



American Universities at Risk

Richard N. Zare*

In the spring of 1996, I was the Rolf Sammet Guest Professor at the Johann Wolfgang Goethe University, Frankfurt am Main in Germany. One afternoon, I accompanied one of the chemistry department's professors to a part of the city of Frankfurt called Sachsenhausen to enjoy Ebbelwoi, a German hard cider. As we sat in the sun, relaxing, the conversation turned to a comparison between life in America and Germany. After one too many glasses of Ebbelwoi, my companion asked me, "Do you realize that, on average, German universities are much superior to American ones?" After more sips of Ebbelwoi, I replied, "I agree fully with your assessment." He smiled knowingly. After a pause, I added, "But I think you are asking the wrong question. What really matters is not the average, but rather the very top. In that regard, America has Germany completely beat." My new friend became quite cross with me.

In 1996, the facts were undeniable. The top American universities were regarded as among the very best in the world by the international community. This statement still has a ring of truth about it today. For example, the Shanghai Jiao Tong University annually ranks the top 500 universities in the world by a variety of measures of research productivity and quality. In 2011, the United States dominated the rankings with 8 universities in the top 10 and 17 in the top 20. This statistic was unchanged from the previous year. Additional proof of the high regard in which American universities are held throughout the world is seen in the number of applications from international students to attend these schools. About one-third of the students who leave their home country to travel elsewhere for higher education come to the US. Moreover, many of these foreign students are from the top of their classes back home. Given all of these factors, then how can I dare write that American universities are at risk? I claim that a deeper inspection shows a looming crisis, particularly for publicly supported institutions, based on a funding structure that is unsustainable.

American universities derive their income from four major sources: 1) tuition collected from students; 2) direct government support; 3) indirect government support coming from overheads on research contracts and grants; and 4) investment returns on endowment, which comes from gifts. The proportions vary from one institution to another. They also depend on whether or not the university is public, such as

the University of Michigan or the University of Wisconsin, or private, such as Stanford University or Harvard University. The distinction between a private and public institution is an important one, but it is getting increasingly blurred with the drop in contributions from states to their flagship universities and the rising reliance of almost all universities on federal funding.

Recent trends and figures, in 2009 inflation-adjusted dollars, tell an alarming story about American higher education. In 1988, the average tuition and fees for a four-year undergraduate degree at a public university were about \$2800. By 2008, that number had climbed to roughly \$6500, not including books or room and board, which is about a 130% increase in cost. During the same twenty-year period, the median income of Americans has been flat to slightly negative, and the amount of available federal aid for individual students has failed to keep pace with tuition hikes. Since 1992, the maximum amount available through government-subsidized student loans has remained at \$23000 for a four-year undergraduate degree. Worse still, appropriations per full-time student have fallen sharply in many states. The University of California system serves as an example. In 2001–2002, state funding for the university system was \$4.37 billion; in 2011–2012, state funding is \$2.44 billion despite the increased number of enrolled students. With the present difficult economic times, it is not obvious that this trend will be reversed. Moreover, there are limits to how much more costs, if any at all, can be recovered from increased acquisition of federal research projects. Limits also apply to philanthropic donations. No wonder then that some distinguished American educators are questioning if the business model for American higher education is broken.^[1] I join in expressing this concern. It is no surprise to discover that many American universities have tried to overcome these financial shortfalls by neglecting the maintenance of facilities, hiring more part-time faculty members, and raising tuition costs. At the same time, many students leave universities in deep debt which has been fueling a growing belief that the focus of a university education should be job preparation, not critical thinking for a lifetime of learning.

Let's examine what drives the costs of higher education. It roughly costs a student twice as much to attend a private over a public research university. Here is an accounting of these costs for 2009 (Table 1):

The total for a public institution is \$15 919, and \$35 956 for a private institution, again not accounting for the costs of room and board.^[2]

[*] Prof. R. N. Zare
Department of Chemistry
Stanford University
Stanford, California 94305-5080 (USA)

Table 1: Costs of attending a US university in 2009

| | Public | Private |
|--|--------|---------|
| Instruction | \$9986 | \$20232 |
| Student services | \$1365 | \$3390 |
| Administration support and maintenance | \$4567 | \$11973 |

Perhaps it is more important to ask what makes these costs rise. It is certainly not faculty salaries which, on average, have lagged behind the rate of inflation. Higher education has not been able to enjoy the productivity gains through mechanization that other sectors of the economy have seen, such as farming and manufacturing. The costs can come from the fact that many universities feel compelled to provide highly attractive facilities so they may maintain their enrollment numbers. There are also unfunded mandates on universities which demand that universities demonstrate ever increasing accountability for how funds are spent and to comply with an ever increasing set of rules and regulations but do not provide the funds to carry out these demands. It is estimated that unfunded burdens contribute thousands of dollars per student per year to the cost of higher education, which gives the university little recourse but to increase tuition rates. The top private universities suffer much less than their public counterparts because the demand for admission has actually increased in general. But public universities are being forced to deny the attendance of some middle-class students while those from the lowest income group often obtain much financial aid which makes their attendance possible. A diverse student body is a laudable and worthwhile goal but it incurs real expenses.

Can advances in technology save this situation? In part, I believe the answer is yes. New online learning models are bursting on the scene, promising to deliver high-quality education to hundreds of thousands of people who have never before had access to this type of learning.^[3] The advertised goal is to have the top-notch teachers around the world record their best lectures, which can then be downloaded in modular units. It would seem that this innovation could fulfill the dream of public education by providing broad access to education at a low cost to many students. Ironically, it is some of the top private universities that are leading the way in developing online course materials and information modules. In my estimation, Internet search engines provide more accurate information about any subject than most specialist teachers on that subject.

But higher education should not be about informing the student. It should be about inspiring the student to learn. The promise of online education cannot be delivered without personal student–teacher contact, and this type of instruction is costly. Preparing online materials of high quality does not come cheaply either. I wholeheartedly agree with what the distinguished Princeton University historian Anthony Grafton wrote:^[4] “*The problem with these remedies is simple: one ends up destroying the village in order to save it. Online*

teaching can work very well—but doing it properly, with skilled consultants available to help students personally at any time, is not cheap, and doing it cheaply does not yield good results. Online education, when provided without such backup, is another and a nobler word for extorting tuition money for nothing.”

So technology, by itself, cannot be the full answer. In the past, there has been an implicit and unwritten compact that universities will provide high-quality education to a large number of students in exchange for state and federal government support of instruction and research that produces knowledge, discoveries, and innovations. Today, this contract seems to be largely forgotten, particularly by state legislatures. The question must be faced: Is higher education in the US a private benefit to the individual graduates or a public necessity that benefits society at large? The answer should be both. As I have argued, American universities are presently built on shaky economic foundations that are unsustainable in the long run. Only a political decision by various levels of government to treat higher education once again as a public service will save American universities from a downward spiral of inaccessibility for the majority of students. Political actions for education as a public good do have their precedents in the Morrill Land-Grant Acts that established land-grant universities after the Civil War, the GI Bill of Rights that provided college education for armed-services veterans after World War II, and the heavy investment in higher education after the Sputnik launch. This moment calls for a similar commitment from government officials and politicians.

Universities are quite resistant to change, as I am reminded each time I wear academic gowns during graduation ceremonies and recall the chant of disillusioned German students during the 1960s: “Unter den Talaren der Muff von 1000 Jahren,” which loosely translated means: “From under academic gowns comes the stench of a thousand years of conservatism.” Nevertheless, revolutionary change is in the air, and it is to be hoped that in partnership with the government, American higher education institutions can be guided to a new level of greatness.

Received: July 15, 2012

Published online: December 3, 2012

-
- [1] http://web1.millercenter.org/debates/transcript/deb_2010_0427_ed_cost.pdf.
- [2] Delta Cost Project, American Institutes for Research; <http://www.tcs-online.org/Reports/Report.aspx>.
- [3] Jack Hidary, “The Revolution: Top Ten Disruptors of Education” Huff Post July 8, 2012; http://www.huffingtonpost.com/jack-hidary/online-distance-learning_b_1493319.html.
- [4] Anthony Grafton, “Can the Colleges be Saved,” *The New York Review of Books* May 24, 2012; <http://www.nybooks.com/articles/archives/2012/may/24/can-colleges-be-saved/>.