

Discussion Paper No. 37

Williams Project on the Economics of Higher Education
Denison Gatehouse
Williams College
Williamstown, MA 01267

The Economic Analogy

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DP-37
June 1996

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ABSTRACT

The Economic Analogy

by

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This paper examines the strengths and weaknesses of the analogy of higher education to a for-profit industry where schools are seen as firms and students as customers. It looks at two areas of college finance. First, the authors examine the surprising fact that nearly all colleges, equally public and private, use non-tuition resources to heavily subsidize the cost of a student's education. So in the average college or university, on the basis of 1991 US data, a student paid \$3,101 for a \$10,653 education, getting a \$755 1 subsidy that covered more than 70% of costs. This is important in understanding a college's strategic decisions about size, tuition, sticker price, and aid and in determining how successful the school will be in attracting high-quality students. A school with more non-tuition resources, all else the same, can offer students a better deal for the same education, which drives demand and allows the school to select for student quality.

The authors go on to discuss the strategic nature of financial aid decisions. While in the recent past financial aid was a rather separate item from enrollment planning, it is increasingly thought of as a critical tool in helping a college meet its admissions and revenue goals. Admissions and aid statistics for a mythical university are presented and the consequences of various admissions-financial aid scenarios are explored.

The Economic Analogy*

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Most of us are used to thinking about business firms and industries -- as lawyers or businessmen or economists -- and we've developed a lot of well trained intuition and good horse-sense. So it's easy to be glib and see colleges and universities as "firms" and higher education as "an industry" and our students as "customers" and the faculty as "labor" and tuition as "the price" and so on . . . Economists will even talk about "educational production functions" as if we were producing chocolate-chip cookies or electric power. At the same time, we all know that colleges and universities aren't businesses. So how good is the "economic analogy"? When does it help our understanding and when does it hurt to look at higher education as an ordinary business?

It's increasingly clear that using the economic analogy can yield essential insights -- especially as times get tougher and economic constraints get more intrusive. But looking at a college as a firm and higher education as an industry can also yield godawful mistakes. Some faculty would say it always does; some administrators and board members might say that it never does. But they'd both be wrong. It's important, instead, to better sort that out -- to figure out which is true, when. When does that economic analogy make sense? When

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Presented at an Association of Governing Boards seminar in Washington on November 6, 1995 and forthcoming in the AGB publication, *Priorities*. The underlying research owes much to the Andrew W. Mellon Foundation through its support of the Williams Project on the Economics of Higher Education.

does it seriously mislead? What is the context and what are the questions for which this analogy does more harm than good and those for which it does more good than harm? This is especially important as Trustees are asked to take a more engaged and active role in the management of colleges and universities. Many of them are at home with business as their frame of reference and they need help, simply, in knowing what they don't know. There's the old truism about how we get into serious trouble not when we don't know the answers but when we think we do, but we're wrong. In the following pages we focus on some ways in which the economic analogy does and doesn't help in the specific area of finance of college. First, we attend to the remarkably unbusinesslike fact that most colleges and universities sell their product at a price far below their cost. This crucial difference from the norms of successful business is an illuminating matter to examine. We turn then to an aspect of student finance where the world of hard-headed business calculation and strategic planning plays a critical role: the decision about which students to aid and how much. Not surprisingly, such hard-nosed calculations can readily collide with the moral and social purposes of colleges that transcend their business role: here thinking through the strengths and limits of the economic analogy bears directly on trustees' deepest obligations.

COSTS. PRICES. AID. AND STUDENT SUBSIDIES

We ask you to contemplate a set of strategic decisions -- about a school's size, the quality of its education, its students and its pricing and financial aid policies -- decisions that have to be made by any college or university. At the same time, we want to show you how those strategic decisions have been made very differently in different sectors of higher education. So the first is the

firm and the second is the context for the firm -- the “industry,” or “market,” or “environment” that we all operate in.

The story starts with the remarkable fact that colleges and universities sell their product to their customers at a price that’s far far below the costs of producing it. So nearly all the students going to college in the United States are subsidized. Most of us are comfortable with the fact that students are subsidized by the government at public institutions, but it turns out that they’re subsidized, and nearly as much, by private institutions, too.

This has got to be the most unusual thing -- at least the most unusual economic thing -- about colleges and universities. It is also the thing that makes them least like a private business -- at least a private business that doesn’t go belly-up. What we’re looking at for the average US college or university is exactly like a car dealer who always sells a Taurus that costs him \$20,000 to put on the showroom floor for an average price of \$5,800. Always. Year in and year out “in equilibrium,” as economists like to say. The average customer gets a \$14,200 subsidy every time he buys a car. But to make this picture more realistic, different customers often get different subsidies for the same car from the same dealer and -- even more realism -- different dealers give out different subsidies, on average. And finally, of course, some dealers sell Taurus and some sell BMWs and some sell used Geos. That’s actually a reasonable picture of the context of costs and pricing decisions in higher education.

That this is, indeed, a reasonable description of higher education emerges from a recent study of most of 3300 colleges and universities in the US that had undergraduate enrollments in 1990-91. For each of them, we

measured the average subsidy they gave their students as, simply, the costs of a year's instruction for a full-time student minus the price he or she actually paid (the price net of financial aid).

This question of student subsidies in higher education isn't a new one. It goes back to an important study of the California system by W. Lee Hansen and Burton Weisbrod in the late '60s where they showed that the wealthier kids who went to the university system were being subsidized by the lower income taxpayers, so there was an income redistribution from poor to rich. That study framed the agenda -- and the way student subsidies would henceforth be viewed -- as "Which students get how much subsidy, on the basis of what characteristics?" Who gets to buy an underpriced Taurus or Mercedes or, more to the point, which customers have to pay \$10,000 for a \$20,000 car and which ones pay \$2,000? They put the focus on the customer -- on student characteristics -- and who gets how much subsidy. And there the focus has remained.

So what's different about our recent work is that it focuses, instead, on the institution -- on the college or university and the average subsidy each of them gives its students. The study asked "Which colleges and universities give how much subsidy to their students and how do they do it?" So it looked at institutional pricing strategies and their sticker prices and financial aid and wealth and resources, and found that these are all mixed up in a market that is unlike any we're used to thinking about.

It's time to consider the numbers.

First off, the total value of student subsidies in the US was in the neighborhood, in 1991, of \$70 billion dollars a year. Even in Washington, that's big money. That was spread over nearly 10 million full time equivalent students, but it's still a big number. Table 1 shows how it was distributed.

The student (fte) at the average college in 1991, got a \$10,653 education for a price of \$3,101. Which means that he or she got a subsidy over that year of \$7,551. Note that these figures are averages over all kinds of institutions, both public and private.

How can schools do it? Any car dealer that tried that stunt would pretty clearly go under. The answer for colleges and universities, of course, is that they've got non-tuition resources AND -- in contrast to car dealers -- they chose to use those resources to discount the price below the costs of production (or -- the same thing -- raise the costs of production well above the price). Since they're "non-profits," they can't distribute those resources to anyone, so they use them to subsidize their customers. For private colleges, those subsidy resources come from asset earnings and gifts and grants -- about 2/3rds of Williams College's income, for example, over the past 35 years has been in those forms. Public institutions get those, too, along with state and local appropriations. These are the non-tuition resources colleges use to drive a wedge between their production costs and the prices they charge.¹

The next question is "How is the subsidy given?" Is it in the form of a general subsidy given equally to all students at a college -- "general aid" -- or

¹ An excellent article on the logic of non-profit institutions is by a Yale Law professor who's also an economist. It's Henry Hansmann's chapter on what makes a non-profit a non-profit in Susan Rose-Ackerman *The Economics of Nonprofit Institutions*.

Table 1
Subsidies, Costs, Prices, and Aid
Averages for All Institutions, Public, and Private

	Subsidy	costs:	Price:	General	Individual	Price/	General	Indiv. Aid/
		Instructional	Net Tuition	Subsidy	Student	cost	Subsidy/	cost
		E&G&K	8r Fees		Aid		cost	
	\$/FTE	\$/FTE	\$/FTE	\$/FTE	\$/FTE	%	%	%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
All Institutions	7,551	10,653	3,101	6,063	1,488	29.1	56.9	14.0
All Public	7,839	8,760	921	7,099	740	10.5	81.0	8.4
All Private	7,244	12,669	5,424	4,960	2,285	42.8	39.2	18.0
All Public Decile Averages								
Decile 1	20,149	21,321	1,172	19,032	1,117	5.5	89.3	5.2
Decile 2	9,811	10,615	804	8,906	905	7.6	83.9	8.5
Decile 3	8,355	9,229	874	7,506	849	9.5	81.3	9.2
Decile 4	7,610	8,412	802	6,851	759	9.5	81.4	9.0
Decile 5	6,917	7,837	920	6,202	714	11.7	79.1	9.1
Decile 6	6,307	7,071	764	5,604	703	10.8	79.2	9.9
Decile 7	5,762	6,605	843	5,092	670	12.8	77.1	10.1
Decile 8	5,198	6,153	954	4,586	612	15.5	74.5	9.9
Decile 9	4,600	5,584	985	4,025	575	17.6	72.1	10.3
Decile 10	3,597	4,689	1,092	3,101	496	23.3	66.1	10.6
All Private Decile Averages								
Decile 1	21,135	28,061	6,926	17,612	3,522	24.7	62.8	12.6
Decile 2	11,552	17,451	5,899	8,358	3,194	33.8	47.9	18.3
Decile 3	9,233	13,816	4,583	6,522	2,710	33.2	47.2	19.6
Decile 4	7,666	13,033	5,367	4,927	2,739	41.2	37.8	21.0
Decile 5	6,471	11,433	4,962	4,046	2,426	43.4	35.4	21.2
Decile 6	5,427	10,736	5,309	3,089	2,338	49.5	28.8	21.8
Decile 7	4,534	9,884	5,350	2,555	1,979	54.1	25.8	20.0
Decile 8	3,579	8,950	5,372	1,841	1,738	60.0	20.6	19.4
Decile 9	2,413	7,548	5,135	1,076	1,337	68.0	14.3	17.7
Decile 10	488	5,826	5,338	(386)	874	91.6	(6-0)	15.0

Notes: Includes 2687 institutions. The all-public group includes 1386 institutions, while the all-private group includes 1301.

Source: Winston and Yen "Costs, Prices, and Aid in US Higher Education," WPEHE, DP-32 (1995).

is it given as individual financial aid, to different students in different amounts for different reasons? But that, in turn, is really the question, “where do they set the sticker price?” If the sticker price equaled costs, the general subsidy would be zero and any subsidies would be in the form of individual aid. So if the sticker price at the average school were \$10,653, all of the \$7,551 of subsidy would be given out as individual aid -- on the basis of individual students’ characteristics. At the other extreme, if the sticker price were set as low as it could go -- say all the way down to \$3,101 -- then all the subsidy would be in the form of general subsidy and nothing would be left over for further individual aid. Every student at the school would get the same subsidy -- nobody would get ‘special treatment’ in recognition of financial need or special characteristics like academic or athletic or musical ability.

In both of these cases -- at both extremes of sticker price from \$10,653 down to \$3,101 -- the college spends \$10,653 to produce a year of education and average net tuition and fees are \$3,101. But the resulting \$7,551 of subsidy is given out in very different ways to very different students.

This is a centrally important strategic decision for a school -- the same subsidy can go with a high price and high aid or with low-price and low aid. Each college has to decide on its sticker price strategy. Later in this article, we will turn to the question of how private colleges think through these **key** strategic choices. On average in US higher education, we give about 80% of the subsidy in the form of a general subsidy -- the same to all students at a school -- and 20% as targeted or individual aid, need- and merit-based combined.

The next three columns in Table 1 put these same facts a bit differently, splitting up the total cost of producing a year's education into shares: the percent paid by the student, the percent covered as general subsidy, and the percent in the form of individually targeted aid.

In these terms, about 30% of the costs of US higher education are borne by the customer, while the other 70% is a subsidy. But that "price/cost ratio" can usefully be read in another way since it describes how much a student pays for a dollar's worth of education. So we're showing that the student at a typical school in the US pays about 30 cents to buy a dollar's worth of education. Assuming that production cost and quality are closely related -- meaning that there's roughly equal efficiency (or inefficiency) among schools -- the student pays about 30 cents for a dollar's worth of educational quality.

Now look at public and private schools separately -- there were about equal numbers of them among our 2700 schools. The most unexpected fact, surely, is that public and private schools' subsidies aren't very different! Most of us are used to the idea that governments subsidize all sorts of things in order to affect behavior so it's not too surprising that public colleges and universities give their students \$7,800 a year in subsidies. Society wants to encourage people to buy more higher education.

But what are private institutions doing, subsidizing their students very nearly as much -- \$7,244 per year on average? The answer, of course, is that private donors and charities, too, have wanted to encourage people to buy education and they, too, have spent resources to do it. Gifts and endowments

over the years have given the colleges “non-tuition resources” that they can use to fill the gap between what it costs and what the student has to pay.

So subsidies are both ubiquitous in higher education and at very nearly the same level, on average, in public and private colleges and universities.

But, as Columns 2 and 3 show, it is also striking how differently these two kinds of institutions have chosen to use their very similar subsidies. Public and private schools have typically made quite different strategic choices on prices and quality. So public institutions spend an average of \$8,760 a year on a student’s education while private institutions spend \$12,669 -- nearly 50% more. But private institutions charge more, too. The student’s net price at a public institution was \$921 a year while the average net price at a private school was \$5,424 -- almost six times as much. So students at the average private school may get more, but they pay more -- indeed they pay for everything they get.

There’s a general lesson in these numbers that’s important. *With the same ability to subsidize each student, public and private institutions follow very different strategies with respect to price and cost or quality.* Public institutions give a low cost education at a low price while private institutions give a high cost education at a high price. On average.

This is a general strategic choice to keep in mind -- the fact that any given level of subsidy resources can support an infinite variety of cost and price strategies so long as the difference between costs and price matches those non-tuition resources. So among private schools, Cooper Union and Williams both --

in these data -- give about \$27,000 a year to their students in subsidies. But Cooper Union does it with a \$27,000 education that costs the students nothing -- the net price to the student is literally zero -- while Williams provides a \$40,000 a year education at a net price of around \$13,000.

Let's move quickly across these public/private rows of the table. It's clear from columns 7 and 8 that another important strategic difference between public and private schools, on average, is their very different decisions on how to divide up their subsidy between a general subsidy, got by setting the sticker price for everyone well below costs, and individual aid got by giving smaller subsidies to all the students through a sticker price that's closer to costs, so there's more left over to award on the basis of individual students' characteristics. The general subsidy in the average public school is more than 90% of subsidies -- \$7,099 -- leaving only 9% for individual aid, while the general subsidy in the private schools is less than 70% of subsidies -- \$4,960 -- leaving more than 30% for individual aid.

Finally, in terms of what students have to pay for a dollar's worth of education, those strategic differences are even more apparent. In a public institution, the student pays ten cents for a dollar's worth of education, on average; in a private school, she pays 43 cents.

We can gain further insight by looking at how subsidies vary between richer and poorer institutions. It seems quite clear that our "industry" is one in which these crucially important subsidy resources -- schools' wealth and appropriations -- are very unevenly distributed among institutions. And that uneven distribution of wealth -- of subsidy resources -- is essential to

understanding the market and the industry and the strategic choices we all make. Note, for one important fact, that in 1985 the richest 1% of the schools had 5 1% of all the nation's endowment wealth and it seems unlikely to have changed much since.

There is then a tremendous difference between the rich and the poor -- 130 schools are averaged in each of these deciles, so we're missing some of the real extremes that actually exist within those averages. But these are revealing nonetheless.

High subsidy schools are also high cost/high quality schools. It needn't be so. Remember Cooper Union. But Cooper Union is an anomaly. More typically, among both public and private schools, higher subsidies go with higher spending and hence (again assuming roughly equal efficiency among institutions) higher quality. Prices, on the other hand, are generally U-shaped down the column from rich to poor -- higher for the rich-high-cost and for the poor-low-cost schools than for those in the middle.

It's particularly useful, then, to look at the price/cost ratio -- how much the student pays for a dollar's worth of education -- and how that changes over the deciles from rich to poor and how it's different between public and private schools.

With very few glitches, students pay more for a dollar's worth of education as costs and subsidies fall -- in other words, it's the highest quality/highest subsidy schools in which the student gets the best bargain -- the most for their money. In the average high subsidy/high quality public

institution the student pays a bit more than five cents on the dollar. In the low subsidy/low quality public institution, he or she pays more than 23 cents. The same general pattern shows up, but even more dramatically, among private schools: the student at the high subsidy/high quality private school pays about 25 cents on the dollar while those at the low subsidy/low quality schools pay more than 90 cents.

It appears that public education is, in these terms, always a better bargain than private education. Taking the decile averages seriously, the worst bargain in the public sector -- in the tenth decile schools -- is better than the best bargain in the private sector -- in the first decile schools.

Having presented the data, it's time now to ask: So What? We would suggest that much of the answer to that for the individual school lies in the following story -- or model, if you like:

1 - Schools with a lot of non-tuition resources -- endowments, appropriations, gifts -- can offer their students a very good bargain. They can charge a low price for their educational services yet still produce very good ones.

2 - Students recognize bargains and respond to them with strong demand for those schools. Generally, the better the deal, the bigger the demand. At the extreme are the very high quality very high subsidy schools that queue a large number of applicants. Schools that aren't as good a bargain have to scramble more -- to find 'demand-augmenting' strategies like price discounting and taking more non-traditional students and students less attached to higher

education and by adding more ‘practical’ majors or distance learning or other devices.

3 - If the school with strong demand resists the temptations to expand, the large queue of applicants allows the school to select students of better quality.

4 - The quality of existing students attracts more and better new students -- as we recognize when we advertise the quality of our customers in reporting average SATs. There’s a good reason for this because, for better and for worse, students educate students, and the more so the more isolated and residential -- the more liberal arts -- the environment.

5 - So there’s a potentially powerful feedback from subsidy to demand to student quality to demand -- a reinforcing process that makes initial wealth inordinately important.

The picture that emerges from looking at subsidies and pricing and production decisions in higher education is one that is exceptionally unfamiliar to those of us in economics and business. It looks familiar at first floss. And when we add all that comfortable vocabulary like “costs” and “output” and “price discounting,” it feels familiar. And in some important respects, it is. But in a nearly existential way, higher education rests on a structure of wealth and resources and costs and prices and price discounts and a curious relationship of demand and student quality to product quality and radically different firms

within “the market” that increasingly make strange economic sense but don’t and won’t make familiar business sense.

Yet within this topsy-turvy world of subsidies, hard-headed economic reasoning about how to spend those subsidy dollars - whom to aid and how much - plays a large and an increasingly important role. It is to that side of the story that we turn next.

STRATEGIC THINKING ABOUT STUDENT AID

The last several decades have brought a sea-change in how colleges and universities think about their student aid spending. Twenty or thirty years ago, private colleges typically regarded the awarding of “scholarships” as a kind of charity operation run on the side; a good thing to be sure, but not an integral part of the college’s operation. In this context, the Trustees’ role in regard to student aid was to set prudent limits on the amount of its resources the college devoted to this activity, by setting a budget and encouraging the financial officers to monitor it closely.

By now, in contrast, an institution’s student financial aid policies are more likely to be seen as an integral part of the college’s enrollment management strategy, and a key tool in helping the college meet its admissions and revenue goals. One mark of this changed perspective is that Presidents and Boards of Trustees increasingly find it necessary to engage deeply in discussions of financial aid policies. Another mark of change is that financial aid officers themselves increasingly have to articulate and defend their policies not only in

SIDEBAR I -- College Choice and Family Income

Our work on the changing higher education destinations of students from different income backgrounds [Michael S. McPherson and Morton Owen Schapiro, "College Choice and Family Income: How Has the Relationship Changed Over Time?", July 1995] provides a context from which to understand the pressures certain schools are under to attract high quality low need/no need students.

The Table below examines the distribution of students from particular income groups across institutional types. The data, from the American Freshman Survey, is for first-time, full-time freshmen for the years 1994 and 1980. The income brackets represent constant inflation-adjusted dollars given that prices virtually doubled between the survey dates.

Beginning with the most affluent group (family income above \$200,000 in 1994; above \$100,000 in 1980), about the same percentage of students chose private institutions in both years. However, that fact hides significant differences within the private sector. Most notably, while 31.7% of these highly affluent students enrolled at private four-year colleges in 1980, that percentage fell to 27.3% in 1994. For the \$100,000 to \$200,000 group (in 1994), a similar finding was discovered: 25.2% of these students enrolled at private four-year colleges in 1980, versus 22.2% in 1994. Ironically, while these schools have been vocal in decrying a supposed "middle income melt," an upper income melt is indicated by the data - the share of students in the \$60,000 to \$100,000 and \$30,000 to \$60,000 groups (in 1994) that enroll at private four-year colleges has actually increased over time. The loss of affluent no need) students at these institutions likely explains why they have been in the forefront of experimenting with merit aid, differential packaging, and other tools of enrollment management.

Distribution of Freshman Enrollment By Income Background Across Institutional Types

1994	<\$20	\$20-\$30	\$30-\$60	\$60-\$100	\$100-\$200	>\$200
Private						
University	2.6%	3.3%	3.9%	6.6%	13.2%	22.4%
4-Year Colleges	12.8%	15.3%	16.6%	18.4%	22.2%	27.3%
2-Year Colleges	3.1%	2.9%	2.5%	2.2%	2.8%	3.8%
All Private	18.5%	21.5%	23.0%	27.2%	38.2%	53.5%
Public						
University	10.9%	14.5%	18.1%	24.9%	27.8%	24.6%
4-Year Colleges	23.2%	24.6%	25.2%	25.9%	20.1%	13.3%
2-Year Colleges	47.3%	39.4%	33.7%	22.1%	13.9%	8.6%
All Public	81.4%	78.5%	77.0%	72.9%	61.8%	46.5%
1980	<\$10	\$10-\$15	\$15-\$30	\$30-\$50	\$50-\$100	>\$100
Private						
University	2.2%	2.9%	3.9%	6.8%	12.8%	19.8%
4-Year Colleges	13.4%	15.1%	15.8%	17.7%	25.2%	31.7%
2-Year Colleges	5.6%	5.1%	3.7%	3.3%	2.6%	2.5%
AU Private	21.2%	23.1%	23.4%	27.8%	40.6%	54.0%
Public						
University	10.1%	13.2%	17.4%	24.6%	26.6%	19.6%
4-Year Colleges	22.8%	21.3%	20.4%	20.1%	15.6%	11.9%
2-Year Colleges	45.9%	42.4%	38.9%	27.6%	17.3%	14.5%
All Public	78.8%	76.9%	76.7%	72.3%	59.5%	46.0%

relation to sound professional practice, but in terms of their ability to advance key institutional goals.

A good way to come to grips with the shifting environment for financial aid policy-making is to think through a practical example. Table 2 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 cross-classifies the applicant pool according to their ability to pay and their academic promise (measured here for convenience simply by their combined SAT scores).² 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 at the bottom of the table show, Conjectural U. enrolls a freshman class of 1011 students by admitting 2565 out of an applicant pool of 4785. The selectivity of the place is evidenced in the fact that the average SAT score of the freshman class (1006) 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

² Most colleges will not have data for the financial need levels of non-admitted aid applicants, since they may only perform a full needs analysis on students who are admitted. However, they are likely to have data on some closely related indicator of need like family income.

Table 2
Admissions Profile:
Conjectural University

SAT	No Need			Low Need Grant: 0-\$5,000			Medium Need Grant: \$5,000-\$12,500			High Need Grant: \$12,500-\$25,000			Total		
	Apply	Accept	Enroll	Apply	Accept	Enroll	Apply	Accept	Enroll	Apply	Accept	Enroll	Apply	Accept	Enroll
1300+	75	75	20	75	75	25				60	60	30	285	285	105
1100-1300	125	110	40	125	110	45	125	110	50	125	110	60	500	440	195
900-1100	300	250	75	300	250	80	300	250	90	300	250	100	1200	1000	345
700-900	300	200	80	300	200	80	300	200	80	300	200	90	1200	800	330
700 and Below	400	10	9	400	10	9	400	10	9	400	10	9	1600	40	36
Total	1200	645	224	1200	645	239	1200	645	259	1185	630	289	4785	2565	1011
Average SAT	866	1018	988	866	1018	1003	866	1018	1015	858	1008	1013	864	1016	1006

Table 3
A Revised Admissions Policy
for Conjectural University

SAT	No Need			Low Need Grant: 0-\$5,000			Medium Need Grant: \$5,000-\$12,500			High Need Grant: \$12,500-\$25,000			Total		
	Apply	Accept	Enroll	Apply	Accept	Enroll	Apply	Accept	Enroll	Apply	Accept	Enroll	Apply	Accept	Enroll
1300+	75	75	20	75	75	25	75	75	30	60	60	30	285	285	105
1100-1300	125	125	45	125	110	45	125	110	50	125	110	60	500	455	200
900-1100	300	300	90	300	250	80	300	250	90	300	250	100	1200	1050	360
700-900	300	250	100	300	200	80	300	200	80	300	0	0	1200	650	260
700 and Below	400	75	68	400	10	9	400	10	9	400	0	0	1600	95	86
Total	1200	825	323	1200	645	239	1200	645	259	1185	420	190	4785	2535	1011
Average SAT	866	974	910	866	1018	1003	866	1018	1015	858	1117	1134	864	1020	1001

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 real use of a table like this lies in examining the consequences of potential changes in admissions/aid policy. Suppose for example that C. U. 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 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 for example that C. U. 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 once 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 SAT’s of replacing these

high need/low ability students with high ability/no need students would be a gain of about eight points.

Whether this would be a prudent, a clever, a 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 high need/low ability students, and replace them with students of lower need. For concreteness, imagine a dramatic change. Suppose C. U. simply stopped admitting high need applicants with SAT's 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 SAT's above 900, admitted another 50 from the 700-900 range, and admitted enough with SAT's below 700 to make up the remainder of the enrollment shortfall produced by denying admission to the high need/low ability students. Assuming constant yield rates for these applicant groups, the results of this policy shift are shown in Table 3. 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 SAT's of high need students. On balance the effect on average SAT's 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 SAT's. 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 notice that 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 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 Tables 2 and 3 makes the options and the trade-offs they imply relatively clear. 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. Since protecting the institution's long run financial stability and safeguarding its reputation for ethical conduct are core responsibilities of trustees, it is worth reflecting carefully on these questions. 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 pay 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, such as, for example, 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, for example, 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.

There is, however, one moral principle which, in our view, should be widely respected in schools’ admissions policies. This is the principle of honesty. Schools should inform applicants and high school guidance counselors of how they make their decisions. It is, we think, improper for schools, for example, to pick only people from the wait list who have not applied for aid without giving students a chance to know that if they want a chance to be considered from the wait list, they had better withdraw their aid application.

Regarding merit aid, we similarly resist the idea that there is something inherently immoral about a school offering some students merit aid. Whether the overall social effect of some schools following such policies is good or bad is a

complex question which we have discussed elsewhere.³ The fact is that highly selective schools like several of the Ivies and the elite liberal arts colleges find it easy to eschew no-need or merit aid simply because they get excellent students without such aid.

As laid out in the example above, merit aid appears a very tempting option. At moderate cost, Conjectural University can get itself some very strong students and a non-trivial increase in a highly visible indicator, the average SAT of the entering class. Still, there are at least two important reasons to hesitate before pursuing an aggressive merit aid strategy. First is the risk of retaliation from competing schools. 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 C. U., notices the loss, and figures out the reason, they are very likely to respond with an equally or more aggressive merit aid program than C. U.'s. It's easy to picture a chain reaction which 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 (not unlike the airline industry in a price war).

³Michael S. McPherson and Morton Owen Schapiro, *Selective Admission and the Public Interest*, The College Board, New York, 1990; Michael S. McPherson and Morton Owen Schapiro, "Merit Aid: Students, Institutions, and Society," Consortium for Policy Research in Education Research Report #30, DP-25, August 1994

SIDEBAR II -- Merit Aid Trends

Anecdotal evidence suggests that the share of all institution-based student aid funds going to merit aid has been rising sharply over the last decade. Our recent study [Michael S. McPherson and Morton Owen Schapiro, Merit Aid: Students, Institutions, and Society, Consortium for Policy Research in Education Research Report #30, August 1994] examines data from the Peterson's Survey and Financial Aid Supplement for the academic years 1983-84 and 1991-92 in order to test that conjecture.

The table shows that, in the aggregate, it is clear that non-need based grant aid has grown quite rapidly over this period. For this sample of 379 institutions as a whole, non-need aid per enrolled freshman has grown from \$177 to \$505 (after adjusting for inflation). The annual real growth rate has been a staggering 13 percent, even greater than the enormous 10 percent annual real growth for need based institutionally funded aid. Non-need grants at the end of the period accounted for almost a quarter of all institutional spending on grant aid.

Growth has been rapid in both the public and private sectors. At public schools, non-need based aid accounted for 56% of all institutionally funded aid in 1991-92, up from 44% in 1983-84. At private institutions, while non-need aid accounted for only 21% of the total in 1991-92 (up from 17%), the dollars per freshman are substantially larger -- \$742 at private institutions compared to \$252 at public institutions.

Further insight results from breaking the data down into categories according to the classification system developed by the Carnegie Foundation. In private higher education, the less prestigious research universities (Research II), doctorate granting institutions (Doctorate II), and liberal arts colleges (LA II) have made especially large investments in non-need based grant aid, with spending per freshman in 1991-92 at \$1,051, \$1,442, and \$1,040, respectively.

Non-Need Aid per Freshman by Public vs. Private Control and Carnegie Classification of Institution, 1983-84 and 1991-92

Carnegie Class	Non-need Aid per Freshman (1991 dollars)		Non-need Aid as Fraction of all Inst. Based Aid		Real Growth Rate, aid per Freshman		Freshmen Enrollment
	1983-84	1991-92	1983-84	1991-92	non-need	need	1991-92
Public							
Research I	71	296	0.32	0.46	18	11	33056
Research II	112	525	0.62	0.64	19	19	4957
Doctorate I	90	185	0.44	0.55	9	2	10874
Doctorate II	43	108	0.14	0.63	11	-17	1359
Comp I	101	193	0.51	0.67	8	-1	52488
Comp II	269	507	0.75	0.63	8	15	4251
LA II	225	852	0.46	0.6	17	10	977
All Public	96	252	0.44	0.56	12	6	110003
Private							
Research I	201	474	0.08	0.1	11	8	14361
Research II	205	1051	0.1	0.19	20	11	4757
Doctorate I	46	399	0.08	0.18	27	15	6322
Doctorate II	379	1442	0.29	0.44	17	7	2515
Comp I	328	790	0.32	0.28	11	13	24808
Comp II	244	768	0.22	0.24	14	12	11462
LAI	203	660	0.1	0.14	15	9	27156
LA II	383	1040	0.3	0.33	13	11	19123
All Private	253	742	0.17	0.21	13	10	117262
All Schools	177	505	0.21	0.24	13	10	227265

The second worry is more internal to the institution. It's common for institutions who plan to embark on a campaign of merit aid to tell themselves that it is only a temporary step. The increase in prestige that will result from an improved student body will improve the underlying admissions situation, thus enabling the school five or eight years down the road to cut back on merit aid and still recruit excellent students. There is a real risk of wishful thinking here. If a school has trouble attracting high quality full pay students, it may well be a signal of some serious problems with the quality of the program or the basic market situation of the school. A merit aid program can treat the symptom of these problems by permitting the school to attract some higher quality students, but in doing so there is a risk that it will excuse the institution from the harder problem of coming to grips with the underlying causes. The problem is analogous to that of a dieter who goes on a "Slimfast" regime without changing his eating habits - as soon as he goes off Slimfast (or as soon as the school cuts back on merit aid) the underlying problem returns.

CONCLUSION

The fundamental commitment of most colleges and universities to use substantial amounts of non-tuition income to foster educational goals is one clear feature that marks higher education institutions off from typical profit-seeking enterprises. Yet when it comes to allocating those subsidy resources, and in particular when it comes to deciding which students to admit and how much subsidy to provide them, economic trade-offs inevitably come into play. Wise leadership in higher education requires making those economic decisions well,

but without ever losing sight of the large social and educational aims to which higher education is devoted.

SIDEBAR III- The Distribution of Costs

In Winston- Yen ("Costs, Prices, Subsidies, and Aid in US Higher Education DP 32, July, 1995), we put these cost and subsidy and aid perspectives together to show how institutions distribute the costs of a year's education -- from total costs down to individual aid. The first two columns of the table divide the cost of an average student's education into the part she pays -- the net price -- and the part that's subsidized by somebody else. The last three columns divide that subsidy into the part that all students get when the sticker price is set below the cost of their education and the part that's targeted to individual students on the basis of their financial need or other characteristics like academic ability or, simply, unwillingness to pay the full sticker price. So the table shows how the total cost of a student's education is divided up and paid for:

The student at a public college pays a price that covers only 10% of his costs: the student at a private college pays nearly 43%. The remainder is subsidy -- 90% of the cost of a public and 57% of the cost of a private college or university.

Fully 81% of the cost of a public education is in a general subsidy; in the private college it is less than 40%. So in a public institution, there's not much of the subsidy left over to be targeted at individual students for their individual characteristics -- only a bit more than 8% of the cost. In private institutions, a much larger share of costs -- fully 18% -- is individual aid.

Finally, those differences persist into the form of individually targeted aid. In public institutions, less is given on the basis of a student's need than on the basis of his other characteristics (3.7% versus 4.7% of costs) but either way, not much is targeted to individuals. Private schools give about the same share of costs in the form of non-need aid (3.8%), but more than three times as much on the basis of the student's need (14.2%). These sharp differences may be declining with the shift in public education from "low tuition, low aid" to "high tuition-high aid" policies, but they've got a long way to go.

The Distribution of Costs

	Price vs. Subsidy		What Kind of Subsidy?		
	Net Price/ cost	Subsidy/ cost	General/ cost	Non-Need/ cost	Need-Based/ cost
	(1)	(2)	(3)	(4)	(5)
All Institutions	29.1%	70.9%	56.9%	3.4%	10.6%
Public	10.5%	89.5%	81.0%	4.7%	3.7%
Private	42.8%	57.2%	39.2%	3.8%	14.2%