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# Is Academic Research a Good Investment for Texas?

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## RECOMMENDATIONS

- Place a renewed emphasis on teaching in colleges and universities.
- Require all Texas colleges and universities to sign a "learning contract" with incoming students.
- Separate the teaching and research functions to stop the massive cross-subsidies that flow from teaching and useful scientific research to subsidize the more esoteric academic research favored by the tenure faculty.
- Evaluate and reform the current system of Ph.D. fellowships, rejecting the conventional wisdom about academic research and the promise of "free money."

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## EXECUTIVE SUMMARY

We live in the richest and most powerful country in the world. We owe a great debt to the scientists and entrepreneurs who provided the scientific breakthroughs that won World War II and the Cold War. An equal debt is owed to those who created new technologies that helped build the modern U.S. economy.

Given the modern miracles that science and entrepreneurs have provided, who wouldn't be in favor of more funding for research on our university campuses. Everyone knows that it is scientific, academic research that fuels the modern economy—except that it doesn't.

In fact, 87 percent of the research and development work in the United States is done by private companies and independent laboratories, not by universities (see page 2). Even in the area of basic research, higher education's share of research funding steadily declined from 1980 to 2000.[1]

The returns for investing in scientific research at academic institutions are poor, and Texas campuses are no different. An estimated $9 billion has been spent on scientific research on Texas campuses in the last 10 years. At nine out of 12 campuses, the income from patents *does not even cover the costs of running the technology transfer offices the patents require*. Overall, taxpayers are earning *less than two-tenths of one percent* rate of return (0.14 percent, to be exact).[2]

Additionally, a significant portion of academic research costs are "off the books" and not included in these numbers. When tenured faculty refer to "academic research," they generally are referring not to work done in scientific laboratories, but esoteric scholarly articles written for obscure academic journals. Over two million of these articles are published each year, diverting tens of billions of taxpayer dollars that could be spent educating students.

Ohio University economist Dr. Richard Vedder has conducted studies showing that states that over-invest in higher education have a lower growth rate than states that do not.[3] Perhaps this is one reason why California, with its highly acclaimed higher education system—and equally high tax rates to support it—has been losing economic ground to Texas year after year. At best, there is no evidence of a correlation between state higher education spending and economic growth.

The key to preparing the next generation of Texans for more productive and meaningful lives is not to pour billions of additional dollars into higher education research, but to return our colleges and universities to their original mission—teaching students.

This shift in emphasis could not come at a more critical time, for there is mounting evidence that students are learning less and less. The most prestigious universities selectively admit smart students, so they produce smart graduates, but too often add little value in between.

This isn't surprising given that over the last 20 years, the investment in teaching students has plummeted. Today, the majority of undergraduate classes in American colleges and universities are taught by non-tenure track faculty, graduate teaching assistants, or part-time adjuncts making as little as $1,000 per semester. At the same time, we are investing billions of dollars in research of questionable value.



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To successfully tackle the problem with higher education in Texas, we must develop incentives in our colleges and universities that encourage investment in teachers, curriculums, and classrooms rather than the production of endless streams of academic research.

## A SHORT HISTORY OF HIGHER EDUCATION RESEARCH

Beginning in World War II, the federal government invested massive amounts of money into research on American campuses. By 1947, government spending for research at colleges and universities was *three times* the combined income of all institutions of higher education in 1941.[4]

Poorly paid professors found the allure of government funding irresistible. Suddenly scientists armed with government money were more powerful than university presidents. Dr. Robert Nisbet noted, "Suffice it to say, beginning just after World War II, the locus of authority in the university was, and continues to be, profoundly muddled, fragmented, atomized as the case may be."[5]

Federal government research funds soon became the driving force behind the recruitment, hiring, and promotion of faculty. The money continued to pour into college campuses throughout the Korean and Cold wars, and with little concern for efficient administration of the funds, higher education costs began to soar.

During the 1960s, "social scientists," well aware of what federal funding had done for academics in the hard sciences, began to apply for government grants that would allow them to apply "scientific" methods to the study of human behavior. Soon taxpayer money began to flow for academic research in a multitude of disciplines.

Ironically, before World War II, the rigid orthodoxy of academia had not ever favored the pure sciences. As university President George Dennis O'Brien observed, "Experimental science…evolved basically outside and in opposition to the traditional universities."[6] Now the scientific method dominates college campuses.

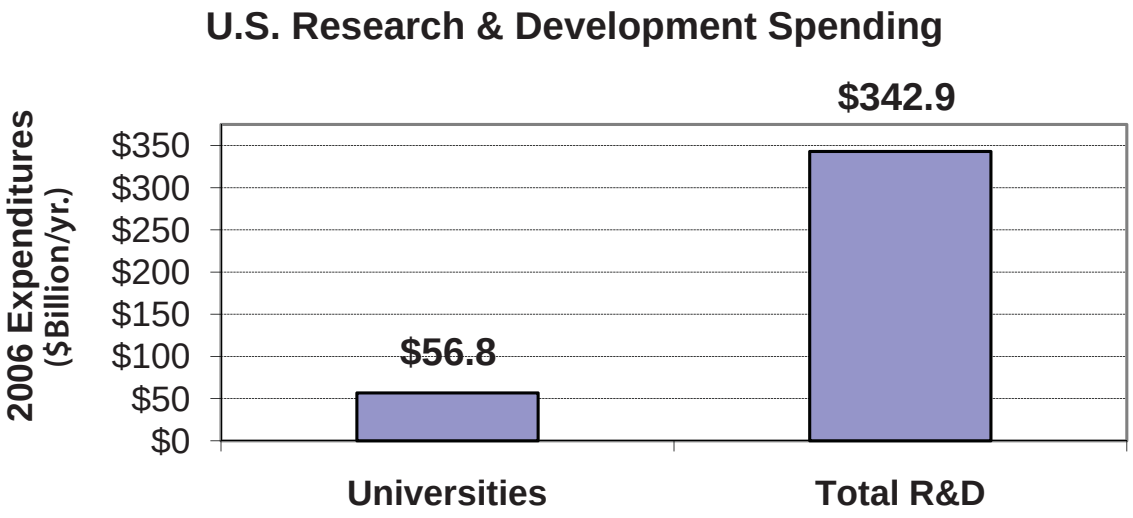
Over time, academic researchers gained significant control of the modern American university, profoundly changing the mission of higher education.

## SCIENTIFIC ACADEMIC RESEARCH

### America's Universities Have a Small and Diminishing Share of the R&D Pie

Despite rhetoric to the contrary, colleges and universities fund only a small part of scientific research and development in the United States, as demonstrated by National Science Foundation (NSF) data.

Universities and federally funded university research centers performed only 16.6 percent ($56.8 billion) of the




*Source: National Science Foundation (NSF)*

approximately $343 billion in research and development in the United States in 2006 and less than a third of all research.[7] The majority of research funds are spent by private industry and independent laboratories.

Although universities continue to perform more than half of the nation's basic research, two-thirds are funded by federal grant money that could be redirected to other recipients. Also, private industry has been consistently increasing its spending on basic research, growing from $5.4 billion in 1995 to $9.1 billion in 2006.[8] Most importantly, the basic research performed by universities is almost entirely the province of science departments, and therefore it does not justify the emphasis on research over teaching that is also common in the liberal arts, business schools, law schools, and other disciplines. Some of the resources, including faculty time, allocated to non-scientific research that does not produce measurable returns could be used for teaching more students or lowering tuition, either of which would make higher education institutions more productive.

Richard Vedder notes, "In sum, universities are not the dominant institutional means of carrying out research, even basic research, in the United States."[9]

## Texans' Poor Returns on Investments in Scientific Academic Research

The rate of return on investment (ROI) produced for the citizens of Texas from investments in scientific academic research on state campuses is dismal. In fact, at nine of the 12 campuses reporting, *the cost of running the technology transfer offices exceeded the revenue from patents*. In other words, the overhead associated with filing patents exceeded the revenue received from those patents.[10]

At the University of Texas System, in the last 10 years, an estimated $3.8 billion has been spent on research, yet income from this investment is less than $3.2 million, or an annual rate of return of less than one-tenth of 1 percent (.08 percent). At the Texas A&M System, an estimated $3.8 billion has been spent over the last decade to generate income of less than $5.5 million, for less than two-tenths of 1 percent rate of return (.14 percent).[11]

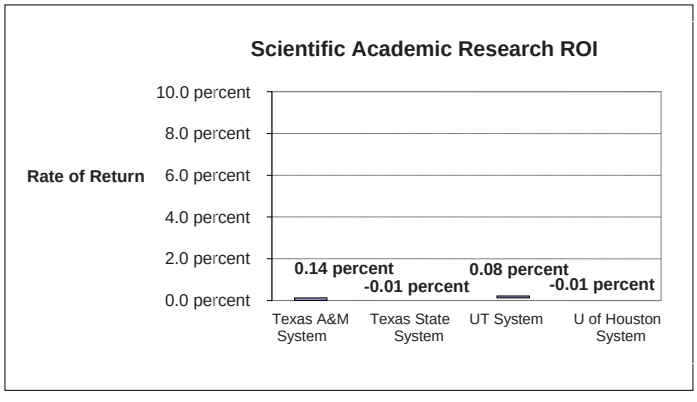
Overall, Texas universities have spent an estimated $9 billion on scientific research that has generated a mere $8.3 million a year in income, a rate of return of less than one-tenth of 1 percent (.09 percent).

Had these funds instead been invested conservatively, earning 5 percent a year, the return would have been enough to provide a four-year college degree to more than 50,000 additional Texans a year (assuming the $6,900 per year annual costs of a for-profit university).

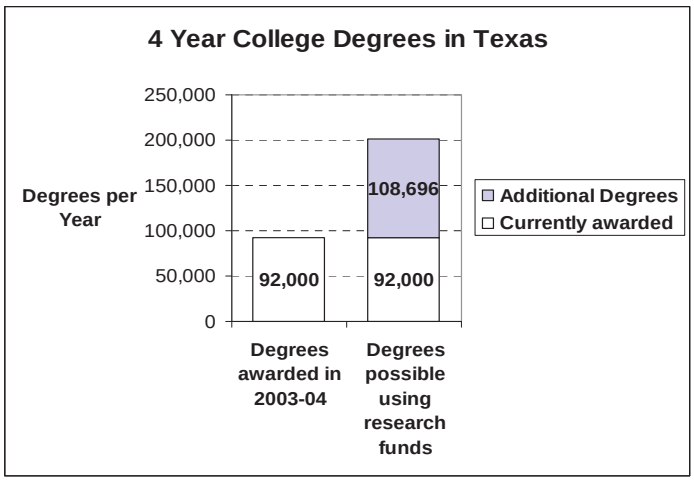
## Revelations of Waste in Scientific Academic Research

Low returns on investments in scientific academic research are not the only concern. There is also ample evidence of waste.

Stanford has one of the highest overhead rates in the business; for every dollar of received funds, it tacks on an additional 74 cents for "overhead." One observer "estimated that the university may have overcharged taxpayers a staggering $480 million for research costs."[12]




*Source: Texas Higher Education Coordinating Board*




*Source: Texas Higher Education Coordinating Board*

More evidence surfaced in 2003, when a number of leading universities including Northwestern University, Harvard University, Johns Hopkins University, and the University of Alabama at Birmingham agreed to settle complaints by the federal government that the schools misallocated research money.

In a recent survey of 3,300 research scientists, researchers at Minnesota-based Health Partners Research Foundation and the University of Minnesota found that more than 50 percent of established grant-receiving scientists used grant money designated for one project on a different project, often for undisclosed research that might lead to future grants.[13]

These problems were discovered by the National Institutes of Health, a federal agency not known for its careful oversight, suggesting that forensic audits by other donors and research partners could be even more revealing.

## SCHOLARLY JOURNAL ARTICLES—THE REAL RESEARCH GOAL FOR ACADEMICS

When most people think of academic research, they think of scientists in white coats in state-of-the-art laboratories, but in fact, most academic research in the United States consists of scholarly research articles written for narrow academic journals. This research, subsidized with taxpayer dollars, costs American taxpayers tens of billions of dollars annually, money that could have been spent on students and teaching.

### Questioning the Value of Scholarly Research for Taxpayers

Many commentators, both inside and outside academia, have questioned the value of much of the scholarly research performed today. Here are a few examples:

> Former Assistant Secretary of Education, Chester Finn: "Professors have become specialized in their interests, which are ever more distant from what ordinary citizens understand or care about. Academic presses now publish books selling fewer than 300 copies. 'The demands of productivity,' a humanities editor says, 'are leading to the production of much more nonsense."[14]

> Lynne Cheney, Chairman of the National Endowment for the Humanities: "If we are completely honest about it, we must admit that the over-emphasis on research has, in the humanities as in other fields, meant a lot of useless activity, a lot of publishing that serves no purpose, beyond expanding the author's CVs. Many publications will mainly gather dust on shelves in libraries."[15]

> Walter Steward, a National Institutes of Health researcher: "I have never met a scientist who did not believe that 80 percent of the scientific literature was nonsense."[16]

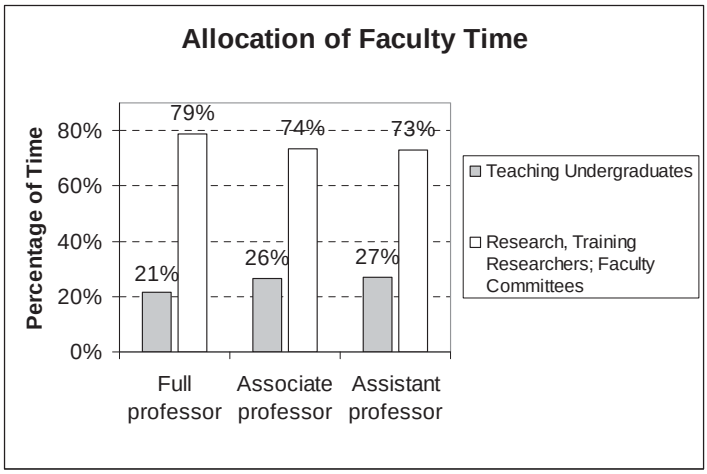
> *Science* reporter David Hamilton concluded that 'an unfortunately large percentage of what passes as the bedrock of academic achievement more closely resembles intellectual quicksand."[17]

> William Broad, a senior editor of the *Journal of the American Medical Association*, said "There seems to be no study too fragmented, no hypothesis too trivial, no literature citation too biased or too egotistical, no design too warped, no methodology too bungled, no presentation of results too self serving, no argument too circular, no conclusions too trifling or too unjustified, and no grammar and syntax too offensive for a paper to end up in print."[18]

Not only is the value of academic research questionable, but it may be becoming more and more trivial. Martin Anderson, a former professor from Columbia, and a current Senior Fellow at the Hoover Institution at Stanford University, writes "As fields of intellectual study aged, it became more and more difficult to discover new, important ideas," noted one scholar, "It is difficult to improve on Aristotle, Shakespeare, or Adam Smith. We do make discoveries and advances in many areas of intellectual thought, but rarely of the fundamental nature of the ones we inherit."[19]

### The Cost of Academic Journal Articles

Today there are tens of thousands of refereed academic journals publishing an estimated two million articles a year, with many more articles submitted but not published. This means taxpayer money that could be better spent on students goes toward paying for over 5,500 academic journal articles a day; 228 an hour; almost 4 per minute. At a cost of up to $60,000 per article, the drain on university resources is staggering.




*Source: National Center for Education Statistics (NCES)*

There are two ways to estimate the cost of scholarly research. The first is to calculate the time spent by professors on activities other than teaching: time spent on academic committees, time spent training new Ph.D.s to perform scholarly research, and time spent on individual academic research.

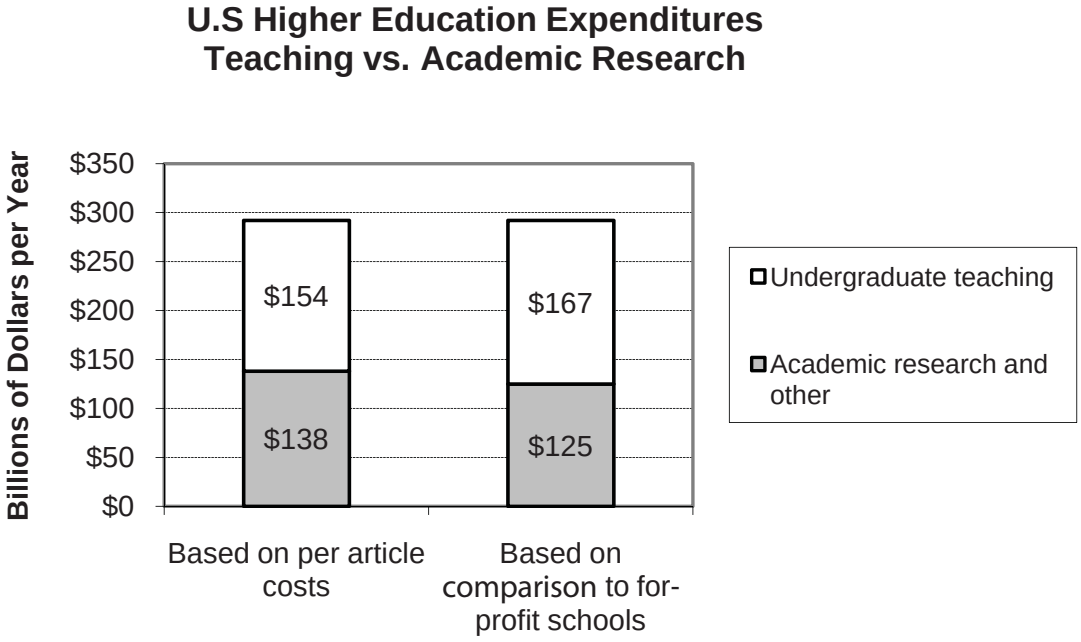
According to National Center for Education Statistics (NCES) data, full professors at four-year doctoral universities now spend only 21 percent of their time teaching undergraduates. Tenured and tenure track faculty represent by far the largest cost to a university, yet as a group they spend barely 25 percent of their time teaching undergraduates. The majority of undergraduate students, as many as 75 percent by some estimates, are taught by part-time adjuncts, graduate students, or non-tenure track faculty.

The average salary of a full professor at an extensive four-year doctoral college is $106,182. Add fringe benefits and other income from the university and outside sources, and the total compensation increases to over $160,000 for a nine-month year. Add one dollar of indirect costs for each dollar of direct costs to cover staff, building, and miscellaneous expenses, and the average full professor costs approximately $320,000 per year to support.

The average full professor at a doctoral institution will spend 79 percent of his time on activities other than teaching and write just under four refereed scholarly research articles a year. This gives a fully allocated cost per scholarly article of $63,000.

Multiply this cost per refereed article by the two million printed each year, and academic research costs taxpayers over $125 billion each year, almost half of the $292 billion spent by colleges and universities in 2000.[20]

Another way to calculate the cost of academic research is to compare the average $22,325 per year cost at a four-year public college versus the average $6,900 per year cost at a for-profit college that focuses on teaching rather than scholarly research. This suggests that 70 percent of the cost of the aver-



age college degree comes from the costs of academic research and other inefficiencies supported by government subsidies.

In short, we could afford to provide perhaps twice as many students in America with a college education if we just reduced the wasteful spending on scholarly academic research, and returned the university to its rightful mission of teaching.

## IS INVESTING MORE MONEY IN HIGHER EDUCATION A GOOD IDEA?

It is generally accepted that society should invest more in our colleges and universities, but given the massive cross subsidies that flow from dollars meant for teaching to academic research, is this still true?

Work by Dr. Richard Vedder suggests that providing more money to higher education establishments is a bad investment. "The notion that expanding university support is a good 'investment' in the economy is not supported—indeed, the results would suggest we are already 'over invested' in colleges."[21]

Vedder says the results of his study "clearly reject[s] the claim that state and local spending on universities promotes economic growth, finding it far more likely that the reverse is the case. The claims that more funding materially improves student access to college are, at the minimum, hugely exaggerated if these results are valid."[22]

"Statistical evidence suggests that, holding other things equal, there is a net out-migration from 'university-intensive' states into ones where less effort (measured in various ways) is put into higher education."[23]

Calls for increased funding for higher education are also based on the notion that investment in academic research provides better teaching for the students. Martin Anderson challenges this assumption. "In 1987, Kenneth A. Feldman, a sociologist at the State University of New York at Stony Brook, reviewed and analyzed 42 separate studies, conducted over 20 years, on the relationship between the research productivity of professors and their effectiveness as teachers. The consensus of these 42 studies was stark and simple: There was not a clearly discernible relationship between research productivity and teaching skill."[24]

Given that nearly half of the money going into higher education today is directed toward research, an area dominated by tenured professors, tenure track professors, and Ph.D. programs, an examination of this system is in order.

## THE FALSE PROMISE OF A Ph.D.

Martin Anderson, a scholar at Stanford University's Hoover Institution, explains some of the problems with the Ph.D. process in many major universities that produces candidates for tenure positions: "What [Ph.D. students] need most is *time* to pursue their advanced course work, *time* to master their field of study, *time* to learn how to conduct original research, to write, and to finish a dissertation. Instead, the professors rob them of that time, demanding that students free them from much of their teaching and research responsibilities."[25]

This process is expensive, for the graduate students and taxpayers. The average time to earn a Ph.D. is over eight years. State funding formulas provide over 14 times as much funding per hour of instruction for graduate classes as for undergraduate classes, but even this may be understating the true cost of a Ph.D. for taxpayers, because many Ph.D.s are taught by expensive full professors in classes of five students or less.

### What Do Graduate Students Learn in the Classroom?

Graduate students will do their coursework in seminars, classes that often have no more than a handful of students. But what actually goes on in a seminar? John Silber, the former president of Boston University, provides some insight from his time as the Dean of the College of Liberal Arts at the University of Texas. "The teaching load of many professors consists solely of one or two small seminars each week," Silber noted, "seminars for which they rarely prepare, at which they rarely do more than audit or at most comment briefly in an atmosphere of relaxed cordiality or hostility."[26]

Silber concludes: "You can learn more in two hours' random reading in the library than you can in a semester-long seminar. But if you take five or six seminar courses plus a colloquium or two you can get to be a master of something, with a degree to prove it."[27]

## Working as a Teaching or Research Assistant for Tenured Faculty

Martin Anderson describes how graduate students spend the bulk of their time: "Graduate student apprentices perform two critical tasks that many professors consider menial, boring, or repetitive: (1) teaching undergraduates and (2) undertaking much of the drudgery of research."[28] Martin criticizes "the university practice of paying graduate students a pittance to teach undergraduates."[29]

Former Harvard University President Derek Bok notes that graduate students are often unprepared for teaching: "Being thrown into teaching large undergraduate courses with little to no training is good neither for the graduate students or the students they teach. Presidents and deans of research universities could act more boldly by urging revisions in their Ph.D. programs to include better preparation for teaching."[30]

When not working as teaching assistants, graduate students usually perform research for the tenured faculty. Economist Gary North explains how this benefits tenured faculties: "The brightest graduate students may be asked to do unpaid or grant-paid research for senior professors. The professors then publish the results of this research under their own names, thereby advancing their careers. It's the division of labor at work."[31]

## An Increasingly Longer Apprenticeship

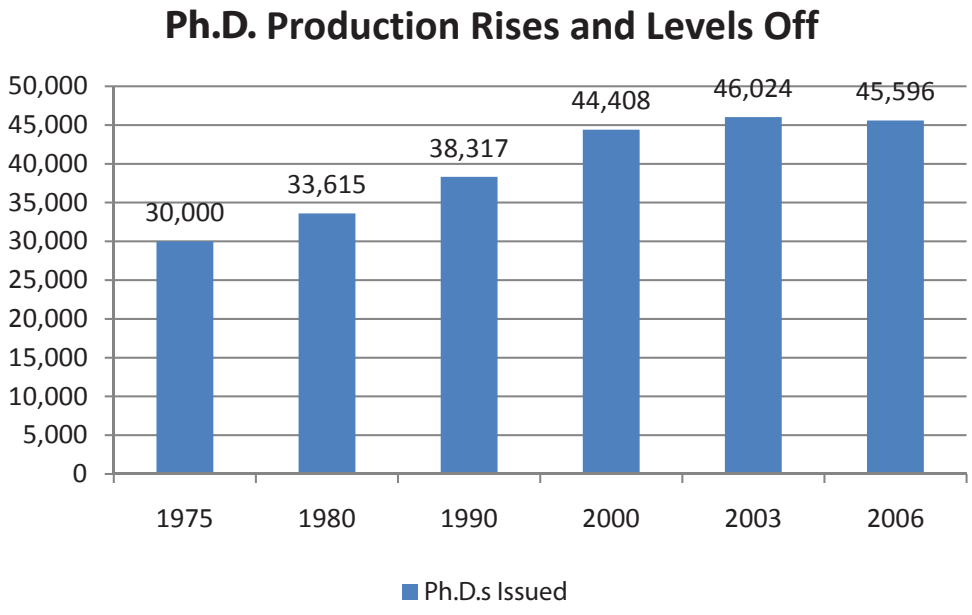
Martin Anderson believes that "the entire course of study should normally involve no more than three or, at most, four years beyond the baccalaureate" and adds that "the four-year norm has been affirmed by most writers who have analyzed the situation."[32]

Yet, the average length of Ph.D. programs is well beyond four years. The *Survey of Earned Doctorates* found that the time taken to earn a Ph.D. in 2005 was 8.3 years.[33]

According to Martin Anderson, the cost to Ph.D. candidates is high: "The gap between what should be and what is exacts a fearsome price. When young men and women are forced to spend not three or four years, but 10, 12, or even 15 years to earn the Ph.D., the entire process becomes corrupting. Those extra years are critical ones that are ripped out of the productive life of young scholars. The average graduate student is 34-years old before he or she breaks free of the cocoon of dependency that is the Ph.D. process."[34]

Once fully understanding the process, many graduate students quit. "Fewer than half of all students who enter Ph.D. programs ever get the degree—more than half drop out along the way."[35]

Yet universities have strong incentives to grow their graduate programs. Gary North explains: "The more Ph.D. stu-




*Source: NCES, Gary North, InsideHigered.com*

dents a department can attract, the faster the growth of that department. This is the iron law of academia. All other economic laws are sacrificed for it. This fact of academic economic life creates an incentive for departments to enroll lots of graduate students. It also rewards those departments that persuade M.A. students to go into the Ph.D. program."[36] The more years each graduate student must spend to earn their Ph.D., the greater the enrollment at any given time.

Unfortunately, the reward for those who finally earn a Ph.D. is often less than hoped for. Gary North explains the problem:

> "In response to the ever-growing glut of Ph.D.s, the American university system turned out about 30,000 Ph.D. graduates per year, 1969 to about 1975. Since then, it has increased the output. In 1980, it was 33,615. In 1990, it was 38,371. In 2000, it was 44,808. In 2003, it was 46,024."[37]
>
> "A 'Ph.D. glut' has existed ever since the fall of 1969. The number of entry-level full-time professorial positions has remained stagnant. Few new universities have been constructed. Legislatures have resisted additional funding. This has led to a reduction of the number of tenure-level positions. Universities and community colleges have been able to staff their entry-level positions with inexpensive instructors."[38]

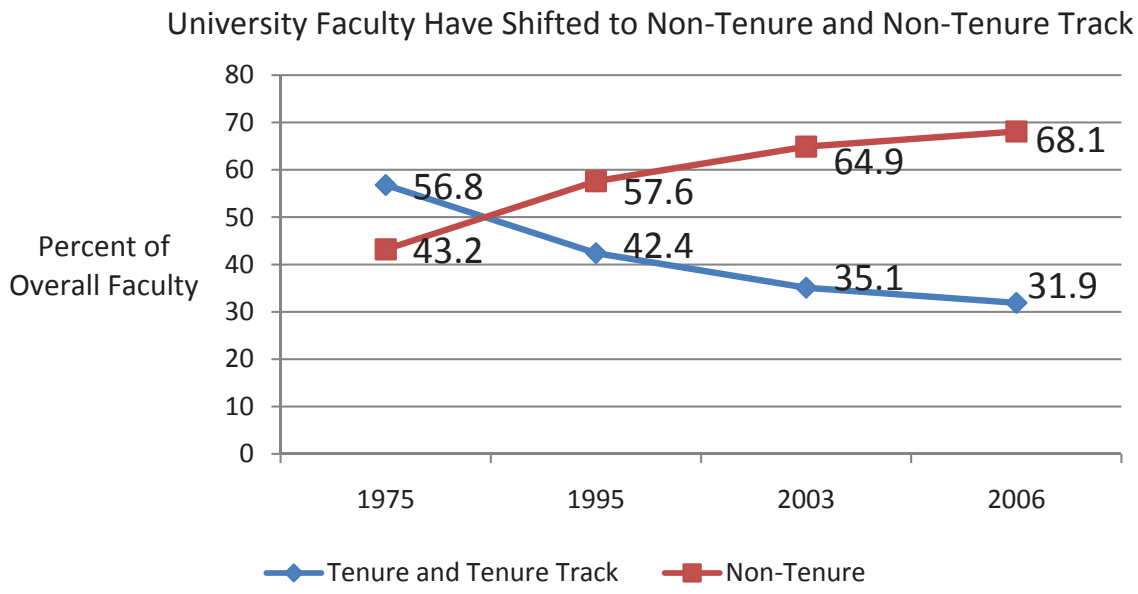
William Hayes, author of *So You Want to Be a College Professor?* agrees with North. "There were almost no college teaching jobs when they finished. That was before the glut."[39] Now "an English vacancy" draws "133 candidates." "In many disciplines, the placement rate is as low as 25 percent."[40] Perhaps the market has finally reached saturation, as Ph.D.s issued leveled off to 45,596 in 2006.[41]

## THE DECLINE OF TENURE TRACK FACULTY

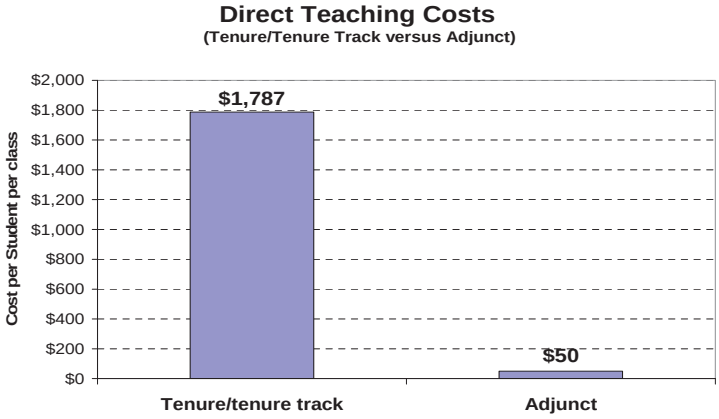
The poor return on investment for many Ph.D. recipients—especially in the case of teaching positions—comes about because of a collision of two trends in higher education: the strong emphasis on research for tenured professors and the marked decline in tenure-track positions.

Tenured and tenure track faculty have consistently lost market share to part-time and non-tenure track teachers on American campuses, falling steadily from 56.8 percent of the faculty in 1975, to 42.4 percent in 1995, to a new low of 35.1 percent in 2003. If the trend continues, by 2011 fewer than 28 percent of the teachers at American universities will be non-tenure track or part-time adjuncts.[42]

Adjuncts and graduate students now teach most students because the tenured faculty spends so little time teaching undergraduates. In fact, the average *full professor* at a research university spends 21 percent of his or her time teaching un-




*Source: U.S. Department of Education, AAUP website*




dergraduates, in all teaching fewer than 4.5 hours per week each semester, despite a salary, benefits, and other university income that averages over $150,000 per nine-month year.[43]

According to the NCES, 21.7 percent of the faculty at four-year doctoral universities *do not teach a single class.*[44]

Because adjuncts and teaching assistants teach larger classes than the average tenured or tenure track professor and often do much of the teaching in labs and discussion sessions in classes normally taught by tenured faculty, some experts estimate that over 75 percent of undergraduate contact hours are taught by non-tenured faculty at some major research universities.*

### It's Simply a Matter of Economics

So why are the vast majority of undergraduate students now taught by non-tenure track and part-time faculty? It's simply a matter of economics.

The average adjunct teacher is paid between $1,000 and $3,000 per course and receives little to no fringe benefits. Some teaching assistants are paid less. The average tenured or tenure track professor—averaging full professors with lower paid associate and assistant professors—is paid $124,690 in compensation and benefits for a nine-month work year[45]—whether they teach many classes each year, or none.

The average number of classes taught by tenured and tenure track faculty has declined to just over three classes per year, or less than 4.5 hours per week in the classroom. A Texas Performance Review found tenured and tenure track professors at the state's research universities teach 1.9 courses per semester.[46]

Courses taught by a tenured or tenure track faculty member require $1,787 in direct costs per student per class versus just $50 per student in direct teaching costs using an adjunct.† In other words, tenured and tenure track faculty are over 30 times more expensive on a per student basis.

## WHY DOES THE COST OF A COLLEGE EDUCATION CONTINUE TO RISE?

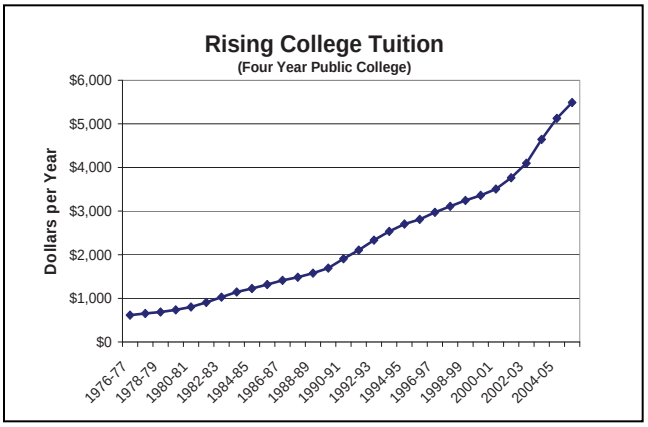
Despite this move towards less expensive teachers, college tuition has continued to increase at a faster pace than inflation. By 2005-06, the average cost of tuition had risen to $5,491 per year at four-year state universities and to $21,235 per year at private four-year colleges, in both cases almost a 900 percent rise over a 30-year period.[47]

To make matters worse, tuition covers only a small part of overall college costs. By some estimates, tuition provides less than 20 percent of the total revenue for major American public universities. This means that for every dollar spent by students and parents directly, taxpayers or donors are paying another four dollars in costs.

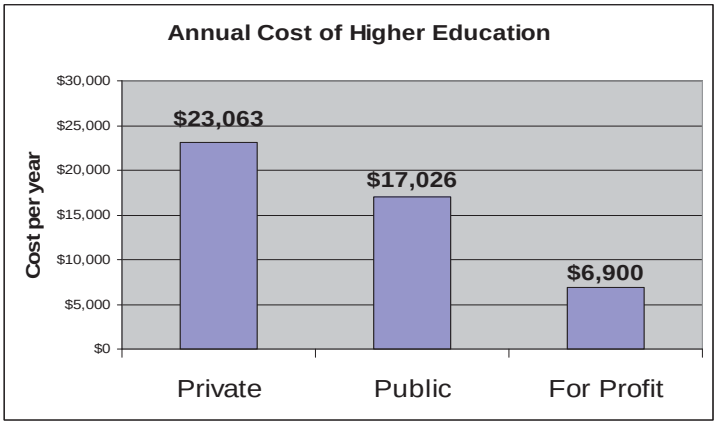
One of the primary reasons college costs continue to rise is because while many tenured faculty are being replaced in the classroom, they remain on the payroll of the universities doing research.

*College administrators like to quote the "student-teacher ratio" that compares the FTE (full time equivalent) faculty to the total number of students. This misleading statistic is used to justify hiring more tenured faculty even though it tells nothing about the average number of students in each class. As an example, a university could double its tenured faculty and dramatically cut the student/teacher ratio, but if all these professors were dedicated to academic research, the average class size would not change at all.

†This assumes the adjunct teaches an average of forty students per class and the average tenured and tenure track teacher an average of twenty students per class. This is a reasonable assumption since adjuncts and teaching assistants tend to focus on larger, lower--division classes while tenured faculty members tend to teach much smaller graduate school classes.




*Source: College Board website*




*Source: Texas Higher Education Coordinating Board*

## HOW TO REDUCE THE COST OF A COLLEGE EDUCATION

The inefficiency of university governance and time spent on academic research make traditional universities far less efficient than for-profit universities, which have demonstrated an enviable track record of educational success for far less money.

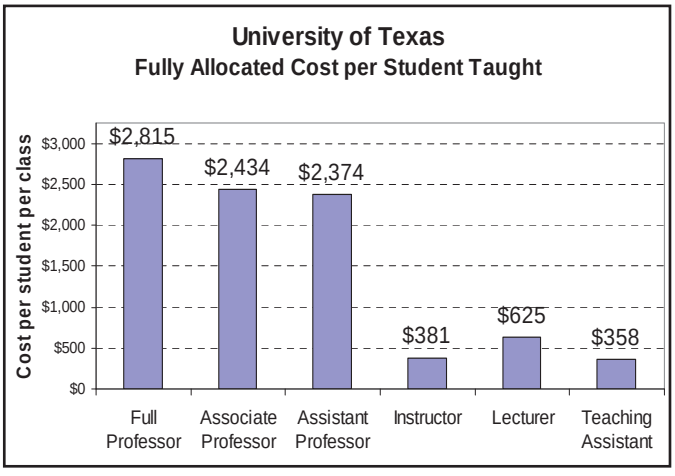
Business and political leaders continue to discuss reforming higher education, but are often hesitant to introduce the efficiencies found at for-profit universities because of the threat that tenured faculty members might flee institutions that pass far-reaching reforms.

Given that up to 75 percent of lower-division undergraduate students are already being taught by non-tenured and non-tenure track faculty, having non-tenured faculty simply teach a few more classes would not represent a dramatic change to the university's teaching model. However, reducing the number of tenured and tenure track professors would have a notable impact on the costs of a college education.

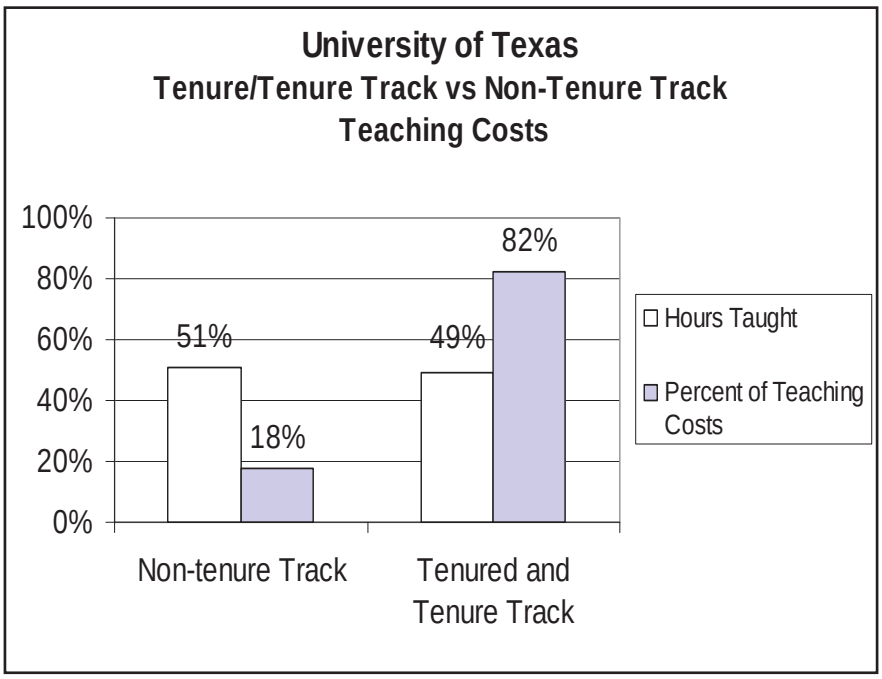
The University of Texas is a case in point of how the cost of the tenured faculty—and their lack of teaching productivity—affects costs. The average full professor at UT-Austin makes $110,000 per nine-month year. Assuming the national averages for benefits and other university income, and adding one dollar of indirect costs for every dollar of direct costs to cover the cost of support staff, offices, and miscellaneous expenses, the fully allocated cost for a full professor is $311,000 per year.[48]

In the spring of 2006 at UT-Austin, the average tenured full professor taught an average of 87 undergraduates for an average cost of $2,815 per student per class. By contrast, the average non-tenured instructor received a salary of $47,000 per year and taught 247 students, for an average cost per student taught of $381.[49]

The non-tenure track faculty teach the majority of students at the University of Texas. They teach much less expensively and by many accounts have higher student evaluations. For less than 18 percent of the fully allocated teaching costs, the non-tenure track teaches over half of the student hours.[50] And these numbers are almost certainly weighted heavily in the tenured faculty's favor because they do not include the thousands of hours that teaching assistants spend in-




*Source: Texas Higher Education Coordinating Board*

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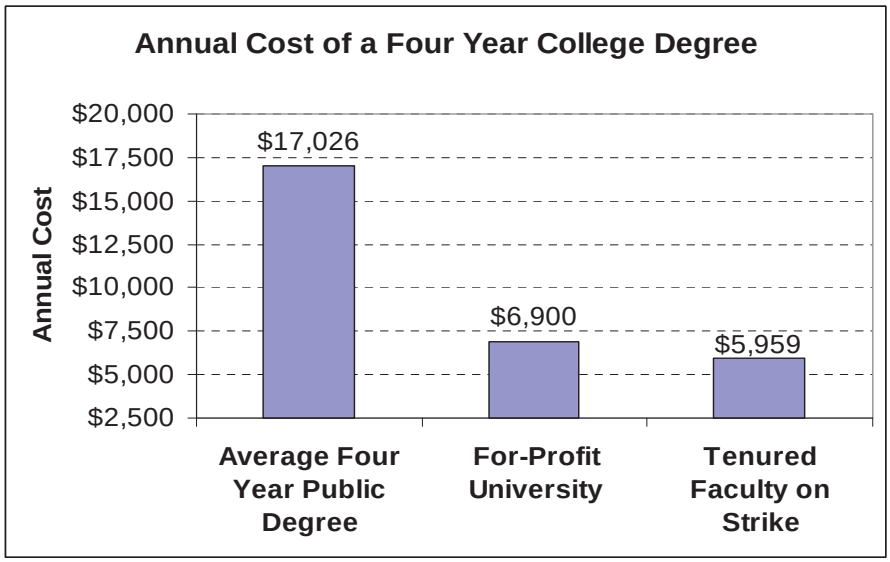



*Source: Texas Higher Education Coordinating Board*

structing students face-to-face in labs and discussion sessions where a tenured faculty member is the teacher of record.*

So what would happen if the tenured faculty went on strike and the non-tenured teachers taught all the undergraduate classes? *Total allocated instruction costs would drop by 65 percent.*

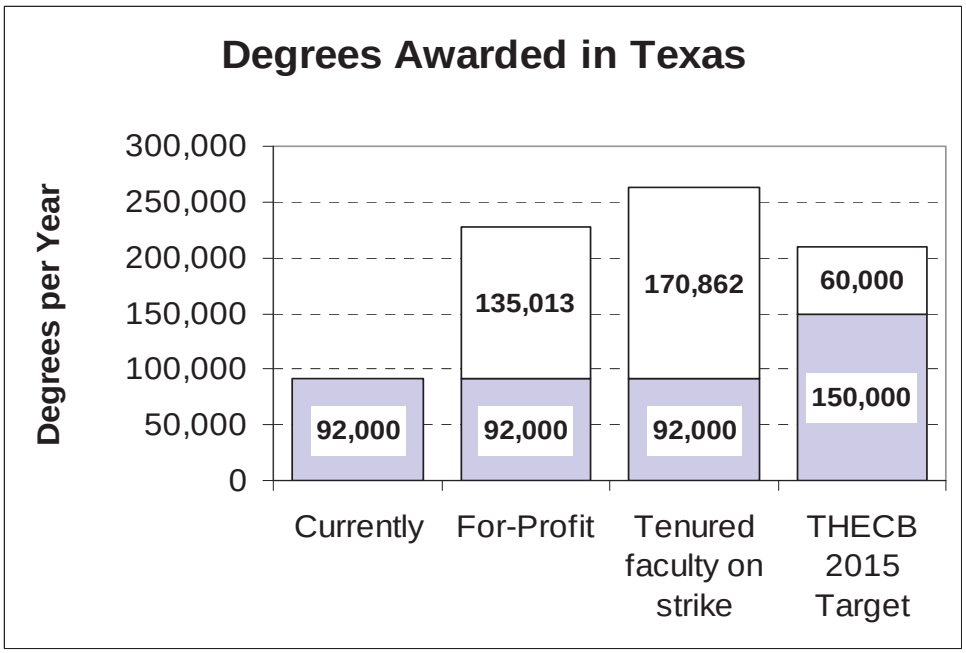
While the $5,900 per year cost to educate a student in a public four-year college who is taught entirely by non-tenured faculty is a rough estimate, it compares reasonably to the $6,900 per year cost of for-profit universities whose instructors focus on teaching.

Higher education in Texas doesn't need more money. What it needs is to spend the money it has been given on students instead of on the research whims of tenured faculty.

As the chart on the next page shows, the Texas Higher Education Coordinating Board goal of 210,000 degrees annually by 2015 could easily be achieved with today's levels of spending if our higher education dollars were spent to teach students.

One reform that should not be pursued in increasing the number of degrees awarded is forcing tenured and tenure track teachers to teach more. While this sounds reasonable, it has been tried before and failed.

*It is important to note that all of the estimates above for the University of Texas may be heavily biased in favor of the tenured and tenure track faculty because of incomplete and misleading reporting. According to NCES nationwide statistics, there are 300,000 TAs nationwide compared to approximately 380,000 tenured and tenure track faculty. Approximately 66 percent of these TAs nationwide are involved in teaching. At the University of Texas, only 465 TAs were reported in the Fall of 2005 versus 1,899 tenured and tenure track faculty. Apparently, TAs who teach lab and discussion sections for senior faculty are not always reported, thus overstating the actual number of hours taught by senior faculty. It is possible that senior faculty only teach half or less of the hours reported above, the rest actually being taught by teaching assistants. This would mean that 75 percent of undergraduate teaching at the University of Texas is being performed by non-tenured and/or tenure track faculty, and that the costs per student taught per tenured/tenure track faculty are twice what is reported above.




*Source: Texas Higher Education Coordinating Board*

Unfortunately, forcing tenured faculty members to teach may do more harm than good. Tenured and tenure track teachers are often not hired to teach, not trained to teach and many do not like to teach. They know that their status in academia depends on publishing in academic journals and will resist any attempt to force them back into the classroom. When forced to teach, with no consequences for teaching poorly, many will take the path of least resistance.

## RECOMMENDATIONS

The problem with higher education in Texas isn't a lack of money, but rather an incentive system in our universities that encourages the production of academic research instead of spending money on teachers, curriculums, and classrooms.

Harvard President Derek Bok calls for far-reaching reforms:

> "Until Ph.D. programs include a serious preparation for teaching and convey a deeper understanding of the complexities of student learning, faculties will not only have little inclination to change their ways, they will not even perceive much need to do so. Without more prodding and encouragement than they are currently receiving, presidents and deans are also unlikely to challenge the status quo. In the present environment, then, it would be myopic simply to wait in the hope that reform will emerge spontaneously from within."[51]

The first state that overhauls its higher education system to attract the best teachers, most productive researchers, and brightest students from around the United States, will gain a real educational advantage that will be almost impossible to overcome.

### (1) Place a renewed emphasis on teaching in colleges and universities.

*Set aside the majority of new tenure appointments* for professors who have proven that they can teach well as junior faculty members by teaching large numbers of students and receiving superior ratings on student evaluations. Though university administrators assure us that good teaching is a necessary qualification for tenure, the evidence suggests that this isn't true.

*Prominently post all teaching evaluations at each school.* We need to celebrate extraordinary teaching and provide poor teachers with an incentive to improve. Prominently displaying the teaching effectiveness scores from student evaluations in all buildings on campus is one way to encourage faculty to improve their teaching methods.

### (2) Require all Texas colleges and universities to sign a "learning contract" with incoming students.

*Our universities need to be clear* about what they promise to deliver and sign a "learning contract" with each applicant that discloses: (a) the graduation rate, placement rate and starting salary for a student with the same SAT score and major; (b) the average class size and teaching evaluations for the faculty who will be teaching their classes; (c) the skills, tools and lessons that the curriculum is designed to transmit, and (d) how any educational value added will be measured.

### (3) Separate the teaching and research functions to stop the massive cross-subsidies that flow from teaching and useful scientific research to subsidize the more esoteric academic research favored by the tenured faculty.

*Pay for good teaching*—whether by adjuncts, teaching assistants, or tenure track faculty. Pay on a per student basis to encourage teachers to teach as efficiently as possible. Reward good teaching by paying bonuses based on student evaluations.

*Encourage productive researchers* by reducing the overhead taken out of outside research grants and establishing independently funded and organized research institutes.

*Centralize and reduce the funding of all other academic research.* Encourage scholars either to raise funds to support such research or to conduct it during their own time.

*Insist that all academic research either be overseen by those funding it and fully reimbursed or done on a faculty member's own time.* Each research project should be fully funded and overseen by the person or institution funding the research. At the end of each year, and on final completion for each project, customer satisfaction reports should be collected and reviewed by the board.

*Business leaders should reject the idea that all research and development spending is equal* and hold universities accountable for providing empirical proof of the value of each and every research project.

### (4) Evaluate and reform the current system of Ph.D. fellowships, rejecting the conventional wisdom about academic research and the promise of "free money."

*We should recognize that not all graduate programs are equally valuable* and demand that colleges and universities release information about the fully loaded cost per Ph.D. student, graduation rates, and placement rates.

*If large numbers of graduate students are going to teach,* they should be trained to teach well. This should include being mentored by a teacher who has received high student evaluations.

*Graduate teaching assistants should be paid based on the number of students they teach* and judged based on their student teaching evaluations. Those who teach well should be paid well. Those who do not teach well should be dropped from graduate programs.

*Graduate research assistants should not be required to work on research projects* unless paid by those funding the research projects, and any such work should be disclosed to those paying the bill.

*Graduate school tuition should better reflect the full cost* of a graduate education.

*Those applying to graduate school should receive a "learning contract"* from the university that discloses in detail the learning that will take place in class (with appropriate measurement), average time to degree, placement rates and salaries on graduation, and teaching and research obligations that will be expected.

*Community and business leaders of Texas should partake in defining a more market-based Ph.D. system,* one that clearly defines and measures goals, sets incentives aligned with these goals, and fully discloses to students what they can expect to learn.

## CONCLUSION

The evidence indicates that Texas universities and their counterparts throughout the nation are emphasizing research, much of which has few tangible benefits, over teaching. The significant resources that are diverted to research that is unproductive could be used to make higher education more affordable for students. By taking steps such as separating research and teaching budgets and compensating faculty based on the results they achieve through research and teaching, Texas universities can produce better returns for students and taxpayers. ☆

## ENDNOTES

[1] National Patterns of R&D Resources: 2006 Data Update" (10 Oct. 2008) http://www.nsf.gov/statistics/nsf07331/.
[2] Ibid.
[3] Richard Vedder, "Texas Higher Education: Success or Failure?" Texas Public Policy Foundation (29 May 2008) http://www.texaspolicy.com/pdf/2008-05-RR05-highered-vedder-final.pdf.
[4] Charles J. Sykes, "ProfScam: Professors and the Demise of Higher Education" (Washington DC: Regnery Publishing, 1988) 19.
[5] Robert A. Nisbet, "The Degradation of the Academic Dogma" (Piscataway, New Jersey: Transactions Publishers, 1997) 98.
[6] George Dennis O'Brien, "All the Essential Half-Truths about Higher Education" (Chicago: University of Chicago Press, 1998) 3.
[7] "National Patterns of R&D Resources: 2006 Data Update" (10 Oct. 2008) http://www.nsf.gov/statistics/nsf07331/.
[8] Richard Vedder, "Going Broke by Degree, Why Colleges Cost Too Much" (Washington DC: AEI Publishers, 2004) 122.
[9] Ibid.
[10] Texas Higher Education Coordinating Board, "Average Faculty Salaries - Texas Public Universities - FY 2006" (10 Oct. 2008) http://www.thecb.state.tx.us/Reports/.
[11] College Board, "Trends in College Pricing 2005" (10 Oct. 2008) http://www.collegeboard.com/press/releases/48884.html.
[12] Martin Anderson, "Impostors in the Temple, A Blueprint for Improving Higher Education in America" (Palo Alto: Hoover Press, 1996) 170.
[13] Bernard Wysocki Jr., "Cash Injections: As Universities get Billions in Grants, Some see Abuses," *The Wall Street Journal* (16 Aug. 2005) A1.
[14] Harry R. Lewis, "Excellence Without a Soul, How a Great University Forgot Education" (Jackson, TN: Public Affairs, 2006) 9.
[15] Ibid.
[16] Ibid., 97-98.
[17] Ibid., 101.
[18] Ibid., 119.
[19] Ibid., 128.
[20] U.S. Department of Education, NCES Digest of Educational Statistics (2004) http://nces.ed.gov/programs/digest/d04/.
[21] Richard Vedder, "Going Broke by Degree, Why Colleges Cost Too Much" (Washington DC: AEI Publishers, 2004) 147.
[22] Ibid., 141-142.
[23] Ibid., xxi.
[24] Martin Anderson, "Impostors in the Temple, A Blueprint for Improving Higher Education in America" (Palo Alto: Hoover Press, 1996) 118.
[25] Ibid., 72.
[26] Charles J Sykes, "ProfScam: Professors and the Demise of Higher Education" (Washington DC: Regnery Publishing, 1988) 75.
[27] Ibid., 67.
[28] Martin Anderson, "Impostors in the Temple, A Blueprint for Improving Higher Education in America" (Palo Alto: Hoover Press, 1996) 70.
[29] Ibid., 67.
[30] Derek Bok, "Our Underachieving Colleges" (Princeton: Princeton University Press, 2006) 340.
[31] Gary North, "The Ph.D. Glut Revisited" (24 Jan. 2006) http://www.lewrockwell.com/north/north427.html.
[32] Martin Anderson, "Impostors in the Temple, A Blueprint for Improving Higher Education in America" (Palo Alto: Hoover Press, 1996) 74.
[33] The Survey of Earned Doctorates, NORC, University of Chicago (2005) 66.
[34] Martin Anderson, "Impostors in the Temple, A Blueprint for Improving Higher Education in America" (Palo Alto: Hoover Press, 1996) 74.
[35] Ibid., 75.
[36] Ibid.
[37] Ibid.
[38] Ibid.
[39] William Hayes, "So You Want to Be a College Professor" (Lanham, MD: Scarecrow Education Press, 2003) 150.
[40] Ibid.
[41] "More Doctors of Philosophy and Science" *Inside Higher Ed* (21 Nov. 2007) http://www.insidehighered.com/news/2007/11/21/phds.
[42] American Association of University Professors, "Background Facts on Contingent Faculty" (10 Oct. 2008) http://www.aaup.org/Issues/Contingent/Ptfacts.htm.
[43] U.S. Department of Education, National Center for Education Statistics, "NSOPF: 2004 National Study of Postsecondary Faculty," (Washington: GPO, 2004).
[44] Ibid.
[45] American Association of University Professors, "The Annual Report on the Economic Status of the Profession 2005-06," *Academe* March-April 2006.
[46] Texas Comptroller of Public Accounts, Workload Issues and Measures of Faculty Productivity by Barbara K. Townsend and Vicki J. Rosser, and Legislative Budget Board.
[47] College Board, "Trends in College Pricing 2005" (10 Oct. 2008) http://www.collegeboard.com/press/releases/48884.html.
[48] Texas Higher Education Coordinating Board, "Average Faculty Salaries - Texas Public Universities - FY 2004" (10 Oct. 2008) http://www.thecb.state.tx.us/Reports/.
[49] Ibid.
[50] Ibid.
[51] Derek Bok, "Our Underachieving Colleges" (Princeton: Princeton University Press, 2006) 324.

## About the Author

**Rick O'Donnell** is president of the Acton Foundation for Entrepreneurial Excellence, which creates and distributes cutting-edge entrepreneurship curricula, including case courses, sim games and Socratic teaching tools. Its curriculum is fully implemented at the affiliated Acton School of Business, an intense, one-year entrepreneurial MBA like no other. For the fifth year in a row, the *Princeton Review's Best Business Schools* rank Acton as #2 "classroom experience," #3 "best professors" and #3 "most competitive students" in the country.

Previously, O'Donnell served in the Cabinet of Colorado's Governor as Executive Director of the Colorado Department of Higher Education. The Department oversees all 29 public institutions of higher education in the state that cumulatively enroll nearly 270,000 students. His accomplishments included implementing the first voucher of higher education funding in the country, establishing the nation's leading performance accountability contracts for colleges and universities, and launching the largest effort in state history to expand college access for under-served and under-represented students.

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