

Since the current economic crisis has affected education in more ways than we can possibly know at this time, I wanted to address that topic in these pages. I therefore invited Christopher Newfield, a former editor of "American Literature" who has written extensively on the economics and politics of higher education in the humanities and has turned his attention recently to the contemporary crisis, to write an essay on that subject for the journal.

—Priscilla Wald, Editor

The United States has long been seen as the world's leader in higher education, and much of what we think of as "American" has flowed from that leadership, in particular from the technological and corporate business forms that have managed American affluence for nearly a century and a half. One remarkable recent study of U.S. academic history has found strong causal ties between U.S. early educational development and economic success: the United States was far ahead of European rivals in high school graduation rates by 1940 and developed a similar lead over virtually every other country in college graduation rates in the thirty years after World War II.¹ It consolidated this lead during the economic "golden age" of high growth and broadening national prosperity.

The shocking fact about current educational reality is that the United States has entirely lost its large global lead in most measures of college attainment.² U.S. leaders have no intention of changing the American business system, and yet they have failed to maintain the

educational foundations of that system. In the midst of its current struggle to maintain its position in a global economic order largely of its own creation, the United States seems to be giving up an essential ingredient for all of its past success. This turn from education marks an epochal shift in the country's world position and in its domestic self-representation. The research university is in the thick of the action.

The evidence of U.S. educational decline is now unmistakable. For the first time in its history, younger people are less educated than their baby-boomer parents.³ The proportion of U.S. students starting college who actually finish is now 56 percent, placing them twenty-ninth out of the thirty countries in the Organisation for Economic Co-operation and Development (OECD).⁴ California, one of the world's wealthiest places, has seen one of the most astonishing declines in college achievement. The state's continuation rate fell from 66 percent to 44 percent in just eight years (1996–2004). California's rank among states in investment in higher education declined during the same period from fifth to forty-seventh, according to Thomas Mortenson, a higher education policy analyst. The state has cut its investment in higher education by close to 50 percent since 1980, forcing tuition increases like the 60 percent rise at the University of California from 2004 to 2008, which was followed by a 32 percent rise between 2009 and 2011. Meanwhile, half of California's K–12 students are now eligible for the federal school lunch program, up from one-third in 1989. As Mortenson notes, these students will have no personal resources to cover the costs of attending college, which at the University of California is nearing \$30,000 a year. California is out in front of a nationwide educational meltdown the effects of which, if unchallenged, will lead to an abandonment of its younger generations that is unprecedented in U.S. history.⁵

The seriousness of the country's educational problems undermines its global role, its standard of living, and its sense of purpose. It makes no sense from the perspective of "post-Fordist" capitalist rationality, which was supposed to maintain U.S. economic leadership by investing in and nurturing its knowledge workers. That model was idealized twenty years ago in Robert Reich's influential book *The Work of Nations* (1991), in which Reich argued that "symbolic analysts," a global class of knowledge workers, would use their highly professionalized ideas and their conceptual expertise to create the new value

that would sustain the nation's wealth as well their own.⁶ The problem remains that capitalism is, among other things, a race between innovation and exploitation. Without a massively skilled population, which would support continuous innovation, a country is forced to choose exploitation, and it sinks rapidly into a competition with the rest of the world to have the lowest costs, the lowest wages, and the weakest workplace safety and environmental conditions. Although innovation by no means eliminates exploitation from capitalist economies, it can reduce the exposure of the domestic population to the worst varieties. Reich assumed that the United States would choose innovation over decline, that out of sheer self-interest it would invest in an infrastructure that would include the best-funded higher education system in the world. It now appears that Reich, like nearly everyone else, was wrong.

The United States has instead chosen a funding model that underfunds an important piece of its innovation infrastructure—public higher education. I am going to call this the American Funding Model (AFM), a special type of public-private partnership in which the private partner predominates. The leaders of U.S. higher education are certainly now worried about this funding model: one of the major effects of the record-breaking 25 percent cut to the University of California's state funding in 2008–10 was to galvanize the University's leadership into belated denunciations of the state legislature as an "unreliable partner." But their main coping strategy has been a combination of 5 percent solutions—tweaks on the margins that elsewhere I show do little to fix revenues.⁷ The tandem coping strategy has been still more underfunding: austerity, cuts, downsizing, and permanent restructuring that lowers costs by lowering educational capacity. The real problem is falling rates of educational improvement, and the real solution is proper financial support for full access to *mass quality*, to high quality on a mass scale, to the scaled-up versions of the superb educations offered by elite colleges and universities for the racially most diverse and culturally most dynamic generation in U.S. history. We are not currently seeing signs of the kind of discussion that puts the educational attainment crisis ahead of financial issues. Having watched this process for some time, I have concluded that national higher education leaders are unable to give up on the existing funding model for higher education. This is unfortunate, for, as I will argue here, this funding model—which has dominated American higher

education for thirty years—is not the solution to the current problem but the problem itself.

In this essay I am going to explain why the AFM is the problem. I am going to look at two areas in particular where the AFM has failed. The first is overall educational attainment, where I will argue that the model has not simply failed to prevent educational decline but has caused it. The second area is university research funding. In both cases of funding model failure, the problem is that the AFM produces systemic inequality, which goes on to lower the performance of the overall system. Inequality, I will argue, causes reduced educational and research attainment. The researchers whose studies reveal these unpleasant truths have been reluctant to make my further claim here of a direct link between declining attainment and the poverty of “entry-level” colleges and universities. I will note that this poverty cannot be repaired with a common American strategy, which is to increase the amount of private funding, because this private funding is what caused the inequality to start with. This dilemma is as true for advanced research as it is for general college attainment. I will end by mentioning the faculty role here. Our elitist model of meritocracy has made faculty inadvertently complicit with administrators who are trying to put our Humpty-Dumpty AFM back together again. Faculty will need to pick the side of educational attainment—which is also the side of properly funded research—and this is going to require faculty support for egalitarian goals that we have never before seen.

The Current Funding Model

The AFM has three features that are in tension.⁸ The first is its reliance on high tuition: the model depends on private funds from students and their families to a greater extent than does any other system in the world and has the world’s highest tuition rates (the major private colleges charge \$33,000–\$38,000 this year, while the average for public universities is about \$7,000.⁹ Tuition has increased at about four times the rate of overall price inflation for nearly thirty years,¹⁰ creating a mixture of fatalism and anger in the public’s attitude toward higher education costs. Some analysts have begun speaking of the “higher education bubble,” in that, like housing in many U.S. markets, the cost and debt structure of tertiary education simply cannot be sustained.

The second feature of the AFM is that two-thirds of four-year college enrollments and 80 percent of all enrollments are in the public university system (*CFL*).¹¹ The private sector includes prominent research universities like Stanford, elite liberal arts colleges like Swarthmore and Reed, and a range of local private colleges, but this sector lacks the scope required to increase the educational levels of the great majority of younger people. This means that the AFM is split between public funding obligations to the vast majority of college students, who go to relatively low-cost universities, and a high-tuition structure tied to the most prestigious end of that system. In other words, elite American higher education and democratic American higher education differ in social philosophy, scope, and funding mechanisms.

For years, the AFM screened the conflict between public service funding and the private purchase of educational goods with its third feature, generous public funding. Public universities had enough money to offer educational facilities and services that were in the same ballpark as those of their private counterparts. When state funding was sufficient, “cross-subsidy” could take place in which high-cost instruction and research could be subsidized by revenues in large-enrollment and less expensive fields. I will return to this issue below. For the moment, I note only that states did provide the revenues that supported quality education for the masses: lectures with seven-hundred students helped support seminars with seven.

The latent conflict between public and private objectives, and between mass scale and top quality, has been gradually worsening for thirty years. States cut their allocations to higher education by 25 percent per student (in inflation-adjusted dollars) between 1975 and 2000, and cut them again in two rounds in the current decade.¹² Even if the measurement starts later, in the early 1980s, U.S. public funding for higher education has been flat for a quarter-century. As state funding for higher education was falling, private funding—tuition charges and private donations—rose dramatically. Tuition grew four times faster than inflation and philanthropy grew rapidly, and the same was true for the size of university endowments: between 1992 and 2005, average endowment growth was 7.4 percent annually, while the largest twenty endowments grow on average 9 percent annually, with double-digit growth during the middle years of the past decade.¹³ Yet as we will see, the activities that seemed to be self-supporting with private funds—

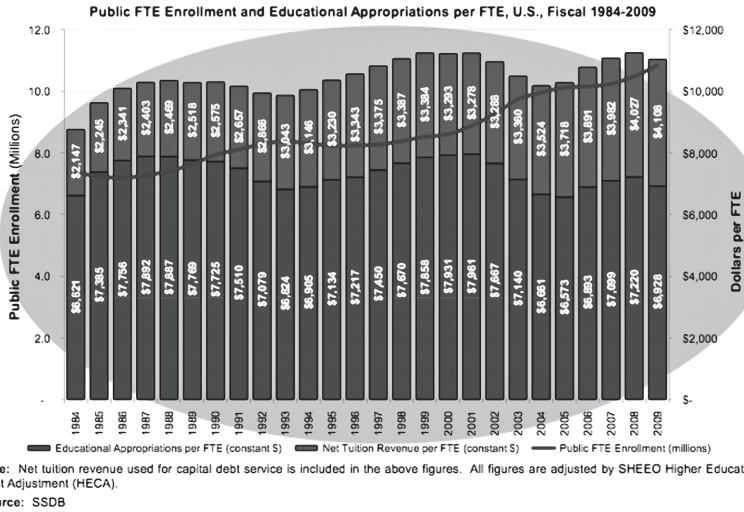


Figure 1 Public vs. Tuition Funding, 1983–2008. Chart provided courtesy of the State Higher Education Executive Officers, *State Higher Education Finance FY 2009 Report*, 20.

industry-sponsored research, new buildings and other facilities—also depended on subsidies from public funds. As public funding declined, public and private activities came into intensifying opposition.

The current situation contrasts with a postwar “balance” within the AFM. For a few decades after World War II, the model could be seen as providing a relatively egalitarian partnership between public and private sectors. The public sector was largely responsible for educating the citizenry and workforce and providing public goods like high-quality teachers and excellent hospitals. Private funding specialized in the customized training of small elites and in focused research with near-term product potential. Research and training with benefits largely for particular firms were either prohibited, as at the University of California,¹⁴ or were relegated to faculty consulting relationships with a particular firm, where the activity was supported externally. Mobility among two-year colleges, bachelor’s-granting colleges, and research universities made all the parts of the system work together. During the years when state funding was sufficient, portions of these state funds could be redirected to expensive programs like law schools and medical schools without harming the undergraduate programs.

This began to change in the early 1980s, but the effects were hard to

see at first. Since the United States led the world in higher education expenditures and attainment, cuts seemed like the fairly trivial elimination of 10–20 percent of the wardrobe of a rich man who still has fifty suits and dozens of pairs of shoes. The cuts were also gradual, so that a shrinking and aging wardrobe was hard to notice. But the pressure on public higher education never ceased to grow. The American Right under Ronald Reagan and his successors maintained a continuous assault on the very idea of public services: education along with public health care, public transportation, and so on were redefined as drains on rather than assets for building national wealth. The more public funding was attacked, the harder it became to maintain adequate levels of it, and the poorer and less attractive public higher education systems became. Inequality of conditions grew dramatically between the high-cost and low-cost segments of higher education—not only between Harvard University and Houston Community College, but also between a midlevel private university like Loyola Marymount University and good public colleges like the California State University campuses not far away. One national study found that even the most prestigious public universities—research universities—were able to spend less than half what their private counterparts spent on each student, or \$13,800 versus \$33,200 per student.¹⁵

Such figures start to tell the central story of the AFM: it supports a strikingly hierarchical university system, not only in terms of prestige—a major factor for the millions of American students who enter the competitive admissions process each year—but in terms of direct expenditures on educational activities. An excellent student who attends Berkeley instead of Stanford will today receive half the educational investment as a result of that choice. This discrepancy was not the case well into the 1980s, but public universities have been steadily falling behind.¹⁶ This reality, coupled with flat or falling state funding, further increased the prestige of the private and the disinvestment from the public. American higher education had never been egalitarian in practice, but now the AFM was generating a frankly polarized result—an ever-richer small elite, an ever-poorer large majority. Higher education had been an equalizer in postwar U.S. life, but it was now reflecting the antiegalitarian structure of a society that was increasingly proud of or resigned to its growing disparities. Not all American leaders were Spencerians relishing the demotion of citizens of lesser fitness to a permanent condition of inferior resources, but

they increasingly preferred the private version of virtually any public service. Public higher education leaders adapted to this change. They looked to private universities like Harvard as their standard of both educational quality and financial success. They gave the increasing disparities in the overall system little mention.

Features of Declining Educational Attainment

As the American Funding Model became dominated by the private partner, it also stopped delivering the educational goods to society as a whole. As I noted at the start, for thirty years the U.S. tertiary system, although still superb at its top, has endured a period of overall stagnation and, in relation to other countries, of decline.

Is this just a coincidence? Or can we make a causal claim? Can we say that decreased public funding *caused* this lower attainment? The evidence and argument are both more complex than I can do justice to here, but I will outline reasons supporting the claim that the shift toward private funding in public universities has caused this decline in educational outcomes. In making this argument I will rely particularly on data from William Bowen, Matthew Chingos, and Michael McPherson's *Crossing the Finish Line*, which rests on data sets that its authors constructed with unusual access to individual student records (*CFL*, ix), and which has allowed for more precise correlations and estimates of causality than is normally the case. The project also focuses on public universities of varying positions in the U.S. higher education hierarchy.

I'm going to make this case as a series of four propositions, and this is the first:

1. Large gaps in educational attainment persist among groups of students even after the effects of the students' secondary school outcomes are removed (CFL, 22–25; also 32–56).

Although we normally assume that unequal college outcomes reflect unequal high-school outcomes, the *CFL* analysis shows that large outcome gaps persist even after correcting for differences in high-school test levels. These gaps in university attainment are not simply the effect of better and worse high-school *preparation* for college, but are “systematically related to race/ethnicity and gender, as well as to socioeconomic status (SES)” (*CFL*, 224). The ineffective-

ness of the U.S. primary and secondary school system is skewed by SES. We might think we know what this means: poor people are sent to bad schools, with predictable results. For example, one study found that although 71 percent of high school students graduate, only 34 percent have the academic prerequisites necessary for college,¹⁷ and others have found that “the relatively modest educational gains that did occur [in bachelor’s degree attainment between 1968 and 2007] were concentrated among the most advantaged groups” (*CFL*, 27).¹⁸ But the point here is that SES transcends individual performance: even if you do well in education, your lower SES will lower your educational attainment. There is something of a mystery here to look into. Part of the answer comes with our next step:

*2. Larger shares of students with low SES—including racially under-represented students—attend the less selective segments of public higher education.*¹⁹

I emphasize that the primary reason poorer and minority students are *not* going to less selective universities is not that they have weaker academic records. Recent studies have found a faulty “match” between the schools that students are eligible to attend based on their individual qualifications and those less selective schools that students actually do attend. Pioneering work on the Chicago Public Schools concluded that only one-third of students seeking to attend a university actually enrolled in an institution that matched their qualifications. “The dominant pattern of behavior for students [eligible for a good four-year college] who mismatch is not that they choose to attend a four-year college slightly below their match. Rather, many students mismatch by enrolling in two-year colleges or not enrolling in college at all.”²⁰ Similar “undermatching” was found by the *CFL* study (*CFL*, 112–33). Taking our first and second points together, we can say that family background, income, racial origins, and similar factors are more important than academic merit in moving poorer students and students of color toward less selective colleges and universities. This research undermines attempts by conservatives to tie American educational inequality to naturally unequal abilities or even to individual academic performance as such.²¹

Some observers might naturally wonder why this trend is a problem. Less selective universities have lower status, but does that mean they are inferior educationally? Unfortunately, it does. They are inferior not

because they lack great faculty and intelligent students, but because they are unable to deliver solid academic outcomes:

3. *Less selective colleges and universities have lower continuation and graduation rates.*

American degree attainment rates have stagnated for nearly thirty years, and most of the modest gains are concentrated among the wealthiest students (*CFL*, 27).²² It is well known that graduation rates vary by race, gender, and SES; poorer students, racial minorities, and males are all at greater risk of discontinuation during their university years. But for each social grouping, graduation rates also vary dramatically by the institution's selectivity. The *CFL* database shows that aggregate graduation rates (within six years) are 84 percent for their more selective university group (SEL A) and 56 percent for their less selective group (SEL B) (*CFL*, 202–3). That is a significant difference, one so large that it overwhelms the difference between private and public universities of similar selectivity, which is almost zero in their study, and is far more important than other factors such as quality of the student's high school (*CFL*, 202–3, 90–93).

Most important, the *CFL* study found that graduation rates at the less selective universities are not lowered by their larger numbers of low-achieving students. The authors ran an experiment on their data by “rejecting” from their samples all students below a selected threshold of high school grades, and then comparing graduation rates for their “more qualified” remaining group. They found that “retrospectively rejecting” these weaker students did not change the graduation rates at all at the most selective universities, produced “only a tiny gain in the overall graduate rate” for the next group of schools, and increased the graduation rate by only six points at the least selective schools, at which 30 percent of the classes consisted of students below the grade cutoff (*CFL*, 197). The surprising “reality is that graduation rates vary dramatically across universities even when we look [only] at students with good high school grades and impressive test scores” (*CFL*, 198). The most important factor affecting graduation rates is the university's selectivity: the greater the selectivity, the higher the graduation rate.

Looking at the logic of our three points so far, it appears that we have two choices. The first is to make the large majority of American universities more selective, on the theory that something about selec-

tivity improves graduation rates. This solution is in fact the dominant strategy in the United States as well as in countries trying to compete with it. Universities are now regularly ranked and compared with each other, and in prominent rankings such as that produced by the *U.S. News and World Report*, selectivity is taken as an index of quality. The most selective universities in the United States—Princeton, Stanford, Cornell, Duke, Penn, and so on—form the academic gold standard for most of the public as well as for educational leaders. In this normative view, to improve ranking and hence competitiveness and quality involves increasing selectivity. The entrenched practices, the deep culture, the lived ideology, the life-world of American higher education all point toward defining excellence through selectivity, and would seek to improve any university regardless of mission by tightening admissions standards. Following the genomic impulse buried in the AFM, many University of California campuses are trying to scramble upmarket by charging higher tuition than other University of California campuses, getting a larger percentage of students who pay close to Stanford-level fees, and making this work by rejecting more of the California students who apply. The promise is that the outcome of increased selectivity will be both more money and better students who are more likely to succeed and who will produce better work while allowing their professors to do better research and their institution to in turn attract better incoming students and better—wealthier—donors.

This strategy of course assumes a conventional brand of meritocracy that focuses primarily on creating an elite, generally of a fairly small size. In reality, the *CFL* study found, selectivity as such does not in fact improve college success rates: eliminating the weaker students in the *CFL* data pool had no effect at all on attainment at the most selective schools and only small effects at the schools at the “bottom.” Although more research must be done, these findings should shatter the complacency of the reflexive quest for “competitiveness” that combines closing doors with modest financial rewards for those universities that manage to exclude the masses more successfully than do their neighbors.

The alternative strategy for increasing educational outcomes seeks to improve the quality of the less selective schools without increasing their selectivity. This strategy rests on egalitarian meritocracy: it focuses equally on obtaining high quality outcomes and on ensuring

their wide distribution in society. Egalitarian meritocracy rejects the tradeoff between equality and quality. It points out the obvious fact that just as public health measures are aggregates of an overall population's health—and not just of those with access to deluxe treatments at the top—so too is the educational quality of a society tied to the egalitarian expansion of attainment as much as to the attainment level of an elite. Egalitarian meritocracy rests on an important intuition: it is bizarre that our country's sense of quality depends on our power of rejection, when in fact quality depends on our power to inculcate skill, knowledge, and craft development across the full extent of society. The egalitarian intuition also holds that it is perverse for university faculty, as educators, to prefer selective and vertical over general and horizontal development. My own version of this intuition holds that this preference for rejection and narrow, selective development is the hallmark of a primitive era, and that we bring this prejudicial love of selection into the twenty-first century at our own peril.

If we look to improve quality without using selection (always inefficiently) to do it, how exactly would quality be improved? The *CFL* study shows correlations between improved outcomes and qualitative changes in peer groups and good community environments in honors colleges (*CFL*, 196). I agree that these qualitative features are crucial to good educational outcomes but also insist that the correct functioning of these features depends in turn on correct funding. Here I must part company with the *CLF* study, which claims *not* to have found an “institutional resource effect” that would allow them to suggest that more money—or money spent differently—would mean more graduates (*CFL*, 200).²³ I take the next and final step in the argument without them, and it centers on funding:

4. *The least selective segment of public higher education spends the least money per student.*

We have already noted the expenditure gaps between private and public sectors. Similarly large differences exist within the public system between research universities and two-year associate-degree colleges. The former spent on average \$8,711 per student in 2006, while two-year colleges spent \$4,609.²⁴ In other words, the top of the public university system spends nearly twice per student on “Education and Research” as what a two-year college spends. The data on these expenditure differentials is quite clear and abundant. What they mean is that

the students with the greatest need for the intense deployment of educational resources in fact have the fewest resources at their disposal.

While we cannot make a crude linear argument for doubling the money to double the completion rates, we can assemble the four points in our argument into this claim: the best way to increase American educational attainment is to improve completion rates for low-income and minority students, which requires that we dramatically increase expenditures at the low-spending colleges where most of those students go.

When stated this way, the proposal seems like common sense. But in fact, public higher education expenditures have barely increased in the past three decades, and this stagnation has frozen the least selective part of the system into a low-cost model that is limiting life chances while blocking improvements in U.S. educational attainment. Furthermore, there are no signs of major funding increases today. In spite of its goal to improve college attainment, the Obama administration has been largely uninterested in getting involved in instructional expenditures, and in 2010 states are continuing to cut higher education or at best trying to restore a portion of the money they cut in the preceding year.²⁵ With honorable exceptions,²⁶ higher education scholars are generally silent on the subject or call for improving financial aid rather than boosting public funding.²⁷ The important work of data construction and analysis that led to the *CFL* study I have discussed did not lead the researchers to any recommendations for improved funding or even to an acknowledgment that funding shortfalls are a central piece of the attainment puzzle. The same goes for higher education managers. Everyone is sorry about the education funding meltdown during the crisis, but everyone's plans consist largely of trying to goose the existing AFM—continuing now-traditional annual tuition increases well above inflation and taking more out-of-state students who pay triple costs, both of which reduce access for in-state students while infuriating exactly the state taxpayers whose support public universities desperately need. (UC Berkeley's fall 2010 class has 16 percent fewer California admits than did the admissions class of fall 2009.)²⁸

We are seeing a near total absence of innovation in mechanisms of educational access, and the single most important reason is the ongoing spell of the AFM. This model pumped an enormous cash flow through the system in the form of investment income, private giving,

research sponsorships, and high tuition charges. Key educational leaders are focused only on getting these private spigots turned back on. The neglect of public funding—of the careful, long-term cultivation of public support for a high-state funding low-fee model—will lock in U.S. higher education attainment at its current mediocre, declining level. The absence of a major renewal of funding for public higher education is a growing disaster for the U.S. population. The AFM is not the friend of needed renewal but its enemy.

The Damage the AFM Does to University Research

The AFM has harmed the democratic vision of higher education: the egalitarian desire to spread higher learning as broadly as possible, and to increase social capability, innovation, and social equity at the same time.²⁹ But the AFM also harms elite research. Broad education and advanced research are equally important to advancing society's general capability. If the AFM is shorting instruction for the poorer and more vulnerable majority, one would think it would be serving the research of the wealthier and the well-connected. The AFM does provide massive funding for high-end research of special interest to influential sponsors, but it provides this funding in a way that hurts research.

If we look at expenditure patterns for academic research, we see that the AFM causes two kinds of problems. The first is that it creates holes in the budgets of cheaper disciplines. Rather than having set up a funding system in which valuable but high-cost research can support itself, the AFM has created a scarcity economy in which expensive research is not fully funded and requires cross-subsidy from other parts of the academic house. The second problem is that these cross-subsidies are generally unacknowledged. This means that most researchers do not realize that their research is losing money. These systematic accounting errors distort the whole research system, allowing even the best-funded research to be underfunded.

Some background is required here.³⁰ The current public university funding model generally works like this: state funding and tuition monies are supposed in a general way to flow to course enrollments in varying degrees, since both taxpayers and students are paying first and foremost for undergraduate instruction. States normally appropriate money to public universities according to instructional workload.

Although they generally track statistics like the number of degrees conferred, annual or biannual budgeting mostly defines workload through overall campus or system enrollments.

Some of this workload money pays the direct costs of instruction, such as faculty and staff salaries, and some pays indirect costs, such as the amortized annual costs of building construction and of having constructed the buildings and of facilities administration shared by a number of researchers with federal grants. Private universities do something similar with tuition money: most have formulas to enable the fair funding of teaching workload. As a result, departments that have many majors and/or overall enrollments (factoring here is also variable) would normally receive proportionally more money for faculty and staff salaries, more money for new hires, more teaching assistant funds, and so on. The formulas can be arcane, but the basic idea is that allocations should generally reflect instructional load, especially since instruction has long been seen as the university's core service to society.

We can roughly calculate what individual departments or divisions "earn" based on their student enrollments. We can also—with greater difficulty—find out what their actual budgets are. We can then see whether the university is paying every department what it "earns" through teaching, or whether it is giving various departments more or less than what they might expect for their teaching effort.

The next figure offers one example of such a calculation from the year 2001–2 (see table 1). These are actual, though simplified, figures from a major public research university with a complement of professional schools that I exclude here. The "earned" figures multiply the division's instructional load by the amount of public money that is sent by the state per student. The private university equivalent would be the tuition revenues generated by student enrollments. "Actual revenues" reflect what this university administration then really gives each division. "Research awards" refer to extramural contracts and grants from all sources, including industry. These figures include money for both direct and indirect costs, at various rates.

The normal way to read such a table is to look at the last column. Arts and humanities faculty generate the smallest amount of funds per faculty member, which leads to the standard view that its relative poverty of condition derives from its poverty of earning power. When one adds teaching revenue to research revenue, and then divides by

Table 1 Earned vs. Actual Instructional Revenues (averaged by divisions)

<i>Division</i>	<i>Earned Instructional Revenues</i>	<i>Actual Revenues</i>	<i>Ratio of Actual to Earned Revenues</i>	<i>Research Awards</i>	<i>Total Revenues (including Research Awards, Gifts)</i>	<i>Revenues per Faculty FTE[†]</i>
<i>Professional School</i>	869,000	2,433,369	279.8%	2,668,012	4,075,309	251,562
<i>Arts and Humanities</i>	56,684,987	25,665,591	45.3%	1,542,992	60,942,496	230,922
<i>Social Sciences</i>	40,820,389	15,732,870	38.5%	1,673,422	43,194,634	294,743
<i>Natural Sciences</i>	40,336,121	30,309,471	75.1%	55,437,901	97,870,016	400,811
<i>Engineering</i>	11,398,652	24,348,696	213.6%	43,382,033	64,420,069	530,250

[†] FTE stands for "Full Time Equivalent." For example, two faculty members each working half-time equals one FTE.

the number of faculty FTE (not shown), one may reach the standard conclusion that both sides of campus contribute in their own ways. The humanities and social sciences contribute with more teaching, and the sciences and engineering with more research. When one adds the numbers together in the last column, this standard story goes, "Funds Generated" by engineering faculty are double those of the professional school faculty and more than double those in the human sciences. Natural and physical science faculty are in between, but closer to engineering. Hence, we seem to have learned yet again that sciences and engineering (SE) faculty earn the bulk of the money and then have to share a piece of it with their low-income relations in the human sciences.

But if we look at the fourth column, "Ratio of Actual to Earned Revenues," we see data that contradicts the standard view. Were the sciences subsidizing the social sciences and humanities, one would predict departmental budgets in the latter divisions that are larger than what these departments earn through their teaching. A department like English or art history would, according to this standard assumption, keep its teaching money, hang onto the tiny scrap of indirect cost recovery (ICR) it may generate with its minute grants, and then extract some ICR money from a science or engineering grant on top of that. In this case study, reality is the opposite. At this public university, humanities and social science departments keep only a portion of

their enrollment money, less than one-half and one-third respectively. The sciences do somewhat better but are not at 100 percent. By comparison, engineering receives double its teaching workload money. The professional school receives closer to three times its workload money. Were this a medical school, the gap would be far larger.

It is worth reflecting on the main lesson of column 4, and not just on the more familiar lesson of the final column. The humanities and social sciences disciplines are not getting a piece of the SE action but are sending a piece of their action to the sciences and engineering.

The reason for this exchange is straightforward, though largely unknown outside of administrative circles: SE research *loses* money for universities, when one considers the large but underfunded indirect costs that modern research incurs.³¹ This loss results from the fact that federal agencies systematically underpay the indirect costs of research. If a university states that for every dollar in extramural funding it must spend sixty cents on facilities and administration (F&A) to supply the buildings, equipment, staff and so on to support that research, the government agency will generally send that university fifty-three cents, or fifty-six cents, or something less. UC Santa Barbara recently estimated that it loses twenty-five cents for every dollar of extramural funding. The University of California now admits that it comes up short \$720 million per year on \$3.5 billion in extramural grants.³²

The situation is far worse when the funder is a nonprofit foundation or corporation. Some nonprofits pay zero F&A as a matter of policy, and industry generally pays less than federal agencies, and often classifies its funding as a “gift,” in which case it may pay 2 percent F&A or no F&A at all. This inequity is logical from industry’s point of view, since it funds university research in order to reduce its own direct and indirect research costs, not so it can support those costs at universities. Industry seeks not to supplement public funding with private but to leverage public funding for private benefit. The result is this: although the science and engineering fields have much higher per-capita extramural *gross* “incomes,” the even higher overall cost of that research (adding indirect to direct costs) forces them to spend all extramural support on the research and to absorb a supplemental infusion of university funds to pay for the shortfall in their indirect costs. The *net* income of scientific research appears in most cases to be negative.

When all is said and done, enrollment-based funding is the only plau-

sible source of revenue for filling in science and engineering's permanent shortage of extramural support for the indirect costs of extramurally funded research. The way to find teaching money in sufficient quantities is to take it from high-enrollment fields with low teaching costs. Furthermore, the enrollment money required to support high-cost SE fields cannot be found in the (generally less numerous) high-enrollment SE disciplines like biology, since their teaching funds are already being used in part to cover their own unfunded research costs. There is a clear institutional logic that compels universities to use social sciences and humanities teaching revenues to support the unfunded costs of science and engineering research. At the university represented by the above table, the revenue is not a small slice—it is half of the humanities instructional money and close to two-thirds of the social sciences money.

This calculus causes problems for both sides of campus. Universities have perverse incentives to minimize research in high-enrollment departments in the humanities and social sciences. The revenue surplus generated there can be used to support indirect costs in science, engineering, and medicine only if little of the surplus is absorbed by these high-enrollment departments. Federal research expenditures for the humanities in 2005–6 came to an astonishingly small 0.45 percent of the federal total (AAAS, Figure IV-10a).³³ This means that beyond a limited number of individual fellowships and text projects, there is effectively *no* outside research funding in the academic humanities. There is thus nothing to compete with the sciences for claims on teaching revenues from humanities and social science departments. And yet all is not well in the sciences either. At the same time, the false belief that scientific research pays for itself has enabled the continuous underfunding of research. Federal agencies and private companies short campuses on indirect costs,³⁴ causing the understaffing of grants and other problems that are veiled by blanket AFM assurances that “entrepreneurial” activities run in the black.

There are some immediate conclusions to draw from this case study, and then I will finish with some larger ones. If we assume that this table can be generalized,³⁵ these immediate conclusions are as follows: (1) departments in the humanities and social sciences do not keep the instructional funding attached to their students; (2) some portion of that enrollment money is transferred to departments that conduct expensive science and engineering research; (3) as state

funding is gradually replaced by student tuition, students are increasingly subsidizing both federal and private research. My own view is that these cross-subsidies are generally good—students get a great deal out of attending research universities and should help support them; scientific research should have more money, not less. What is completely unacceptable is the concealment of the subsidies; what is unacceptable is the desperate financial in-filling also required of science and engineering faculty; what is also unacceptable is the blanket denial of the financial contributions that the “cheap” programs in the humanities and social sciences make to the university in general and to expensive science and engineering programs in particular. No improved university community can be built on the denial of what we all do for each other. The denial of the financial contributions of the humanities and social sciences has to stop.

Next Steps

The humanities are vitally important to the future of knowledge and society, and getting them back on their financial feet should be a priority. Yet we need to think about the university as a whole as an integrated, massively multidisciplinary site of innovation, imagination, and transformation. Here my message is dire: we are looking at the end of the American university as we know it. Our public system has seen an erratic but relentless erosion of its funding base, and literally thousands of public colleges and their faculty and staff struggle to provide at least the shadow of the dream of personal development and workforce readiness a college degree has traditionally promised. The elite private universities have been reconnected to the economic reality that they had temporarily escaped with exotic investment strategies, and will be lowering their sights as well. The results of our dependence on the current AFM are visible in stagnant college attainment, declining global competitiveness, growing disservice to today’s students—in short, the devolution of U.S. higher education and society alike.

What can we do about this trend? The current crisis has convinced me that we cannot look to higher education leaders for answers or action. A hallmark of higher education’s past two terrible years is that its leaders have not put forward twenty-first-century educational goals—types of learning, percentages of the population attain-

ing specified levels of achievement, new modes of instruction, new prospects for research—and then assessed their floundering funding model in this context. Educational administrators should take the educational goals defined by the university community—particularly its faculty—and seek the revenue streams and financial structures that would support those goals. But that is not what they have been doing. Their job is not to prop up the current funding model with more borrowing and tuition increases, but that is largely what we have seen.

At the same time, administrators need much more pressure and guidance from the faculty than they have been getting. If we expect administrators to find the funding for our educational goals, we have to articulate the goals we want them to support. We can certainly criticize what administrators are currently doing, and point out that in administration-controlled exercises like the University of California's Commission on the Future, faculty are being roped into downsizing educational goals to fit the current resources of the existing funding model. But the faculty need to do the constructive work as well. It will be up to faculty to identify the educational goals and then push for the budgetary transparency and the specific funding structures that will support those goals. So far, few faculty have taken on this job.

What would allow faculty to recover their leadership role? Greater technical knowledge about their own institutions will be essential, and I have written extensively about that, but more profoundly, faculty need to adopt, espouse, and live a new mission for public higher education. We have allowed ourselves to become isolated from education's various publics. On the crucial social matter of access and attainment, we faculty are associated with the great false solution of selectivity—of ranking, of rejection, of one long academic campaign of denial of access. On the crucial social matter of advanced research, we faculty are associated with special privileges, with private rather than public purposes. The truth is that we are generally elitist in practice and adhere to narrow rather than democratic meritocracy: we identify quality with selectivity. We identify success with our side deals and hidden subsidies. I am myself an example of what I criticize. I recently caught myself being pleased that my campus, UC Santa Barbara, was fourth in admission selectivity rates among the nine UC general campuses, not far behind the perennial flagships. And I happily accept extraordinary research funding for a humanist from an National Science Foundation research center whose existence depends on a sub-

sity—required of UCSB by the NSF—that is taken from funds that could otherwise end up in many classrooms. We have, as I say, become compromised in our public mission.

The good news is that this compromise is not only wrong, but also unnecessary. What works for higher education works for the general public as well. What works in both cases is egalitarianism. The grossly unequal infrastructural funding inherent in the AFM has lowered the country's educational attainment. The AFM's unequal funding of research has lowered overall research output, obviously in the social and cultural fields that address vital social needs, but also in science and engineering. Faculty can and must now honestly say to the public, the principle of our maximum development is the same as the principle of yours. The principle is equality, mass quality delivered through equality, the opposite of what you have been told, and the long road toward our mutual and reciprocal development. The faculty needs to see itself not as a set of isolated and beleaguered technicians, but as a movement, the permanent movement of universally diffusing knowledge. The faculty, if it develops a passion for equality, can tie itself to the fate of society in the only gesture that will rebuild public support for higher public funding, precisely by abandoning the funding model that has forced us, against our will, to reduce our services to that public.

I end by saying to the many publics inside and outside the walls: We do not consent to these reductions. We shall rebuild. We rebuild for us, and equally, for you.

University of California at Santa Barbara

Notes

- 1 See Claudia Goldin and Lawrence F. Katz, *The Race between Education and Technology* (Cambridge: Belknap Press of Harvard Univ. Press, 2008).
- 2 Patrick M. Callan, "Introduction: International Comparisons Highlight Educational Gaps between Young and Older Americans," *Measuring Up 2006* (National Center for Public Policy and Higher Education), measuringup.highereducation.org/commentary/introduction.cfm (accessed 19 April 2010).
- 3 See National Center for Public Policy and Higher Education, *Measuring Up 2008* (2009), measuringup2008.highereducation.org/print/NCPPHEMU_NationalRpt.pdf (accessed 19 January 2010). See also American Council on Education, "Generational Gains in Postsecondary Education Appear

to Have Stalled, New ACE Report Finds,” 9 October 2008, www.acenet.edu/AM/Template.cfm?Section=Press_Releases2&TEMPLATE=/CM/HTMLDisplay.cfm&CONTENTID=29423. For a good summary of the statistics on the decline in U.S. college attainment, see John A. Douglass, “Wrong Trajectory,” *California* (May-June 2008), www.hopemans.com/news/california-magazine/mayjune-2008-beijing-primer/wrong-trajectory. The United States is now fourteenth in college participation, sixteenth in degree completion, and twenty-first in high school graduation rates. For a convenient overview of statistics on contingent faculty, see the American Association of University Professors, “Background Facts on Contingent Faculty,” www.aaup.org/AAUP/issues/contingent/contingentfacts (accessed 7 January 2009).

- 4 William G. Bowen, Matthew M. Chingos, and Michael S. McPherson, *Crossing the Finish Line: Completing College at America's Public Universities* (Princeton, N.J.: Princeton Univ. Press, 2009), 4. Subsequent references to *Crossing the Finish Line* will be cited parenthetically in the text as *CFL*.
- 5 Thomas G. Mortenson, “The Growing Gap between Policy and Reality in Higher Education Opportunity in the United States, 1980–2005,” Vienna, Austria, 2005, 27–29, www.postsecondary.org/ (accessed 17 January 2010).
- 6 Robert B. Reich, *The Work of Nations: Preparing Ourselves for Twenty-First Century Capitalism* (New York: Knopf, 1991).
- 7 Christopher Newfield, “Can Doubling Out-of-State Students Save Berkeley’s Budget?” *Remaking the University*, 1 September 2009, utotherescue.blogspot.com/2009/09/can-doubling-out-of-state-students-save.html (accessed 19 April 2010).
- 8 The AFM has six major components, as follows:

TYPE	SOURCE
Student fees or tuition	Students and their families
Financial aid (tuition assistance)	Grants to students—federal Direct loans to students—federal Direct loans to students and parents—private
Enrollment funding	The fifty states—public
Research funding	Mostly federal, some state—public Industry and foundations—private
Philanthropy	Private individuals, some foundations
Sales of services	Fee-for-service—private

- 9 See College Board, “2009–2010 College Prices,” www.collegeboard.com/student/pay/add-it-up/4494.html (accessed 29 December 2009).
- 10 National Center, *Measuring Up 2008*.

- 11 Two-year colleges, often called “community colleges,” charge on average about \$2,500 per year (College Board, “2009–2010”), cost as little as 1/3 per student to operate (Eric Kelderman, “To Save Money, Louisiana Seeks to Balance Two- and Four-Year Colleges,” *Chronicle of Higher Education*, 10 January 2010, chronicle.com/article/To-Save-Money-Louisiana-Se/63462/). Community colleges are also playing a larger role in the Obama administration’s strategy for reversing declines in American educational attainment (Karin Fischer and Marc Parry, “How Obama’s \$12-Billion Plan Could Change Two-Year Colleges,” *Chronicle of Higher Education*, 20 July 2009, chronicle.com/article/How-Obamas-12-Billion-Pla/47081/).
- 12 Thomas J. Kane and Peter R. Orszag, “Use of State General Revenue for Higher Education Declines,” Tax Policy Center and the Urban Institute, 2002, www.urban.org/UploadedPDF/1000462_education.pdf (accessed 12 March 2006).
- 13 Josh Lerner, Antoinette Schoar, and Jialan Wang, “Secrets of the Academy: The Drivers of University Endowment Success,” *Journal of Economic Perspectives* 22 (summer 2008): 207–22, www.ingentaconnect.com/content/aea/jep/2008/00000022/00000003/art00011.
- 14 APM-020 (University of California Academic Personnel Manual, Section 020.II.2), www.ucop.edu/acadadv/acadpers/apm/apm-020.pdf (accessed 16 January 2010).
- 15 Delta Cost Project 2009, “Trends in College Spending,” The Delta Project on Postsecondary Education Costs, Productivity, and Accountability, www.deltacostproject.org/index.asp, 23.
- 16 For a dramatic résumé of the problem that focused widespread attention on the woes of public research universities, see Anthony Bucal and Sonal Rupani, “The Dangerous Wealth of the Ivy League,” *Business Week*, 10 December 2007, 38–44.
- 17 Jay P. Greene and Marcus A. Winters, “Tougher Standards Are Already Yielding Results,” *USA Today*, 31 May 2005, 13a.
- 18 The low level of American high school graduates has become a topic of national debate, and it prompted the Obama administration to formulate its controversial “Race to the Top” program (William Branigin, “Obama Launches ‘Race’ for \$4 Billion in Education Funds,” *Washington Post*, 24 July 2009, www.washingtonpost.com/wp-dyn/content/article/2009/07/24/AR2009072402203.html). But the CFL study shows that most of the lingering gap is tied to social position, including economic position.
- 19 Danette Gerald and Kati Haycock, *Engines of Inequality: Diminishing Equity in the Nation’s Premier Public Universities* (Washington, D.C.: Education Trust, 2006), www.edtrust.org/dc/publication/engines-of-inequality-diminishing-equity-in-the-nation’s-premier-public-universities (accessed 17 January 2010); Kati Haycock, Mary Lynch,

- and Jennifer Engle, *Opportunity Adrift: Our Flagship Universities Are Straying from Their Public Mission* (Washington, D.C.: Education Trust, 2010); Department of Education, "2007–08 Federal Pell Grant End of Year Report," table 13, www.ed.gov/finaid/prof/resources/data/pell-2007-08/pell-eoy-07-08.pdf (accessed 17 January 2010).
- 20 Melissa Roderick et al., "From High School to the Future: Making Hard Work Pay Off," Consortium on Chicago School Research, April 2009, 4.
- 21 See Charles Murray, *Real Education: Four Simple Truths for Bringing America's Schools Back to Reality* (New York: Three Rivers Press, 2009).
- 22 Mortenson, "The Growing Gap."
- 23 The authors note that their "failure to find an institutional resource effect could be due to the lack of measures of resources that are truly comparable across universities" (CFL, 200).
- 24 Delta Cost Project, 26, 28.
- 25 Grapevine, "State Fiscal Support for Higher Education in Fiscal Year 2009–10," Illinois State University, 2010, www.grapevine.ilstu.edu/tables/FY10/Grapevine%20Press_Release.pdf (accessed 18 January 2010); Libby Nelson, "Financial Outlook Remains Negative for Higher Education, Moody's Says," *Chronicle of Higher Education*, 19 January 2010, chronicle.com/article/Financial-Outlook-Remains-N/63642/.
- 26 See John Bound, Michael F. Lovenheim, and Sarah Turner, "Increasing Time to Baccalaureate Degree in the United States," NBER Working Paper Series, 2010, www.nber.org/tmp/27838-w15892.pdf.
- 27 See Goldin and Katz, *Race between Education and Technology*, 350–51.
- 28 Janet Gilmore, "More Than 12,900 Offered Admission After Competitive Application Period," UC Berkeley News Center, 14 April 2010, www.berkeley.edu/news/media/releases/2010/04/14_admissions.shtml.
- 29 See Christopher Newfield, *Unmaking the Public University: The Forty-Year Assault on the Middle Class* (Cambridge: Harvard Univ. Press, 2008), 92–106.
- 30 This section is based on material from Newfield, *Unmaking the Public University* and Newfield, "Ending the Budget Wars: Funding the Humanities during a Crisis in Higher Education," *Profession* 2009, 270–84.
- 31 See Newfield, *Unmaking the Public University*, 208–19; and "Public Universities at Risk: Seven Damaging Myths," *Chronicle of Higher Education*, 31 October 2008, chronicle.com/article/Public-Universities-at-Risk/15171/ (accessed 18 January 2010).
- 32 Office of Research, "An Introduction to Indirect Costs at UC Santa Barbara," University of California at Santa Barbara, isber.ucsb.edu/files/Indirect%20Costs.pdf, 3–4; Nanette Asimov, "UC: Millions Lost in Research Costs from Grants," *San Francisco Chronicle*, 16 June 2010, www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/06/16/BAOC1DTI1V.DTL.
- 33 American Academy of Arts and Sciences, Humanities Resource Cen-

ter Online, Indicator IV-10, www.humanitiesindicators.org/content/hrcoIVD.aspx#topIV10 (accessed 21 January 2009).

- 34 See Christopher Newfield and Gerald Barnett, "The Federal Stimulus Should Support Research at Public Universities," *Chronicle of Higher Education*, 3 January 2010.
- 35 Having seen the institutional logic behind culture subsidizing science, do we know that table 1 can be generalized to research universities nationwide? We do not know this for sure. No national study of interdivisional funding transfers has been conducted, and internal budgetary figures are hard to obtain. But I have sought at least informal validation of these data by showing them to administrators at about a dozen universities, private and public; the table itself was first published in 2008. While two administrators have remarked that "we don't calculate this way here," no one has provided alternative data or calculations. No one has rejected or falsified the data or the analysis. Unless that happens, I suggest that the case I am constructing here should be the default interpretation of standard interdivisional funding transfers, with the usual caveats about enrollment and research funding variations across campuses.