0.9)	(1.4)	(3.1)	(6.0)	(1.4)
2-Year Colleges	3.9%	2.7%	2.5%	1.8%	2.3%	3.3%	2.5%
<b>All Private</b>	<b>18.9%</b>	<b>20.7%</b>	<b>22.8%</b>	<b>25.8%</b>	<b>35.3%</b>	<b>51.0%</b>	<b>25.4%</b>
<i>Public</i>							
University	11.9%	14.2%	17.5%	23.5%	27.9%	24.5%	19.4%
Low Select	(5.0)	(5.4)	(6.7)	(8.6)	(8.9)	(8.2)	(7.2)
Medium Select	(4.2)	(6.1)	(7.7)	(9.6)	(10.4)	(7.6)	(7.9)
High Select	(2.7)	(2.7)	(3.1)	(5.3)	(8.6)	(8.6)	(4.4)
4-Year Colleges	22.0%	24.4%	24.5%	24.8%	20.5%	12.6%	23.3%
Low Select	(20.7)	(22.4)	(21.2)	(20.6)	(15.9)	(9.7)	(20.1)
Medium Select	(1.3)	(2.0)	(3.3)	(4.1)	(4.6)	(3.0)	(3.2)
2-Year Colleges	47.1%	40.7%	35.2%	26.0%	16.3%	12.0%	31.8%
<b>All Public</b>	<b>81.1%</b>	<b>79.3%</b>	<b>77.2%</b>	<b>74.2%</b>	<b>64.7%</b>	<b>49.0%</b>	<b>74.6%</b>
	100%	100%	100%	100%	100%	100%	100%
<b>1981</b>							
<i>Private</i>							
University	2.2%	2.7%	3.2%	5.4%	11.3%	18.6%	4.8%
Low Select	(1.3)	(1.4)	(1.5)	(1.8)	(3.0)	(4.6)	(1.7)
Medium Select	(0.5)	(0.7)	(0.9)	(1.6)	(3.1)	(4.4)	(1.3)
High Select	(0.4)	(0.6)	(0.9)	(2.0)	(5.1)	(9.6)	(1.7)
4-Year Colleges	13.6%	15.0%	14.9%	16.3%	21.9%	32.4%	16.2%
Low Select	(11.6)	(12.2)	(11.3)	(10.8)	(12.6)	(17.1)	(11.7)
Medium Select	(1.6)	(2.3)	(3.0)	(4.2)	(5.8)	(9.5)	(3.5)
High Select	(0.4)	(0.5)	(0.6)	(1.3)	(3.4)	(5.8)	(1.1)
2-Year Colleges	6.2%	5.5%	4.2%	3.6%	3.5%	3.0%	4.3%
<b>All Private</b>	<b>22.0%</b>	<b>23.2%</b>	<b>22.3%</b>	<b>25.3%</b>	<b>36.7%</b>	<b>54.0%</b>	<b>25.3%</b>
<i>Public</i>							
University	10.1%	12.9%	16.1%	22.0%	25.9%	22.8%	17.7%
Low Select	(4.2)	(5.0)	(6.2)	(8.2)	(9.7)	(9.2)	(6.8)
Medium Select	(3.7)	(5.4)	(6.5)	(8.9)	(10.0)	(8.4)	(7.1)
High Select	(2.2)	(2.6)	(3.3)	(4.8)	(6.3)	(5.1)	(3.8)
4-Year Colleges	23.4%	22.5%	22.2%	21.6%	16.9%	10.0%	21.4%
Low Select	(22.2)	(20.8)	(18.9)	(17.9)	(13.7)	(8.5)	(18.5)
Medium Select	(1.2)	(1.7)	(3.3)	(3.7)	(3.2)	(1.5)	(2.9)
2-Year Colleges	44.6%	41.4%	39.3%	31.2%	20.4%	13.2%	35.6%
<b>All Public</b>	<b>78.0%</b>	<b>76.8%</b>	<b>77.7%</b>	<b>74.7%</b>	<b>63.3%</b>	<b>46.0%</b>	<b>74.7%</b>
	100%	100%	100%	100%	100%	100%	100%

Source: Calculated from results from The American Freshman Survey.<sup>4</sup> McPherson and Schapiro, *The Student Aid Game*.

their children to private colleges. One reason they have done so is undoubtedly the increase in tuition discounting noted above.

The picture is very different for students from more affluent backgrounds. While private universities have managed to increase their share of students from the upper-income and richest backgrounds, this is emphatically not the case for the private four-year colleges. These schools captured almost a third of the richest students in 1981, and they get just over a quarter today. These are the students who can pay their own way at the expensive private colleges, and the private four-year colleges loss of their share of these students is linked to increasing pressures to provide non-need-based price discounting. The fact is that while the presidents of four-year colleges have been bemoaning mythical “middle-income melt,” they have actually been experiencing the much more painful phenomenon of “upper-income melt”—a phenomenon that it would not be politically prudent to complain about too loudly.

Looking at subgroups of the private four-year colleges adds an important dimension to this analysis. The highly selective four-year colleges—of which the flagships are leading liberal arts colleges like Swarthmore and Wellesley—have not experienced much loss of share among affluent families. Although they enroll a slightly smaller share of the students in the \$100,000 to \$200,000 range (3.1 percent in 1997 versus 3.4 percent in 1981), they have managed to increase slightly their share of students from the richest families (6.0 percent in 1997 versus 5.8 percent in 1981). This is in marked contrast to the least-selective private four-year colleges, where the loss in share of the richest students is concentrated (12.2 percent in 1997 versus 17.1 percent in 1981). This development points to an increasing stratification among more- and less-selective liberal arts colleges, which is a key element in their future. The fact is that the well-endowed, highly selective liberal arts colleges with strong brand-name identification are at least holding their own in the market for students, while the less well known and less affluent are losing ground.

This picture of student enrollment destinations by income also provides a first lesson in understanding the phenomenon of tuition discounting that we have noted. Many observers speak

of a “high tuition/high aid” strategy in private higher education in a way that suggests private colleges and universities are voluntarily giving up much-needed tuition revenue in order to aid students. The natural question would be, if you want more net tuition revenue, why not just cut back on the aid you offer? There are indeed a handful of private colleges and universities in the United States where student aid is for the most part a discretionary expenditure—where the college offers aid in order to promote such social and educational goals as greater economic and racial diversity in the entering class and more opportunity for students with poor economic backgrounds.

For most private colleges, however, a major motive for offering student aid is that they cannot find enough qualified students who will pay the full price. These schools have to offer aid to middle-income students in order to keep tuition charges within reach. And increasingly, as these schools find themselves losing the battle to recruit students from high-income families, they are extending financial aid into that realm as well, often in the form of merit scholarships. The principle here is the same one the airlines follow in charging more to business travelers than to leisure travelers who are willing to stay over the weekend to get a lower fare: the colleges try to charge the full price to students who can afford it, and who are not in danger of being enticed away by other schools, while offering discounts to those who cannot or will not pay the full fare. The economics is the same for airlines as it is for colleges: just as a passenger flying at a discount fare provides more net revenue than an empty seat, so a student providing some tuition revenue is doing more for the bottom line than an empty dormitory bed and classroom seat.<sup>5</sup>

Here lies a huge financial challenge for many less-prominent liberal arts colleges. A relative handful of highly selective, well-endowed liberal arts colleges use their substantial resources both to subsidize their educational program and to help finance the cost of student-aid discounts. These powerhouses have considerable discretion over whom they admit, what they charge, and how they distribute their student aid. Less affluent, less prestigious colleges lack the resources to give deep subsidies to their educational efforts or to finance substantial tuition dis-

counting from sources other than current revenues. At the same time, they lack the brand-name recognition to recruit qualified full-paying students without offers of merit aid or other discounting strategies.

The fundamental problem here is the lack of a customer base that is willing and able to cover the costs of the enterprise. In times past, many of these colleges were able to rely on a strong regional or local appeal, often linked to a religious denomination. In many cases they could also recruit faculty from nearby graduate institutions at relatively modest salaries. Increasingly, however, the markets both for students and for college faculty have become national in scope, and loyalty to a religious denomination has become less important. It is not uncommon these days to find regional liberal arts colleges where virtually no one is paying the full posted price. At these schools, announcing an across-the-board tuition cut as opposed to continuing to pump money into student aid has little cost—since nobody was paying that price anyway—and may give some short-term publicity benefits. Such a step, however, does little to address the underlying problem that many are less interested in the product than they used to be.

#### FINANCIAL-AID MANAGEMENT AND THE ENGINEERING OF ENROLLMENT

Decisions about pricing, discounting, and admissions have grown so much in importance to liberal arts colleges—and to higher education generally—that they deserve a closer look.<sup>6</sup>

It is useful to think in stylized terms of three “ideal types” of student-aid operations. The first, which we might call the “need-blind, full-need” approach, is a fair description of reality at a handful of the best-endowed and most-selective private colleges and universities in the nation. These are schools with long waiting lists of highly qualified full-paying customers. They could easily fill their freshman classes with little or no spending on student aid. For these schools, student aid is a real cost, reflecting a choice by the institution to give up revenue from full-paying students to change the profile of the freshman class, aiming perhaps at socioeconomic or racial diversity, or honor-

ing a more abstract principle of admitting students without the ability to pay.<sup>7</sup> The very few institutions in this happy situation can afford to say, and to mean, that they admit students without regard to financial need and that they fund all such students to the extent of their need.

A second ideal type of student-aid operation, which might be called the “budget stretch” approach, would have fit a goodly number of private colleges and universities ten or fifteen years ago. These were institutions that had roughly the same aims as the elite institutions with the “need-blind, full-need” approach, but lacked the endowment resources and the affluent applicant pool to operate as these elite places did. These schools would budget what they felt they could for student aid and try to stretch those funds to fill their freshman class with the best students they could, taking as little account as possible of a student’s ability to pay.

The third approach might be described as “strategic maximization.” This outlook also fits schools that lack the resources of the most-selective and well-endowed institutions. But now, instead of aiming to “stretch” a fixed student-aid budget as far as possible, the school sets out deliberately to shape a financial-aid strategy that maximally advances the combined (and conflicting) goals of admitting the best students and gaining as much revenue from them as possible.

In its full glory, strategic maximization can be a pretty ruthless business. If a student is willing to travel a long distance to be interviewed on campus, that can be a signal that she is eager to attend, so it may mean a smaller financial-aid offer to such a student while throwing more dollars at the young person who is somewhat indifferent about attending one place or another. Students with an interest in a popular major may get smaller student-aid offers than those interested in a more obscure and hence more underenrolled subject. And, of course, students with higher SATs or a better jump shot, because they may attract applications from other full-paying students or may fill the stands at the stadium, are likely to get better aid offers than their less-qualified peers.

Few schools have gone all the way down the road to this strategic maximization strategy. But it is fair to say that the

number of institutions following the “need-blind, full-need” strategy—always a small number—has shrunk in the last decade, and that most institutions have moved their financial-aid operations from the direction of the “budget-stretch” approach significantly toward strategic maximization.

The colleges’ increased focus on the strategic significance of aid and pricing decisions has changed the institutional structures through which aid is managed. When aid was seen as a charitable sideline, most institutions were content to leave the details to the professionals in the student-aid office, with the main high-level concern being that of keeping the aid operation within budget. Student-aid officers, who had collaborated on developing the elaborate needs-analysis apparatus that governed the allocation of need-based student aid, formed strong professional and ethical bonds and developed both a rather inaccessible professional jargon and something of a tradition of holding their operation aloof from institutional goals.

These days, financial-aid policy and practice at private and public institutions alike is frequently the province of high-level consultants and close presidential attention. Following on the heels of their colleagues in the admissions office, financial-aid officers have come to find their duty hazardous, with a high level of accountability for results in terms of meeting institutional goals and limited patience for qualms based on professional ethics.

There are several key decision points in shaping financial-aid strategies. The first broad choice is whether to confine aid offers to students with demonstrated financial need and, if so, to limit those offers to the extent of the need. So-called no-need or merit aid involves awarding aid to students that the school finds attractive, even if they have no need, or awarding aid to such students in excess of their demonstrated need. As shown in table 3, this form of aid has become increasingly important in U.S. higher education generally, growing at a rate of some 13 percent annually faster than inflation between 1983–1984 and 1991–1992, compared to a growth rate of 10 percent in need-based aid. At the more-selective liberal arts colleges (Liberal Arts I in the Carnegie classification), merit aid accounted for only 14 percent of all grant aid in 1991–1992, but growth was

Table 3: Non-need Aid per Freshman, by Institution Type and Carnegie Classification, 1983–1984 and 1991–1992

Carnegie Class	Non-need aid per freshman (in 1991\$)		Non-need share of inst.-based aid		Real growth rate in aid per freshman (%)		Freshmen enrolled 91–92
	83–84	91–92	83–84	91–92	non-need	need	
<i>Publics</i>							
Research I	71	296	0.32	0.46	18	11	33,056
Research II	112	525	0.62	0.64	19	19	4,957
Doctorate I	90	185	0.44	0.55	9	2	10,874
Doctorate II	43	108	0.14	0.63	11	-17	1,359
Comp I	101	193	0.51	0.67	8	-1	52,488
Comp II	269	507	0.75	0.63	8	15	4,251
LA II	225	852	0.46	0.60	17	10	977
<b>All publics</b>	<b>96</b>	<b>252</b>	<b>0.44</b>	<b>0.56</b>	<b>12</b>	<b>6</b>	<b>110,003</b>
<i>Privates</i>							
Research I	201	474	0.08	0.10	11	8	14,361
Research II	205	1051	0.10	0.19	20	11	4,757
Doctorate I	46	399	0.08	0.18	27	15	6,322
Doctorate II	379	1442	0.29	0.44	17	7	2,515
Comp I	328	790	0.32	0.28	11	13	24,808
Comp II	244	768	0.22	0.24	14	12	11,462
LA I	203	660	0.10	0.14	15	9	27,156
LA II	383	1040	0.30	0.33	13	11	19,123
<b>All privates</b>	<b>253</b>	<b>742</b>	<b>0.17</b>	<b>0.21</b>	<b>13</b>	<b>10</b>	<b>117,262</b>
<b>All institutions</b>	<b>177</b>	<b>505</b>	<b>0.21</b>	<b>0.24</b>	<b>13</b>	<b>10</b>	<b>227,265</b>

Note: Carnegie classification as of 1987. Certain categories of schools are not listed separately (for example, public art and design colleges and private religious schools).

Source: Peterson’s institutional and financial aid data bases. McPherson and Schapiro, *The Student Aid Game*.

rapid: 15 percent annually after accounting for inflation. At the less-selective liberal arts colleges, merit aid grew a bit slower—13 percent per year—but it accounted for fully a third of all aid awarded, compared with just 21 percent at the average private institution.

Merit aid, however, is only the tip of the iceberg, because colleges can and do vary the quality of the aid packages they offer to needy students according to how eager they are to attract the student. A typical student-aid “package” includes a financial-aid grant, a loan, and a work-study job. It is not uncommon for two students enrolling at the same school with an equivalent ability to pay to receive very different packages. One might, for example, have \$9,000 in grants, \$4,000 in loans, and an expectation of earning \$1,500 through work during the school year; the other might have a \$14,500 grant with no loans

or expectation of earnings during the year. The difference can be accounted for through the fact that the second student had a higher SAT score or some other attribute that made him more attractive to the college. Such “merit within need” is a major factor in student-aid practice at a great many institutions that have no explicit merit or no-need aid. Schools also must decide whether to take financial need into account in deciding which students to admit and whether to meet the full need of all the students they do admit. Variations and combinations of these strategies are almost endless and provide employment for a growing army of consultants.

The current market situation poses a particularly vexing problem for the less affluent and less selective among private institutions. In the United States a handful of highly selective, highly successful, and very rich private colleges and universities set a standard on class size, research reputation of faculty, course load, scientific facilities, and gymnasium equipment. Less-affluent schools try to emulate the product of the leading institutions while lacking the endowment resources and deep applicant pools that the market leaders enjoy. These less-affluent institutions find themselves judged not only on the basis of their ability to deploy these costly resources but also on their ability to recruit a student body with impressive qualifications. Needing every dollar of revenue they can get, and needing to attract every high-quality student they can find, these institutions are under enormous pressure to use their financial-aid resources effectively, through aggressive packaging policies and increasingly through explicit merit aid.

In this context it is hard not to notice a touch of self-righteousness in the insistence of the most affluent and selective schools on the principles of need-blind admissions, full-need financing of admitted students, and no merit aid. In one sense, because the elite institutions use their large endowments to subsidize the education of all their students, they offer a substantial merit scholarship to every student they admit. Competing schools with fewer resources can with some justification claim that they are merely using their targeted merit scholarships to try to keep up. Moreover, even for very well endowed institutions, their ability to fund fully their needy students de-

pend heavily on having a great many high-quality applicants who are willing and able to pay the sticker price. Or, more bluntly, what mostly differentiates schools that use merit aid or other strategically oriented aid strategies from those that do not is not their moral fiber but the number of top quality full-paying students they are able to attract without such devices.

So, how does this actually work? How does a college that wants to manage its enrollment strategically go about that work? A stylized example drawn from *The Student Aid Game* may help make things more concrete.<sup>8</sup> The top panel of table 4 provides admissions and aid statistics for the class of 2000 at mythical “Conjectural University,” a moderately selective private institution that practices need-blind admissions and full-need funding of enrolled students. The table crossclassifies the applicant pool according to ability to pay and academic promise (measured here for convenience simply by combined SAT scores). Within each academic ability/financial need group, the table reports the number of applicants, the number accepted, and the number enrolling. The table gives a rather rich picture of how the combined policies of the admissions and aid offices wind up producing the freshman class.

As the summary data for the first section show, Conjectural University enrolls a freshman class of 1,011 students by admitting 2,565 out of an applicant pool of 4,785. The selectivity of the place is evidenced in the fact that the average SAT score of the freshman class (1,006) is substantially above that of the applicant pool (864). Although the data are pure fiction, they reflect some realistic features of profiles of actual schools. Thus, for example, higher-ability students are generally more likely to be admitted and less likely to enroll than lower-ability students. High-need students are more likely to enroll if admitted and, at a need-blind place, are no less likely to be admitted, given ability levels.

The strategic usefulness of a table like this lies in examining the consequences of potential changes in admissions/aid policy. Suppose, for example, that Conjectural University had formulated a goal of raising the number of high-ability students in the class (perhaps because the current situation reflected a fall from a more glorious past), and that a board member stood

Table 4: Admissions Profile, Conjectural University

	Combined SAT Score					Total	Average SAT
	1300+	1100–1300	900–1100	700–900	Below 700		
<i>No Need</i>							
Apply	75	125	300	300	400	1,200	866
Accept	75	110	250	200	10	645	1018
Enroll	20	40	75	80	9	224	988
<i>Low Need</i>							
Apply	75	125	300	300	400	1,200	866
Accept	75	110	250	200	10	645	1018
Enroll	25	45	80	80	9	239	1003
<i>Medium Need</i>							
Apply	75	125	300	300	400	1,200	866
Accept	75	110	250	200	10	645	1018
Enroll	30	50	90	80	9	259	1015
<i>High Need</i>							
Apply	60	125	300	300	400	1,185	858
Accept	60	110	250	200	10	630	1008
Enroll	30	60	100	90	9	289	1013
<b>Total</b>							
Apply	285	500	1,200	1,200	1,600	4,785	864
Accept	285	440	1,000	800	40	2,565	1016
Enroll	105	195	345	330	36	1,011	1006

## Revised Admissions Policy, Conjectural University

	Combined SAT Score					Total	Average SAT
	1300+	1100–1300	900–1100	700–900	Below 700		
<i>No Need</i>							
Apply	75	125	300	300	400	1,200	866
Accept	75	125	300	250	75	825	974
Enroll	20	45	90	100	68	323	910
<i>Low Need</i>							
Apply	75	125	300	300	400	1,200	866
Accept	75	110	250	200	10	645	1018
Enroll	25	45	80	80	9	239	1003
<i>Medium Need</i>							
Apply	75	125	300	300	400	1,200	866
Accept	75	110	250	200	10	645	1018
Enroll	30	50	90	80	9	259	1015
<i>High Need</i>							
Apply	60	125	300	300	400	1,185	858
Accept	60	110	250	0	0	420	1117
Enroll	30	60	100	0	0	190	1134
<b>Total</b>							
Apply	285	500	1,200	1,200	1,600	4,785	864
Accept	285	455	1,050	650	95	2,535	1020
Enroll	105	200	360	260	86	1,011	1001

Note: In this example, low need is considered to require a grant of 0–\$5,000; medium need, \$5,000–\$12,500; high need, \$12,500–\$25,000.

Source: McPherson and Schapiro, *The Student Aid Game*.

ready to put up enough cash to support a big investment in this effort. An obvious thing to try would be raising the “yield” of high-ability/low- or no-need students by offering merit scholarships. Suppose that Conjectural were to offer \$10,000 merit scholarships to no-need students in the applicant pool from the 1300+ SAT group. This might yield, say, ten new students. Notice that the cost of the program in the first year would be not only the \$100,000 going to the newly attracted students but an additional \$200,000 to the students who would have enrolled anyway (since there is no way to figure out in advance which ones they are). If this program were sustained for each new class through its four years at Conjectural, its cost when fully implemented would be \$1.2 million per year.

But there is an obvious way to offset some of that cost. With ten more high-ability students added to the class, the college could reduce its admission of other students by ten, and the obvious place to look would be in the low-ability/high-need group. If the college simply rejected the ten students it now accepts from that group, it would avoid financial-aid expenditures on them of about \$17,500 per student for nine students, or \$157,500. Over four classes, this would amount to annual savings of \$630,000, offsetting just about half the cost of the merit-aid program. The net effect on average SATs of replacing these low-ability/high-need students with high-ability/no-need students would be a gain of about eight points.

Whether this would be a prudent, clever, or fair thing to do is a matter we will address shortly, but first consider another possible policy change. Suppose the institution, rather than looking for higher-quality students, instead was in a bind that compelled it to look for savings in its financial-aid operation. Again, the obvious strategy would be to deny admission to low-ability/high-need students and replace them with students of lower need. For concreteness, imagine a dramatic change. Suppose Conjectural simply stopped admitting high-need applicants with SATs below 900—a more dramatic step than a real college would likely take. This would cut enrollment by 99. Suppose, for simplicity, that the college replaced those 99 by admitting more no-need students. In particular, suppose they admitted all no-need students with SATs above 900, admitted

another 50 from the 700–900 range, and admitted enough with SATs below 700 to make up the remainder of the enrollment shortfall produced by denying admission to the low-ability/high-need students. Assuming constant yield rates for these applicant groups, the results of this policy shift are shown in the Revised Admissions Policy section of table 4.

Notice that the average SAT scores of enrolled no-need students fall sharply, from 988 to 910, but that this drop is partially offset by a rise from 1013 to 1134 in the average SATs of high-need students. On balance, the effect on average SATs for the entering class is a drop of 5 points—achieved however by more than doubling the number of students in the class with very low SATs. The financial savings are spectacular—a saving of about \$1.75 million in the first year, \$7 million per year once the effects work through the four years.

Such a policy is too draconian to be realistic, but a milder version of the policy might be plausible. Suppose, for example, that the college rejected the ten lowest-ranking students among its high-need applicants and replaced them with the highest-ranking students among the no-need students it would otherwise reject. The effect on the quality of the class might be minimal, and the first year's financial savings would be \$175,000.

Policies of this kind—making admission need-aware, or introducing merit aid—obviously have great appeal to hard-pressed colleges. An analysis like that in table 4 makes the options and the trade-offs they imply relatively clear. Real-world admission and aid strategies differ from this stylized example mainly in increasing the dimensionality of the problem, adding to the number of ways in which the prospects presented to different students are manipulated.

It is difficult to generalize about the effectiveness of these various financial-aid strategies in promoting individual institutions' goals. A great deal will obviously depend on the circumstances of the individual institution. However, one broad generalization will stand up: the consequences for any one school of following these kinds of aid strategies will differ greatly depending on how their fellow institutions respond. This is most obviously true of merit aid and differential aid-package strategies. Consider an individual school with four or five close

competitors with overlapping admissions pools. If this institution offers selective price cuts in the form of merit aid or “sweetened” aid packages to its most promising students while its competitors do not, the impact on the institution’s yield of these desirable students is likely to be quite strong. But if the school’s price cuts have this effect, it is likely that they will provoke a response from the competing institutions. In terms of the example discussed earlier, if Conjectural University recruits ten top students through merit aid, there is a good chance that it is recruiting them away from one or a few close competitors. If the College of the Imagination, just down the street from Conjectural, notices the loss and figures out the reason, it is very likely to respond with an equally or more aggressive merit-aid program. It is easy to picture a chain reaction that winds up with all the schools in the area enrolling basically the same students they would enroll without their merit-aid programs, but forgoing a lot of tuition revenue from them.

A different but equally potent dynamic can result from a single school adopting a need-aware admissions strategy or becoming more stingy with grants to high-need students who are in the lower part of their admitted group. Competitor schools who do not follow suit will encounter an abrupt increase in the fraction of relatively high need, low-quality admitted students who choose to enroll, for suddenly the admissions/aid offers will have become relatively more attractive. Thus, the decision by any one school to worsen the offers it makes to high-need students will increase the pressure on competing schools to do the same. There is, however, an important difference between this case and the case of merit aid or differential packaging. Here, while there is clearly harm to the interests of the students whose aid offers are being worsened or withdrawn, there is no harm to the collective financial interests of the schools involved, as there is in the case of a merit-aid price war.

Yet this kind of analysis also brings to the fore questions about the long-run financial wisdom as well as the ethical propriety of such policies. The right answers for particular institutions depend very much on local circumstances and options, but we believe the following general points should be kept in mind when contemplating such policies.

First, colleges should not think themselves obliged to meet goals that are simply beyond their financial capacity. The handful of schools that practice both need-blind admission and full-need funding of aid for enrolled students are in a highly favorable position to honor such claims. They are very well endowed places with the added benefit of having large numbers of affluent full-paying students. There is no more fundamental constraint on ethical principles than “ought implies can”—no one can be morally obliged to do what is beyond her powers. It is our sense that colleges and universities should view the effort to extend opportunities for access to their educational offerings as an important goal, but not one that must override all other goals, including offering a high-quality education to those who do attend.

In this context it is important to recognize that simply being “need-blind” in admission, absent the resources required to meet the need of all who enroll, is an empty goal. Once a college finds that it must ration student-aid funds, the question of how this is best done becomes a matter of strategy and judgment. A school might admit without regard to need but then deny financial aid to the lower ranked and needier among the admitted students. Or it might offer the less attractive among the needy admits financial-aid packages that fall short of meeting need (a “gapping” strategy). Or they might, as in the examples discussed above, make the admission decision itself need-aware. There is no obvious principle that makes one of these strategies more moral than another.

Indeed, there are times when being self-consciously need-aware may be more effective for a school that is trying to promote greater economic diversity among its student body than is a need-blind strategy. This is obviously the case if a school wants to use information about financial need to admit a more economically needy class than need-blindness would yield. But it is also quite plausible to imagine that a school in particular circumstances could find that being purely need-blind is not producing the income profile it desires, and that it could produce a better result by “tilting” in favor of middle-income students or in favor of high-need students.

Although the moral choices facing colleges are clearly complex, there is, in our view, one moral principle that should be widely respected in schools' admissions policies—the principle of honesty. Schools should inform applicants and high-school guidance counselors of how they make their decisions. There is a good deal of pressure on schools to maintain a claim to being need-blind when the reality of their policies is more complicated. Many schools, for example, are need-blind for freshman admits but not for transfers, and others are need-blind for the first round of admits but are need-aware for those on the wait list. Schools should be explicit about such policies.

#### THE FUTURE VALUE OF THE LIBERAL ARTS

Liberal education is expensive, and the means of its financing are increasingly controversial. Is the game worth the candle? Much of the value of liberal education may lie outside the economist's "nicely calculated less and more," but as economists we would like to take note of compelling reasons for regarding the future economic value of liberal education as strong.

Considerable evidence exists that the economic returns on educational investments of all kinds have risen in the last twenty years. At the college level this is reflected in a widening gap between the earnings of those with high-school educations and those with higher levels of education. Regrettably, most of the growth in the gap comes from the declining real wages of high-school graduates, rather than stronger earnings from those who attend college. Still, it is clear that the economic incentive to attend college is larger now than in past eras. These high returns appear to apply at all levels of postsecondary education—the earnings gap has widened between those with some college and those with none as well as between college graduates and those with some college.

What accounts for these higher returns? Are they likely to prove a transient phenomenon? One source of the higher returns is temporary—a result of changing demographics. As we noted earlier, returns on higher education were depressed in the late 1960s and early 1970s as a result of the very large cohorts

of college-educated workers who appeared in the labor force at that time, as the baby boomers matured. Since then, the decline in the number of young persons entering the labor force has produced something of a shortage of young college-level workers, and this has contributed to increased returns. The impact of this force can be expected to diminish as the “echo” of the baby boom leads to larger cohorts of young people in the decades ahead.

This supply-side effect, however, does not appear to be the main explanation for higher returns. Rather, most of the action has been on the side of the demand for labor, and appears to be a result of the rapid pace of technical change. Two economists, Larry Katz and Kevin Murphy, have shown that rising demand for better-educated workers has been driven by the relative expansion of industries that have higher demands for educated labor.<sup>9</sup> That is, those parts of the economy that rely less on college-educated labor (farming, heavy industry) have declined in importance, while industries that use more college-educated workers (financial services, high-tech manufacturing) have grown.

Ongoing rapid technical change implies that this trend is likely to continue, and thus the economic payoff to higher levels of education is likely to be high for the foreseeable future. The stunning developments over the last decades in areas from microcomputers to biological engineering are only beginning to reveal their consequences. Not only will many of these developments continue to generate significant technical changes, but they also provide a powerful engine for the further acquisition of new knowledge. Hence, from the standpoint of economic efficiency and growth, the nation is likely to require high and rising levels of investment in human skills. But should this investment take the form of liberal education, or does the importance of technical change call instead for greater investments in narrowly technical education?

How does one prepare for a world in which the content of one’s job may change dramatically five or more times in the course of a career? Keeping pace in a world of rapid technological change puts a premium on learning how to learn, on becoming flexible. Even the very best training in today’s technology will quickly become obsolete in the world into which we

are moving. All those computer programmers who learned COBOL and FORTRAN in the 1970s have had to learn this lesson. Indeed, it is not implausible that advances in computer technology will render the very profession of computer programming as we have known it obsolete in the next twenty years: computers are increasingly capable of writing their own programs (and even designing their own successor machines) on the basis of more general instructions provided by users of what the computer needs to do.

In the face of the rapid obsolescence of detailed technical skills, it becomes clear that what is needed is not more training in today's technology—indeed not training at all—but education. Education includes being prepared to respond to new situations and challenges. It means cultivating the ability for independent thought, for expanding the capacity to cope with new ideas and new outlooks. These are precisely the strengths of liberal education. Liberal education in this sense is of course by no means a monopoly of the liberal arts colleges, nor is it necessarily a matter only of teaching the traditional liberal disciplines. As Alfred North Whitehead argued many years ago, business can be taught in a liberal spirit and, equally, classics can be taught in a narrow and technical way.<sup>10</sup> Still, as we suggest below, liberal arts colleges are likely to play a critical role in preserving a social understanding of what liberal arts teaching really is.

Perhaps as important as technical change to the future of the economy and the future of liberal education is the growing internationalization of the economy and society. Abetted by rapid advances in communication technology, it is clear that future citizens will need to be comfortable with a much broader range of languages and cultures than has been traditionally required to live their daily lives. Even for relatively narrow business purposes, when dealing with citizens of another country it is an obvious advantage not only to speak the language but to have some understanding of cultural expectations and norms. And there is every reason to expect that cross-national communication and interaction will extend well beyond narrow business purposes. Economic and social issues from pollution to the spread of AIDS are inherently global and will increasingly

require a search for common understanding and common values. The capacity to transcend one's own parochial point of view and join in a larger understanding is certainly one that liberal education aims to promote. Higher education, in an extension of its traditional role in liberal and general education, will be expected in the future to help promote both respect for difference and this search for common values.

Although seemingly not an economist's kind of topic, we believe it is of first-rate importance in thinking about social needs for higher education to keep in sight the role of colleges and universities in education about values. Both globalization and rapid technical change pose challenging problems for American values and traditions. A key example is our growing technical ability to prolong life. We will, individually and collectively, be forced in the future to decide matters of life and death that historically have been out of our hands. It is not an exaggeration to say that we have barely a clue about how to do this responsibly, humanely, and morally. Problems of similar depth arise as we as a nation increasingly come to recognize ourselves as part of a world of communities. Both understanding and valuing other cultures (and diverse communities within our own borders) and finding legitimate grounds for criticizing or reforming cultural practices that violate certain core values are huge challenges facing us.

Colleges and universities in the United States, both more than in other countries and more than in our own past, are now the places where systematic and open-minded reflection on these matters happens. There are few social needs more important than maintaining, or sometimes creating, traditions of searching critique and civil discourse about these fundamental issues.

#### PRODUCING EDUCATION IN THE LIBERAL ARTS COLLEGE SETTING

Viewed as producers of higher-education services, liberal arts colleges have several distinctive features. First, they are small in scale, with enrollments averaging only about 15 percent of those at private universities and 8 percent of those at public. Second, liberal arts colleges are unusually reliant on fully qualified faculty to teach their courses, lacking the ranks of graduate

teaching assistants that carry a good part of the undergraduate load at most universities. And third, they are residential enterprises, housing most of their students on campus and emphasizing the educational importance of the residential experience. This is clearly an expensive package, and likely to become more so. It also bucks up against some major trends in U.S. higher education, including the increasing specialization and subdivision of the university curriculum and the increasingly part-time and nonresidential character of the undergraduate experience for more and more students. Can liberal arts colleges overcome these challenges? Should we, as a society, care if they do?

Putting professors in contact with manageable numbers of students in a setting that is on a human scale is the essence of the liberal arts college, as embodied in the metaphor of Mark Hopkins and the log: when President James A. Garfield, a Williams graduate, was asked to define the ideal education, he responded that it was a student on one end of a log and longtime Williams president and professor Mark Hopkins on the other.<sup>11</sup> Yet that way of producing education imposes some limitations. No college with two thousand students and two hundred faculty members can produce the range of majors and interdisciplinary programs offered by a major university (the University of Minnesota had at last count more than 125 undergraduate major subjects, a number that, mapped onto the Macalester College faculty, would yield an average department size of between one and two). A major challenge facing small colleges is therefore that of finding a way for a limited number of faculty to offer a range of topics and subject matters in its curriculum that suitably reflects the range of modern learning. It is fair to say that nobody at this point has a really satisfactory solution to this problem. The intellectual and political arguments for adding new programs—in various foreign languages, in ethnic and area studies, in new scientific subdisciplines—are all plausible, and they add up to an unbearable load. That is true especially when tradition requires each such study to be instantiated in its own space, with its own bureaucratic apparatus and support staff. The solution, if there is one, must be found in articulating persuasively the case that the strength of the liberal arts college lies not in the range of its

offerings but in the depth of the understanding it induces, the general intellectual and human capacities it fosters, and the ways it finds to make its organizational structures more flexible.

Scale matters, too, in managing the support services a college needs to provide. Halving the number of students does not halve the number of books the library needs. The number of football coaches at a college of two thousand is not much different from the number at a university of ten thousand, and the swimming pool needs the same amount of water. As mentioned earlier, the administrative infrastructure absorbs a substantially larger share of expenditures at small colleges than at larger universities. The economies of scale in delivering various services argues in favor of consortial arrangements that spread costs over more schools, an opportunity more available to urban than to rural colleges, and an opportunity that may be enhanced for some kinds of services by new developments in electronic communications such as the World Wide Web.

The importance of high-priced faculty in the economy of the small college presents a major challenge. Faculty at small colleges tend to run their own shops to a greater extent than at universities. Activities such as preparing laboratories, organizing slides in art history, typing up syllabi, or grading exams can often be passed off to graduate students or paid professionals in universities but wind up being faculty chores in colleges. Although faculty sometimes find this frustrating, they also take satisfaction in a manner of work that may have more in common with a medieval craftsman than a modern corporate worker.

Yet faculty are very expensive. A big challenge facing colleges is to find ways to relieve faculty of “low-value added” activities while encouraging them to maintain and even increase their immediate engagement with students in the business of learning. A good example is the advising of students. At its best, the work of helping students plan their undergraduate careers is of enormous importance, and many colleges pride themselves on keeping that function with the faculty. In plain fact, though, much advising time at most colleges is consumed with checking paperwork, signing forms, and shuffling paper—tasks for whose skillful performance a Ph.D. is often a disqualification. Here and elsewhere the prospect of using modern

information technology to release faculty from purely routine functions so they can give more attention to the creative aspects of their jobs may be considerable.

CONCLUSION: WHO CARES?

Liberal arts colleges have big problems to solve, both in terms of how they produce their product and how they price and market it. Should anyone, besides their presidents and employees, care how well they do in solving these problems? Many universities offer degrees in liberal subjects. Perhaps we should regard the liberal arts colleges as leftovers from an earlier era—the educational equivalent of the British roadster.

There are, we think, important reasons to resist that conclusion. The residential liberal arts college, at its best, remains almost a unique embodiment of a certain ideal of educational excellence. These are institutions that have eschewed most of the enormous variety of activities that define the modern university—from graduate and professional schools to large research establishments to semiprofessional sports. We look to them when we want to know what it means to focus single-mindedly on the education of young minds. This focus extends not only to the classroom environment but to the conscious effort to fashion a framework for residential living that will foster both the intellectual and personal development of students. When Stanford University declared several years ago that it was going to work harder on giving a good undergraduate education, that meant in practice that Stanford, in its collegiate manifestation, was going to try to be more like Bryn Mawr or Carleton—smaller classes, more faculty in the classroom, more faculty attention to students outside of class, and the like.

There are, of course, a handful of liberal arts colleges that are not on anybody's endangered species list. Schools like Amherst and Williams have the financial power and the reputation to remain in control of their own destiny through almost any plausible future. But there are not even fifty colleges about which one could say that with confidence.

The question then arises, how many good liberal arts colleges must thrive in order for the sector to continue to play a meaningful role in defining excellence in American higher education? That number needs to be high enough that the option of attending a liberal arts college gets serious attention from a substantial fraction of talented high-school seniors. Our own best guess is that right now the United States may well have more liberal arts colleges (at least in name) than it really needs or is willing to support. Yet we also judge that if the sector is allowed to dwindle to the fewer than fifty colleges that currently face a secure financial future, it will cease to count for much, and American higher education will be the worse for it. What we need are policies from foundations and governments that seek to sustain the viability of that sector without guaranteeing the survival of every school that calls itself a liberal arts college.

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#### ENDNOTES

<sup>1</sup>Traditional liberal arts disciplines here include mathematics, the physical and biological sciences, social sciences and history, English, and the modern foreign languages. These numbers are calculated from data in the National Center for Education Statistics, *Digest of Education Statistics* (Washington, D.C.: U.S. Department of Education, 1997), 261, 307, 311, 313, 315.

<sup>2</sup>David W. Breneman, *Liberal Arts Colleges: Thriving, Surviving, or Endangered?* (Washington, D.C.: The Brookings Institution, 1994).

<sup>3</sup>Expenditure and revenue patterns are discussed in greater detail in Chapter 7 of Michael S. McPherson and Morton Owen Schapiro, *The Student Aid Game: Meeting Need and Rewarding Talent in American Higher Education* (Princeton, N.J.: Princeton University Press, 1998).

<sup>4</sup>The survey of freshmen in 1997 reflected family income in the 1996 calendar year while the survey of freshmen in 1981 reflected family income in the 1980 calendar year. Inflation between 1980 and 1996 equaled 90.4 percent. Inflation-adjusted income brackets for the 1981 survey would be as follows: <\$10.5, \$10.5–\$15.8, \$15.8–\$31.5, \$31.5–\$52.5, \$52.5–\$105.0, and >\$105.0. The selectivity definitions vary somewhat across institutional cat-

egories. We define low selectivity as having the following SAT ranges: <1050 for private universities, <1025 for private nonsectarian 4-yr. colleges, <1050 for Protestant 4-yr. colleges, <1025 for Catholic 4-yr. colleges, <1000 for public universities, and <1025 for public 4-yr. colleges. We define medium selectivity as having the following SAT ranges: 1050–1174 for private universities, 1025–1174 for private nonsectarian 4-yr. colleges, >1049 for Protestant 4-yr. colleges, >1024 for Catholic 4-yr. colleges, 1000–1099 for public universities, and >1024 for public 4-yr. colleges. We define high selectivity as having the following SAT ranges: >1174 for private universities, >1174 for private nonsectarian 4-yr. colleges, and >1099 for public universities.

<sup>5</sup>But there is an important difference between colleges and airlines: everyone at a college receives a subsidy, even those who pay the sticker price. According to Gordon C. Winston, Jared C. Carbone, and Ethan G. Lewis, spending (educational and general expenditures plus an allowance for capital costs) at the average liberal arts college in 1994–1995 amounted to \$16,000, compared with a sticker price of \$10,500. So even students with no financial aid received a subsidy of \$5,500. Winston, Carbone, and Lewis, “What’s Been Happening to Higher Education? Facts, Trends, and Data: 1986–87 to 1994–95,” Williams Project on the Economics of Higher Education Discussion Paper #47, March 1998.

<sup>6</sup>Need-based and merit aid are discussed in great deal in McPherson and Schapiro, *The Student Aid Game*, on which the following account relies.

<sup>7</sup>William G. Bowen and David W. Breneman refer to this type of financial aid as an “educational investment”—as opposed to a tuition discount. They suggest that a good way to distinguish between student aid as a price discount versus student aid as an educational investment is to ask whether the provision of student aid increases or decreases the net resources available to the college to spend on other purposes. A tuition discount seeks to do the former while an educational investment does the latter. Bowen and Breneman, “Student Aid: Price Discounting or Educational Investment?” *Brookings Review* (Winter 1993): 28–31.

<sup>8</sup>An excellent analysis of these strategic dimensions of aid and admissions policy is contained in James Scannell, *The Effects of Financial Aid Policies on Admission and Enrollment* (New York: College Entrance Examination Board, 1992), which contains an example similar to the one presented here.

<sup>9</sup>Lawrence F. Katz and Kevin M. Murphy, “Changes in Relative Wages, 1963–1987: Supply and Demand Factors,” *Quarterly Journal of Economics* 107 (February 1992): 35–78.

<sup>10</sup>Truman Schwartz, an award-winning and revered professor of chemistry at Macalester College, said recently, “I don’t teach chemistry; I teach students, and the medium is chemistry.”

<sup>11</sup>The Nobel Prize-winning economist George Stigler was known to comment that in his experience you might as well sit on the student and talk to the log. He was obviously not employed at a liberal arts college.

Some fifteen years after the publication of *A Nation at Risk*—despite the end of the cold war and the recent upturn in the economy—the country is still gripped by concern for its education system. Responding to the public mood, governors and mayors, like Congress and the president, are declaring education to be a priority. Everywhere, the rhetoric of higher standards for education is heard. And in some places there are at least halting steps toward making the rhetoric a reality, whether by adopting tougher graduation requirements, investing in developing the teaching force, pouring technology into the schools, or creating new forms of governance.

Why is education reform still alive? One reason is the fundamentally changed nature of the economy in the information age. Although U.S. business is booming and productivity is rising, growing numbers of employers continue to call for better educated, more highly skilled workers, claiming that there are good jobs with career prospects going unfilled because of a lack of adequately prepared young people. As intelligent machines take over a growing array of routine business functions, the work left for humans is increasingly the nonprogrammable tasks: those in which surprise and variability must be accommodated, where only adaptive human intelligence can make the evaluations and decisions needed. These economic and technological factors are visibly changing the job market, creating a broad awareness among Americans that their children need more and better education.

—Lauren B. Resnick and Megan Williams Hall  
“Learning Organizations for  
Sustainable Education Reform”

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