Opportunities for Efficiency and Innovation:

A Primer on How to Cut College Costs

Future of American Education Project

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Foreword

The cost of a college education has risen dramatically over the past two decades. Year after year, tuition and fees have increased at twice the rate of inflation, rising more quickly than the cost of just about every other good or service on the market and outstripping the growth in family incomes. Observers often point to lavish facilities and student activities as the culprit— after all, climbing walls and football stadiums are not cheap. But a closer look at what it costs to educate undergraduate students reveals that high costs are often rooted in the way colleges and universities organize and allocate resources. If policymakers and colleges themselves are to get control of college costs, they must take a hard look at their traditional way of doing business.

In "Opportunities for Efficiency and Innovation: A Primer on How to Cut College Costs," Oklahoma State University professor Vance Fried explores how colleges whose primary mission is undergraduate education can strategically allocate resources in a way that reduces costs and prioritizes teaching and learning. Fried starts from a provocative thought-experiment—what would it cost to educate undergraduates at a hypothetical college built from scratch?—and uses the exercise to identify areas that are ripe for cost savings. Rather than focusing only on the conspicuous, big-ticket items that tend to dominate debates about college costs, Fried argues that the real levers for increasing efficiency include rethinking student-faculty ratios, eliminating under-enrolled programs, and trimming unnecessary administrative positions. The paper also outlines how policymakers can create incentives for undergraduate colleges to pursue reforms that will make them more cost-effective.

As Fried notes, there are five major cost-cutting strategies that undergraduate colleges should consider:

1. Eliminate or separately fund research and public service
2. Optimize class size
3. Eliminate or consolidate low enrollment programs
4. Eliminate administrator bloat
5. Downsize student life programs

While existing institutions may be resistant to these ideas, Fried suggests that policymakers and foundations can ease the belt-tightening and help bolster cost reforms with targeted support. "Aggressive cost-cutting is only for institutions that are highly committed to cutting tuition," says Fried, "but other stakeholders can help make cost-cutting a bit easier with supportive policies and practices."

I am confident that you will find Fried's piece to be as thought-provoking as I have, especially in light of tight state budgets and the push to rein in college costs. For further information on the paper, Vance Fried can be reached at vance.fried@okstate.edu. For other AEI education working papers, please visit www.aei.org/futureofeducation. For additional information on the activities of AEI's education policy program, please visit http://www.aei.org/ra/29 or contact Ms. Olivia Meeks at olivia.meeks@aei.org.

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Colleges are notorious spendthrifts. As long-time Harvard president Derek Bok once quipped, "Universities share one characteristic with compulsive gamblers and exiled royalty: there is never enough money to satisfy their desires."[1]

Financially, the last three decades have been very good to most colleges. They have been able to dramatically increase tuition. The combination of increasing revenues and a spendthrift mentality has resulted in a dramatic increase in costs. As a result, a closer look at college budgets reveals that there are areas where costs can be cut dramatically without reducing quality. Colleges whose core business is undergraduate education can and should think much more strategically about how they organize for teaching and learning, and eliminate spending that is tangential to the educational mission. Policymakers, particularly those at the state level, should provide incentives for colleges to search for these cost-efficiencies.

This paper explores the cost of delivering a postsecondary education with an eye toward how colleges might think strategically about how to cut costs within the main educational and general (E&G) budget. The E&G budget covers the costs of performing the instructional, research, and public service missions of the undergraduate university. While much of the E&G budget is spent on the salaries of faculty who perform these three missions, it also includes spending on a variety of supplemental activities and programs that support the undergraduate college experience. To be sure, undergraduate education is not all that colleges are responsible for. They may also operate auxiliary activities like dorms, bookstores, major intercollegiate athletic programs, and hospitals.

These auxiliary activities generate their own revenues, but for the purposes of this paper, we will focus on the E&G budget since it represents a common core of operations across institutions and often offers the greatest potential for cost savings.

This distinction between E&G items and auxiliary activities is key. Higher education insiders sometimes point to the increasing cost of auxiliary services like student housing and big-time athletics as a major cause of large tuition increases. This is a red herring. Yes, over the years dorms have become nicer and food more abundant and edible, and as a result, room and board charges are higher. But higher room and board charges are not a major culprit in the drastic increases in the cost to students of attending college; it is the massive run-up in tuition. Similarly, football coaches make a lot of money

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and the costs of these athletic programs can be high. But football at many universities generates so much revenue that it can pay its own way, plus covers the cost of the minor sports and women's athletics. Football, good food, and hot tubs are not the reason for runaway college spending. Rather, the root cause is high E&G costs.

This paper provides a detailed breakdown of the various costs in the E&G budget and suggests places where E&G costs can be cut without reducing educational quality. It looks at average E&G costs at today's colleges, and compares budgets with one specific college—the College of Entrepreneurial Leadership & Society (CELS), a hypothetical college that I created as a thought experiment to determine what a high quality education would cost if a college was properly designed and managed.

CELS demonstrates that E&G costs at most colleges and universities today are at least twice as high as they could be. While there are numerous areas where costs can be cut without reducing quality, five major strategies standout:

1. Eliminate or separately fund research and public service.
2. Optimize class size with appropriate teaching technique and technology.
3. Eliminate or consolidate low enrollment programs.
4. Eliminate administrator bloat.
5. Downsize or eliminate student life if your primary market is commuter students.

E&G Costs at a Different Kind of College

The College of Entrepreneurial Leadership & Society was created on paper as part of an earlier study to determine what a high quality education would cost if a college's operations and management were designed with a focus on efficiency and effectiveness. In the earlier study, I first designed a hypothetical college complete with students, faculty, curriculum, and buildings. Then I created a detailed pro forma E&G budget for the college. To make CELS more applicable to a wider range of school comparisons, I designed two institutions: CELS 3.2 and CELS 1.2. CELS 3.2 corresponds to a top-of-the-line, comprehensive undergraduate college with 3,200 students, while CELS 1.2 is for a similar college with only 1,200 students.

From a quality standpoint, I designed CELS to provide the world's best undergraduate education.[2] CELS is for traditional undergraduate college students of moderately selective to highly selective academic standing who want to be actively involved in the college experience. The institution offers a broad curriculum that provides students with a strong liberal education, appropriate technical skill for entry-level jobs, management know-how to ascend through an organization in their chosen profession early in their career, plus foundational skills and knowledge for life outside of work. Broad majors are provided in Behavioral Science, Business, Communication Arts, Education, Engineering Science, Information Technology, Letters & Civilization (interdisciplinary humanities), Public Affairs, and Science & Technology. (The smaller CELS 1.2 does not offer Engineering Science or Information Technology.)

My guiding design principle for CELS was never spend money unless the resulting additional student benefit is clearly greater than the additional cost.

I didn't cut any corners in designing CELS. A laptop is included in tuition, there is a residential college system like Harvard and Yale, faculty are high quality, and the football stadium has a Jumbotron. However, I also didn't waste any money. I followed a simple design premise: maximize value to the student. Determine what package of benefits (primarily

learning) and price is attractive to them. If an activity has a high cost but provides a substantial benefit, then do it; but do it as efficiently as possible. If an activity adds significant cost but only minor benefits, don't do it. In sum, my guiding design principle for CELS was never spend money unless the resulting additional student benefit is clearly greater than the additional cost.

For example, at CELS spending on research and public service is at a minimum, since CELS is primarily an undergraduate teaching college. Its students do not derive any direct benefit from research or public service activities, so CELS does not perform these activities. Similarly, CELS does not offer low enrollment specialty majors. CELS can provide its students with an excellent liberal education and appropriate technical skill for entry-level jobs without any highly specialized majors.

On the other hand, CELS does perform numerous student life activities. Unlike a commuter college where programs for student socializing and enrichment are largely absent, CELS is a residential college targeted to students wanting a vibrant student life. CELS can't provide a vibrant student life without performing student life activities, so it has to spend money on these activities.

High quality instruction is of course vital to CELS. CELS spends heavily on instruction but does so in as efficient of a manner as possible. Since class size is a major driver of college costs, CELS strives to optimize class size, using small classes only when pedagogically beneficial. Most classes are taught in moderate to large enrollment sections (50 to 125 students), but at the same time every student takes at least one course a semester in a micro-enrollment section (1 to 8 students). While very costly to provide, CELS uses these micro-courses to insure that each student's overall educational experience is properly personalized. As much as possible, CELS avoids small classes because it feels small classes are too big to provide the pedagogical benefits of micro-classes and too little to provide the cost benefits of large classes.

The drive for efficiency carries over to administrative cost as well. It is impossible to operate without some administration, but excess spending on administration does not add any student benefits. In designing CELS, I copied the best practices of existing small colleges when determining administrator staffing and compensation levels.

To assess the cost benefits of designing to maximize value to students, I created an E&G budget for CELS. The CELS E&G budget provides a detailed look at the cost side of providing education. In twenty-one pages, it presents individual cost items down to the number of clerical staff needed in the registrar's office and photocopying costs for class handouts. The biggest cost item—faculty salaries—was determined by first creating a curriculum with all the courses necessary for general education and the nine majors, then determining the number of class sections to be offered in a year given curriculum and enrollment, and finally determining the size and make-up of faculty required to teach these class sections. Faculty salaries are pegged to the national average for smaller, doctorate-granting institutions with minimal use of adjunct faculty.

Space needs were determined following the guidelines of the Council of Educational Facilities Planners International.[3] Depreciation was based on a fifty-year life, and assumed a new campus in the Dallas area with per foot construction costs 20 percent higher than the regional average.[4]

The results of the CELS study were striking. While designed to provide a residential undergraduate education better than the best of today's private bachelor's-granting colleges, CELS's cost of delivery is less than half that of the public regional college.

Table 1
Annual Per Student Costs by Institution Type

	Public Research	Private Research	Public Regional	Private Bachelor's	CELS 3.2	CELS 1.2
Instruction	$10,355	$20,639	$6,691	$8,784	$2,366	$3,223
Research	$5,567	$11,216	$664	$725	$0	$0
Public Service	$1,912	$1,293	$629	$628	$0	$0
Academic Support	$2,925	$5,741	$1, 606	$2,165	$1,157	$1,472
Student Services	$2,606	$5,515	$2,362	$5,006	$2,205	$3,740
Institutional Support	$2,452	$7,048	$2,121	$5,175	$997	$1,390
Total	**$25,907**	**$51,452**	**$14,073**	**$22,483**	**$6,705**[5]	**$9,204**

Some will disagree with me that CELS would provide the best quality undergraduate education in the world, but that is not the main point. CELS is not for everyone. In fact, I do not think there is one best college for all students. Rather the point of the CELS study is that existing institutions of all types can cut cost dramatically without any adverse impact on the quality of undergraduate education.[6] Here's how.

What Educational and General Education Costs Look Like at the Average College

To dig deeper into the question of where E&G costs be can reduced, let's start by looking at the typical E&G budgets at various types of institutions.[7] Table 1 shows E&G costs, broken down by major category, for several different types of institutions: public research universities, private research universities, public regional colleges, and private bachelor's colleges

As Table 1 illustrates, there is a large variance in cost between institutional types, with public regionals easily taking the lowest spot at $14,073 per student. Indeed, while some individual private institutions have lower E&G costs than their public counterparts, public institutions are on average much cheaper than their private counterparts across categories. Lower E&G costs combined with generous state subsidies means that publics usually charge significantly lower tuition than privates. The rightmost columns of Table 1 (CELS 3.2 and CELS 1.2) represent the costs at my hypothetical private bachelor's college using best practices.[8]

The Most Obvious Cuts: Research and Public Service

Since CELS's primary focus is on undergraduate education, the most obvious spending cuts built into the hypothetical budget are to eliminate spending on research and public service. While these may be worthwhile activities in their own right, they add little, if any, to undergraduate education.

Research

Unlike CELS, public and private research universities do have a major research mission, as is reflected in the large proportion of their budgets devoted to research. As Table 1 shows, these institutions devote over a fourth of their E&G budget to research, but even these significantly high numbers substantially understate research's share of spending.

Much of research spending is not included in the E&G budget. Research universities regularly conduct research that is externally funded through grants and contracts. Sometimes the funding source is a private party, but mostly it is a federal government agency like the Department of Defense or National Institute for Health. The costs of externally funded research are not part of the E&G budget; rather, they are reported separately along with the associated revenue and conducted on a break-even basis.

Other research, like that reflected in Table 1, is funded internally and is part of the E&G budget. Internally funded research is a major cost at both public and private research universities. In fact, almost all research in the humanities, social sciences, and business is funded internally by the university.

Research cost figures in Table 1 actually underreport internally-funded research costs due to an industry accounting convention. This convention allocates most faculty salaries to instruction, even though faculty may spend a great deal of time doing research, not teaching. As a result, perhaps 40 percent of reported instruction costs at both public and private research universities are really research costs. If you combine the cost of externally funded research not in the E&G budget with internally funded research disguised as instruction, some research universities actually spend more on research than instruction.

Producing research is a costly undertaking. From society's viewpoint, the costs of university research may be justified because it provides a public good, generating new innovation and knowledge in fields like medicine, engineering, and the hard sciences. However, these costs do not do much for educating most students. There may be benefits to the relatively few students in academic, research-oriented graduate programs, but most undergraduates or professional school

Community Colleges
A Cost-Effective Alternative?

Pushing students into community colleges for the first two years of college is often touted as a major way to reduce education costs. However, community colleges really aren't that cheap. Here's their average E&G budget per student:

Instruction	$6,234
Research	$50
Public Service	$367
Academic Support	$1,046
Student Services	$1,361
Institutional Support	$1,927
Total	**$10,985**

Community colleges have lower total costs than public regional colleges because they do less research and public service, and provide fewer student services. Instruction costs are slightly lower, but community colleges are only providing lower division courses whereas the public regional also provides more expensive upper division and master's level courses. In fact, instruction costs for lower division students may be higher at the community college than at the public regional college or the public research university.

students fail to ever benefit from these substantial research investments.

For these reasons, research should be largely eliminated at public regional colleges and most private bachelor's colleges, whose core business is to educate undergraduates. In these colleges, faculty research activity should range from nonexistent to modest. On the other hand, public and private research universities do have a major research mission. Here, care must be taken to insure that research does not reduce the quality of undergraduate education and that it is not financially subsidized by money meant to be going to education. Research is a legitimate, major E&G cost, but this cost should not be passed on to students in the form of higher tuition.

Public Service

As the name implies, public service, like research, is a public good. But unlike research, public service can often be provided at minimal additional cost to the institution. For example, a college running a music series for its students could sell tickets to the community. Or the horticulture faculty wants to lend their expertise to help the community gardening project. Such public service projects not only require little of the E&G budget, but they can also help a college's image in the community and overall marketing.

Some universities go well beyond incidental public service. Many public research universities are land-grant institutions that were created with public service as part of their overall mission. Other public research universities and private research universities engage in public service, but to a lesser degree than the land-grant institutions. At private bachelor's colleges, there may be a public service mission in the form of service to a religious denomination or a local community (e.g., a museum). Whatever its nature, public service is not a cost of education. Like research, public service may be a legitimate E&G cost, but this cost should not be passed on to students in the form of higher tuition.

Where the Rubber Meets the Road: Cutting Instructional Costs

The difference in instruction costs between CELS and the other institutions is stunning. However, CELS-level costs are achievable at any type of institution. Table 2 breaks down the per-pupil cost of CELS instruction into its major components. Unfortunately, comparable data for other institutions isn't publicly available. Most schools budget at the very detailed level I used with CELS, but they do not publicly report this information. Rather, they report aggregate spending for each of the six cost categories.

Table 2
Instructional Costs, CELS 3.2

Faculty Compensation	$1,958
Depreciation	$108
Plant Operations and Maintenance	$168
Information Technology	$66
Other	$66
Total	**$2,366**

What are the levers available to trim instructional costs? Table 2 reveals that faculty costs are by far the biggest cost in the instruction equation, and when we look at these costs per student, they are the major cost driver in higher education. Faculty cost per student is determined by dividing compensation per faculty member by the student/faculty ratio. How could these faculty costs be reduced without sacrificing quality? To do so, a college could trim compensation, increase faculty teaching productivity, or experiment with some mix of each.

Rethinking Compensation

In many institutions, average faculty compensation can be lowered. One strategy is to use adjuncts instead of full-time faculty. Adjuncts are paid much less to teach a course than full-time faculty. The compensation cost for a full-time faculty member might be $15,000 for a class, while an adjunct might get paid $2,500 to teach the same class. Given this level of cost savings, it is not surprising that many colleges use adjuncts extensively. The primary criticisms of this practice are that adjuncts, due to their part-time status, often lack commitment and do not have a good grasp of what is happening overall at the college.

Many adjuncts teach a class or two for personal satisfaction or a little extra income, but others look to adjunct teaching as their primary source of income, often teaching at multiple institutions simultaneously because they cannot find a full-time faculty job. In many of the traditional arts and science disciplines, the supply of potential faculty greatly exceeds demand.[9] The existence of qualified faculty willing to work as adjuncts at a low pay rate suggests that compensation for tenure-track faculty in these disciplines is too high.

Most colleges talk about having low ratios as a sign of a superior education. From a cost standpoint, this is decidedly not true.

Further evidence of this pay discrepancy can be seen in the relatively low compensation rates at small Christian private bachelor's colleges. Their average pay is $51,742,[10] well below the $76,454 industry mean for private bachelor's colleges without a religious affiliation.[11] These lower paying colleges have trouble attracting qualified faculty in disciplines like business where demand for faculty exceeds supply and work outside academe is more abundant. However, they do not appear to have problems attracting faculty in the traditional arts and science disciplines.

Productivity

CELS was modeled with compensation levels moderately higher than industry norms, so why are its faculty costs so much lower? The answer is high faculty productivity. The single biggest way to reduce the cost of education is to increase faculty productivity.

The student/faculty ratio is a good measure of productivity. Most colleges talk about having low ratios as a sign of a superior education.[12] From a cost standpoint, this is decidedly not true. A low ratio is a sign of low teaching productivity and suggests that there are major cost savings waiting to be realized by increasing the ratio. At some point, quality may suffer if the ratio gets too high, but schools today could easily experiment with doubling or tripling their ratios before they would be likely to see an impact on educational quality. Most colleges operate with ratios in the low to mid-teens while CELS 1.2 is at 34:1 and CELS 3.2 is at 38:1 ratio.

The student/faculty ratio is determined by three major decisions a college makes: 1) the number of classes a faculty member teaches, 2) the number of students in a class, and 3) the number of undersubscribed classes offered.

Work Load. Colleges do not track actual hours worked by faculty members, but the conventional wisdom is that the time commitment to the university is about 40 hours per week while school is in session. In reality, work ethic varies greatly between faculty members. Some slough off and work much less than 40 hours per week, while others go far beyond. However, 40 hours a week working for the college is a reasonable estimate for the average faculty member. Faculty are then generally free to consult for an average of one day per week during the school session so long as they meet their commitments to the college.

Historically 12 credit hours per semester is the standard teaching "load". The idea behind the 12 hour load is that a faculty member needs to spend about 2 hours outside of class for every hour inside the classroom. This then leaves the faculty a little time for service to the college.

Two hours outside of class for every one in class is a good estimate of the amount of time a conscientious faculty member will need to spend on average. The amount of outside time required varies with the nature of the course. For example, big classes take more time than small. It takes as much preparation time to teach one section of a course as four sections of the same course. Preparing to teach a new course requires more time than preparing for an old course. Upper level courses take more time than lower, and so on. But on average, 12 credit hours a semester is a full-time teaching load.

Over time many schools have reduced teaching loads to allow faculty more time to do research. Today a common teaching load for a tenure-track faculty member at a research university is six credit hours a semester, or six in one semester and three in the other. This "release" from teaching to spend more time on research raises the university's cost as an additional faculty member must now be hired to teach the classes that the first faculty was "released" from. Research university faculty do require lower teaching loads, but this is a cost of research, not of delivering instruction. For teaching-oriented colleges, research release is a waste of faculty time.

Class Size. Given the same faculty teaching load and compensation, faculty cost per student varies based upon class size. Table 3 shows the relationship between average class size, student/faculty ratio, and faculty cost per student. It assumes that faculty teach 12 hours a semester and are paid $100,000.

Obviously there are huge cost benefits to maximizing class size; however, there are also two major constraints. First, maintaining instructional quality places a limit on the maximum size of a class. Second, lack of student demand for a class leads to it being offered at below maximum class size.

Colleges love to talk about the number of classes they offer with under twenty enrolled (this is a measure of quality used by the *U.S. News* rankings). However, from a student learning standpoint, small classes are generally no better than large classes. Ivy League schools often run jumbo lecture classes, and many are quite popular. The key is how well the course is designed and delivered, not how big the class is. Even the most expensive private bachelor's colleges regularly offer classes with over 40 enrolled. This is because from a pedagogical standpoint, a professor can do the same thing in a class of 140 students as a class of 30 students.

Table 3
Typical Faculty Distribution and Cost

Class Size	Student/Faculty Ratio	Faculty Cost per Student
10	8:1	$12,500
20	16:1	6,250
50	40:1	2,500
100	80:1	1,250
200	160:1	625
1,000	800:1	125

The goal of most courses, both undergraduate and in professional schools, is the learning of an established body of knowledge and skills. Custom seminars where students write and critique research papers are not a cost-effective way to do this. Rather, high participation and application teaching techniques where multiple students examine and solve the same problem are vastly more effective for learning both basic content and higher level application skills. The classic example is the case method, long a staple in law schools and graduate business schools. More recently, Team Based Learning has been

used in a variety of disciplines, particularly medicine and business but also the humanities.

Team Based Learning is a variation of traditional case teaching in which small group discussion and all-class discussion are blended in a single class period. By working in 5 to 7 person teams, students are forced to be actively involved in learning both content and application. A Team Based Learning class of 100 generates heavy student in-class involvement from all 100 students. A traditional class of 20 generates heavy student in-class involvement from relatively few, or even none. Yet the faculty cost per student of the small class is five times greater.

The only time a small class is necessary is when the student's work product is highly customized, for example a communications class, mentoring seminar, field project, or a senior paper. A limited number of small, customized classes can greatly increase quality, but too many customized classes lower quality.[13]

Intentionally mixing very small classes with large classes provides high quality at a reasonable price. For example, having a student spend 100 percent of his time in classes of 20 costs $6,250 per student. On the other hand, if you have a student spend 25 percent of his time in lecture classes of 200, 60 percent in high participation/application class of 50, and 15 percent in highly customized classes of 5, your faculty cost per student is only $1,548.

Undersubscribed Classes. In practice, a college cannot run every class at its pedagogical maximum size because of undersubscribed classes. An undersubscribed class is one where demand for the class is below pedagogical maximum enrollment. This happens often in traditional place-based courses.

Because students need to be physically present at a set time, student scheduling conflicts sometimes necessitate offering multiple sections of the same course. Or sometimes a large enough classroom isn't available. Or there are not enough students to fill even one section to pedagogical capacity. In fact, private bachelor's colleges rarely have enough students to reach capacity except in required general education classes. So to some extent, undersubscribed classes are an unavoidable cost in place-based education.

However, the severity of the undersubscribed class problem is much greater than it needs to be. Many college administrators are very sloppy schedulers. This is partially caused by a lack of management skill, but due more to a prevailing culture that doesn't value efficient use of faculty time.

Much of the severely undersubscribed course problem comes from offering too many majors. A college has classes that few students want because they are necessary in order to offer a major that few students want. Significant cost savings can be realized by eliminating or consolidating low enrollment majors. This consolidation can also increase education quality.

A major that has enough students to get average class sizes of 50 is ten times cheaper to offer than a major that only has enough students to get average class size of 5. Low demand majors are a serious cost problem for private bachelor's colleges. As colleges grow in size, the problem lessens but does not disappear. Even large public research universities have major problems with undersubscribed courses due to numerous low-demand graduate programs.

Is Online Learning the Answer to High Instructional Costs?

Can high-cost faculty be replaced by low-cost technology? Many tout online delivery as the silver bullet for cutting instructional cost, while others say online is not a viable tactic to serious cost-reduction. According to Jorge Klor de Alva, former president of the University of

Phoenix, "The widely held belief that online education can lower faculty costs (the single biggest expenditure at most colleges) and reduce the need to build more buildings explains why many state officials and the executive branch of the federal government support online education." However, Klor de Alva states that lower faculty costs are illusory. In fact, Phoenix runs with a 14 to 1 student/faculty ratio.[14]

From a faculty productivity standpoint, online delivery is currently only better than place-based delivery in small classes. After a course is designed, the online instructor's work is limited to grading, providing feedback, answering questions, and trying to generate interaction with and between students. The amount of work involved is primarily a function of the number of students enrolled. In contrast, the amount of faculty effort in a place-based class is largely fixed and varies little with enrollment. The amount of time spent in the classroom and preparing for class does not vary with class size. In terms of faculty time, it probably costs about twice as much to teach a class of 20 in a place-based institution as opposed to online.[15]

However, online loses its cost advantage as class size grows and the cost benefits are limited to severely undersubscribed courses (e.g., senior level classes at private bachelor's colleges). At 30 students, online and place-based take about the same amount of time, as we can infer since that is the size at which most online colleges cap section size. When enrollments start running over 60, place-based delivery may actually be cheaper than online.

But radical savings through online delivery can be achieved in courses taught in a lecture/exam format, the bread and butter of lower division instruction at public research universities. Some universities are beginning to pursue this approach. It spreads the cost of creating the online lecture over thousands of students, with variable costs per student limited to faculty (often graduate assistants) time spent in responding to e-mail questions and grading.

Online technology also has the potential to radically improve faculty productivity in hybrid classes. Take a course with 1,000 students a year that can be delivered in a format of 50 percent lecture and 50 percent high participation/application. If you use online delivery for the lectures and place-based classes of 50 for the participation/application component, average class size is 525!

Trimming the Edges: Reducing Support Activity Costs

In addition to major cuts in the three mission activities, CELS also demonstrates that costs can be cut significantly in the three supporting activity areas. Tables 4-6 show CELS 3.2's detailed budget for academic support, student services costs, and institutional support per student. While there are many ways that costs can be cut in these areas, two strategies stand out.

Downsize or Eliminate Student Life

CELS spends a lot of money on student life activities like intercollegiate athletics, recreation, student organizations, and cultural activities.

Table 4
Academic Support Costs, CELS 3.2

Information Technology	$416
Academic Administration	$182
Course Development	$150
Faculty Development	$100
Library	$90
Academic Advising[16]	$54
Off-campus Programs	$38
Depreciation	$26
Plant Operations & Maintenance	$46
Total	**$1,158**

Table 5
Student Services Costs, CELS 3.2

Intercollegiate Athletics	$531
Student Organizations & Cultural Events	$308
Recreation & Intramurals	$99
Career Services	$98
Financial Aid Administration	$74
Student Records	$52
Non-Academic Guidance	$63
Information Technology	$41
Depreciation	$407
Plant Operations & Maintenance	$351
Admissions	$193
Total	**$2,206**

Table 6
Institutional Support Costs, CELS 3.2

Executive Management	**$383**
Fiscal & Business Offices	$256
General Administration	$98
Communications	$83
Alumni & Development	$73
Information Technology	$52
Depreciation	$11
Plant Operations & Maintenance	$22
Total	**$977**

These activities are very important to CELS's students. However, the picture is totally different for a college focused on commuter students. It does not need to perform any of these student life activities. Colleges serving commuter students could eliminate $1,500 to $2,000 of E&G costs simply by eliminating spending on student life activities.

Eliminate Administrator Bloat

Much of spending in the support activities is salaries for administrators. Administrators do not instruct, research, or provide public service. Of course there is a need for some administration in order for the faculty to provide the missions, but administrative payroll is excessive at many institutions. For instance, public regional or private bachelor's colleges of the same size and scope as CELS 3.2 might have four full-time college deans in addition to 20 to 30 part-time department heads. Instead, CELS 3.2 operates with seven part-time academic area coordinators.

At some institutions there are now more administrators than faculty. Between 1993 and 2007, the average number of administrators grew by 39 percent, while the number of faculty grew by 18 percent. Average administrator compensation went up as well. The combination of increased pay and headcount lead to inflation-adjusted, per student administrative costs going up by 61 percent over the fourteen-year period.[17]

The extreme in administrative bloat is at private research universities. They spend a staggering $7,048 per student on institutional support (akin to corporate overhead), more than the *total* cost per-student of CELS 3.2.

Making It Happen

Existing Colleges

Institutions of all types can significantly, and quickly, cut costs without impacting quality.

This paper highlighted five major cost-cutting strategies:

1. Eliminate or separately fund research and public service.
2. Optimize class size with appropriate teaching technique and technology.
3. Eliminate or consolidate low enrollment programs.
4. Eliminate administrator bloat.
5. Downsize or eliminate student life if your primary market is commuter students.

From a technical standpoint, all of these strategies are quite doable. However, significantly cutting E&G costs requires a significant reduction in administrator/faculty headcount. This is not a pleasant thing to do, and there must be a big payoff in return if institutional leaders are to undertake this task. Aggressive E&G cost-cutting is only for institutions that are highly committed to cutting tuition, but other stakeholders can help make cost-cutting a bit easier with supportive policies and practices.

State Governments

State governments are the key policy players in higher education. They indirectly own the institutions that most students attend, and they significantly subsidize E&G costs at these institutions. To reduce E&G costs at state institutions, states must de-bureaucratize their own systems and stop forcing their public colleges and universities to work through a central bureaucracy that drives up costs.

Some of this increased cost is just administrative drag from adding more layers of management. (e.g., an individual university has to get permission any time it wants to add a new course; or a department head is forced to spend a week compiling a report about department activities for the central bureaucracy to read and file). At other times, there are rules imposed on the individual colleges that directly push up cost (e.g., the college is forced to participate in a state teachers' retirement plan, or it must deal with outside contractors paying union wages).

In addition, the state bureaucracy is often responsible for allocating state funds among the various colleges and universities. The bulk of the money is allocated using a complex funding formula, the gist of which is to base the individual college's funding on E&G cost per student multiplied by the number of students. E&G cost per student is based on historical costs, so reducing E&G costs can lead to lower funding for the college from the state. In addition, the state bureaucracy perennially lobbies for more state funding for higher education so that E&G costs per student can be increased.

These central state bureaucracies need to be radically reformed or eliminated. The changes necessary to reduce costs have to happen at the individual school level. A centralized state education bureaucracy can't intelligently mandate what each institution needs to do to reduce costs. Rather than central planning, the state should use market mechanisms to drive cost cutting. There are three major ways to do this.

Aggressive cost-cutting is only for institutions that are highly committed to cutting tuition, but other stakeholders can help make cost-cutting a bit easier with supportive policies and practices.

1. Break up the public school cartel. In most states, the state-owned institutions are given distinct geographic territories (Southeastern XYZ State College can't open up a branch outside of the southeast part of the state) and market verticals (XYZ State University can't open a medical school because the health care vertical belongs to the University of XYZ). The

justification given for this cartel is to "keep costs down by avoiding unnecessary duplication of programs." This is the standard, socially acceptable justification offered by cartels in the private sector, but the real reason for these cartels is, "No duplicate programs means no competition."

States should break up their higher education cartel and let state-owned colleges compete with each other. From a technical standpoint, this would be a somewhat complex legal undertaking whose details would vary from state to state. But the basics steps are pretty simple. Tie the state subsidy directly to enrollment, let the schools offer any program they want at any place they want, and let them cut tuition to pick up students from other state colleges. With increased student choice and competition, public schools will lower costs so that they can reduce tuition and attract students.

2. Create pilot colleges. A major problem for state systems is that their established schools are not interested in trying out cost-cutting innovations. They are quite happy with the status quo. Rather than force change upon them, states can create new small pilot colleges and let them lead innovation. The pilots should be allowed to operate free of the existing bureaucracy, and have management deeply devoted to innovation and radically lower E&G costs.

There are numerous concepts that could be piloted. For example, most states have at least one low enrollment public college. Why not convert it into something like CELS, and let it operate free of the anti-competitive constraints of the cartel?

Or, since public research universities already operate as multi-college institutions, why not create a cost-focused residential college like CELS and let it operate on a semi-autonomous basis? The CELS colleges would need little from the university. In the eyes of most undergraduates, what makes the public research university distinctive is not what transpires in the classroom but rather the overall size, diversity, and energy of the university milieu. Students at the semi-autonomous CELS college are in this milieu simply by being physically located on the big university campus, and having access to university-wide student life such as student organizations, speakers, intramurals, intercollegiate athletics, community social life, and the like.

Another pilot to pursue is the "$10,000 Degree" college that is being discussed in Texas.[18] As this paper shows, a $10,000 degree ($2,500 a year) may be possible if you totally eliminated student life and made aggressive use of online delivery. Why not try it and see if it works?

Pilots are a relatively cheap way to innovate. True, the pilot will impose some additional cost on the state for start-up, but successful pilots will quickly become money savers. They will be able to operate with a lower level of state subsidy and charge students a lower tuition. They could also serve as "proof points" for higher education reform going forward. What is learned from the pilots could then be implemented on a larger basis throughout the system.

3. Level the playing field. State higher education subsidies are generally only paid to state-owned colleges, giving them a huge competitive advantage over private colleges. State colleges can spend just as much as a private college but then charge a substantially lower price due to the subsidy, which makes it hard for private colleges to price-compete.

States should allow private colleges to participate in the state subsidy. One approach would be to create a higher education savings account similar to those currently proposed for K-12. Give every citizen a set amount of money and let them spend it however they see fit on any type of post-secondary education.

Alternatively the state could use the state subsidy to develop partnerships with private colleges. At their option, private colleges located within the state could become private charter colleges. In return for the state subsidy, the private charter college would agree to charge in-state students a lower tuition than the public colleges.

The goal of leveling the playing field is not to run the public colleges and universities out of the instruction business. Rather, it is to pressure them to spend public funding responsibly. Eliminating the pricing advantage the subsidy gives to public colleges and universities will put them under significant competitive pressure to keep their costs in line.

As the cost-saving pioneers prove successful, others will imitate them, both because the pioneer has demonstrated how costs can be cut and because the pioneer's success puts competitive pressure on under-performers to improve.

Venture Philanthropy

Reducing tuition is not dependent on state action or capital. Private individuals acting as venture philanthropists can drive the process now. They can fund existing institutions who want to use reduced E&G costs as a route to lower tuition. They can even create their own colleges or take control of an existing college. The cost is relatively low ($5-15 million), and the potential payoff could be enormous.

A venture philanthropy approach to charitable giving mimics the venture capital industry's approach to investing in for-profit entrepreneurs. The venture philanthropist "invests" in non-profits organizations run by social entrepreneurs with the "returns" to the "investor" coming in the form of the social good done by the non-profit. Rather than tied to a specific building or program, the venture philanthropist sees his donation as going to build the overall organization. The venture philanthropist/non-profit's relationship is long-term with the venture philanthropist taking an active, but not day-to-day, role at the non-profit. Often this takes the form of a seat on the non-profit's board of trustees.

A recent example of venture philanthropy was the $70 million donation by Mart Green and family to Oral Roberts University in order to financially stabilize and strategically revitalize the school.[19] Tied to the donation were the requirements to replace the university CEO, restructure university governance, and appoint a new board with Green as Chairman. A current example in K-12 education is the New Schools Venture Fund. New Schools pools money from several donors, like the Gates Foundation, and "invests" the money in organizations pursuing innovation, particularly charter school management companies.

Venture philanthropy to support the development of low price and high quality colleges should be of interest to many donors. In particular, venture philanthropy should be attractive to donors who view the current higher education establishment's focus as off-kilter with the fundamental elements of traditional American education and damaging to the country's social and economic fabric. Venture philanthropy lets these donors kill two birds with one stone: dramatically increasing educational value for students, and increasing mindshare for the donor's world view.

Conclusion

Higher education needs social entrepreneurs committed to providing students a high quality education at a radically lower tuition. While the benefits to successful pioneering institutions will

be huge, the long-run benefits to society are vastly greater. Today's pioneers will unleash a gale of creative destruction upon the whole higher education industry. As the pioneers prove successful, others will imitate them, both because the pioneer has demonstrated how costs can be cut and because the pioneer's success puts competitive pressure on under-performers to improve. Over the long-run, nationwide annual E&G cost savings can run into the hundreds of billions and help bolster the American higher education system for generations to come.

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[1] Derek E. Bok, *Universities in the Marketplace: The Commercialization of Higher Education* (Princeton, NJ: Princeton University Press, 2003).

[2] Of course, the reader's view of "best in the world" may vary from mine. However, I am sure CELS would be extremely appealing to a large segment of students and their parents. For those wanting a different model, major cost savings are still available by following the basic practices used in CELS.

[3] The Council for Educational Facilities Planners International, *Space Planning for Institutions of Higher Education* (Arlington, VA: CEFPI, 2006).

[4] Barbara Balboni, ed., *RSMeans Square Foot Costs 2008* (Norwell, MA: Reed Construction Data, Inc., 2008).

[5] CELS was originally published as part of "$7,376 Ivies: Value Designed Models of Undergraduate Education." The $671 difference between the title's $7,376 and CELS 3.2 delivery cost of $6,705 was due to an assumed operating profit margin of 10 percent. For more information, see Vance H. Fried, "$7,376 Ivies: Value Designed Models of Undergraduate Education," Center for College Affordability and Productivity Policy Paper (Washington, DC: CCAP, August 2008).

[6] In fact, quality can be improved at the same time. See Vance H. Fried, *Better/Cheaper College: An Entrepreneur's Guide to Rescuing the Undergraduate Education Industry* (Washington, DC: Center for College Affordability and Productivity, 2010).

[7] All cost data comes from Donna M. Desrochers, Colleen M. Lenihan, and Jane V. Wellman, *Trends in College Spending: 1998-2008* (Washington, DC: Delta Project on Postsecondary Education Costs, Productivity, and Accountability, 2010). Plant Operations and Maintenance were allocated 29 percent to Instruction, 7 percent Academic Support, 60 percent Student Services, and 4 percent Institutional Support. I use the commonly used term Public Regional for Public Masters.

[8] Vance H. Fried, *Better/Cheaper College: An Entrepreneur's Guide to Rescuing the Undergraduate Education Industry* (Washington, DC: Center for College Affordability and Productivity, 2010), 131-169.

[9] For example see Mark Bauerlein, "Will Graduate Work in Literary Studies Have to Cut Back or Shut Down?" *Minding the Campus*, November 28, 2010.

[10] Richard J. Sherry, "CCCU Faculty Salary Survey: 2007-2008 Update," Council of Christian Colleges and Universities.

[11] American Association of University Professors, "No Refuge: The Annual Report on the Economic Status of the Profession 2009-2010," *Academe,* March-April 2010, 4-32.

[12] For instance, see the latest op-ed from the President of America's most expensive college, Sarah Lawrence University, who argues that the university's high cost are driven, in part, by small faculty-to-student ratios. See Karen Lawrence, "Why We're No. 1," *Inside Higher Education*, April 14, 2011.

[13]Clayton M. Christianson, *Disrupting Class: How Disruptive Innovations will Change the Way the World Learns* (New York: McGrawHill, 2008), 31; L. Dee Fink, *Creating Significant Learning Experiences* (San Francisco: Jossey-Bass, 2003).

[14] Jorge Klor de Alva, "For-Profit Learning is Always Cheaper, and Other Myths," *The Chronicle of Higher Education,* October 31, 2010.

[15] The time estimates in this and the following paragraph are based on my own crude estimates. I am unaware of any published empirical studies on this topic.

[16] This is only for lower division academic advising. Upper division academic advising is provided by faculty-led mentoring seminars.

[17] Jay P. Greene, Brian Kisida, and Jonathon Mills, "Administrative Bloat at American Universities: The Real Reason for High Costs in Higher Education," Goldwater Institute Policy Report No. 239, August 17, 2010.

[18] Ralph K.M. Haurwitz, "New UT Regent's Chairman Setting Glass-Is-Half-Full Tone," *statesmen.com*, March 3, 2011.
[19] Ziva Branstetter, "An angel for ORU," *Tulsa World*, November 28, 2007.