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ABSTRACT

Identifying higher education cost drivers and working to limit their effects appears to be a necessity if higher education is to retain the support historically allocated by society. Costs occur for three groups: students, institutions, and society. This paper summarizes information about cost drivers in higher education and identifies two that are hidden, suggesting methods to curtail them. These are: (1) the funding tendency to provide more money to those who spend more, thereby eliminating cost containment incentives; and (2) the recent tendency to try to raise below-average faculty and staff salaries to national averages in the name of justice. The national cost containment recommendations of the National Commission on the Cost of Higher Education include strengthening cost control, improving market information and public accountability, and deregulating higher education. The Commission also recommends rethinking accreditation and enhancing and simplifying federal student aid. This paper suggests related cost containment considerations, including rewarding those who spend less and providing disincentives to those who spend more. Comparing lower salaries to discipline-based cost-of-living adjusted floors and percentile points when considering justice amendments will help contain costs. Institutions must also be aware that projections show a national increase in high school graduates that may result in the necessity of trying to control, if not reduce, enrollment. (Contains 2 figures, 2 tables, and 11 references.) (Author/SLD)

USF UNIVERSITY OF SOUTH FLORIDA

Higher Education Cost Drivers,

Including Two Hidden Ones with Cost Containment Possibilities

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Table of Contents

Table of Contents 2
Executive Summary 3
Background 4
Cost Drivers 4
Definitions 4
Primary Cost Drivers for Institutions and Students 5
Other, Less Readily Measurable Cost Drivers 6
Hidden Cost Drivers 7
Hidden Cost Driver - Spend More to Get More 7
Real World Example 7
Hidden Cost Driver - Raise below Average Salaries to Average 9
Real World Example 10
Salary Distributions and Comparison with OSU/CUPA 10
Cost Containment Approaches 12
The Commission's Recommendations and Action Agenda 13
Other Considerations Related to Cost Containment 15
One Final and Important Consideration 17
References 19

Executive Summary

Between 1976 and 1996, while the Consumer Price Index (CPI) rose 296%, average college tuition rose about 500%. Identifying higher education cost drivers and working to limit their effects appears to be a necessity if we wish to retain the support historically allocated by society. This appears particularly true in light of the recent report by The National Center for Public Policy and Higher Education (1999) which states: "...even with normal economic growth over the next eight years, the vast majority of states will face significant fiscal deficits. ...(*which)* will lead to increased scrutiny of higher education in almost all states, and to curtailed spending for public higher education in many states."

Costs occur for three groups: (1) students, (2) institutions, and (3) society. Many cost drivers are obvious and some unavoidable. The National Commission on the Cost of Higher Education (The Commission) identifies the following and makes recommendations for cost containment: Reduced support by government has increased the percentage of costs paid by students. Programs and students are growing more diverse and require a broader and more costly array of support. Continually increasing technology requires constant upgrades and faculty/staff development. Remediation costs have increased as broader segments of the population attend higher education. A decaying infrastructure and massive deferred maintenance will increase future costs. Over the last couple of decades, faculty have seen significant increases in salary and benefits. Increased regulations have considerably increased compliance costs. Increased local financial aid may add to increasing tuition since much of this financial aid comes from tuition revenues. Expectations regarding services have risen from students, faculty and staff, requiring increased expenditures to meet them. In addition to the preceding cost drivers, Baumol & Oates (1976) convincingly argue that service sector costs (education, health care, etc.) must rise faster than inflation because they "...have shown themselves over the centuries to be relatively resistant to productivity-increasing innovation." Thus, as wages go up and relative productivity does not, comparative costs increase (e.g. "...in 1998, there were 17.2 public school pupils per teacher, compared with 17.3...10 years earlier." – NCES Education Statistics Quarterly, 1998).

The current paper summarizes the preceding items and identifies two hidden cost drivers, and suggests methods to curtail them: (1) the funding tendency to provide more money to those who spend more, thereby eliminating cost containment incentives, and (2) the recent disturbing tendency to try to raise below-average faculty and staff salaries to national averages in the name of justice. Arithmetically, if below average salaries go up to the mean, the average must rise, necessarily keeping recently raised salaries below average the next year. Thus salary costs increase rapidly.

The Commission's national cost containment recommendations include (I) Strengthen Institutional Cost Control. (II) Improve Market Information and Public Accountability. (III) Deregulate Higher Education. (IV) Rethink Accreditation. (V) Enhance and Simplify Federal Student Aid.

This paper suggests related cost containment considerations including: (1) rewarding those who spend less and providing disincentives to those who spend more. (2) Rather than comparing lower salaries to averages, compare them with discipline-based cost-of-living adjusted floors and percentile points when considering JUSTICE adjustments. (3) Another issue relates indirectly to several of the

cost drivers discussed. Recently, higher education institutions experienced a shortage of traditional-aged candidates, which substantially increased competition for students. However, times have changed. High school graduate numbers began to increase rapidly starting in 1997. Projections suggest a national increase of about 20% between 1996 and 2006 with far larger increases in Florida and California. The effects of this enrollment growth may not be immediately apparent, but within two or three years, rather than trying to increase enrollments, universities will almost surely be trying to control, if not reduce, enrollment. This may occur sooner if the economy experiences a downturn. Wise institutions will benefit by anticipating this certain occurrence.

Background

Between 1976 and 1996, while the Consumer Price Index (CPI) rose 296%, average college tuition rose about 500%.1 These tuition increases result primarily from: (1) reduced government support which prompted institutional tuition increases to cover costs, and (2) higher education costs which increase at rates consistently greater than inflation. These extreme cost increases threaten Higher Education, as we know it, from at least two directions: (1) many students may not be able to pay for college, and (2) government may be either unable or unwilling to support such increases. Although government-sponsored programs such as the HOPE Tax credit have helped offset cost increases somewhat for students, a recent report by The National Center for Public Policy and Higher Education (1999) states: "...even with normal economic growth over the next eight years, the vast majority of states will face significant fiscal deficits. ...*(which)* will lead to increased scrutiny of higher education in almost all states, and to curtailed spending for public higher education in many states." Even if this does not proves true; higher education must contain costs as much as possible.

Many higher education cost drivers are difficult, if not impossible to control, for example: technology upgrades, meeting deferred maintenance needs, increasing salaries to remain competitive for qualified personnel in a strong economy, and meeting the needs of increasingly diverse student populations. Some cost drivers may be reduced though unified actions: dealing with continually increasing regulations and accreditation requirements, meeting increasing expectations of students, staff and faculty and reassessing the need for the excessive marketing recently created in what has been, but will not continue to be, a very competitive recruitment environment. In addition to summarizing cost drivers for which others have offered solutions, and identifying those for which no feasible solutions appear to exist, this paper exposes two additional and disturbing cost drivers, both of which may be addressed by well directed actions.

Cost Drivers

Definitions

Cost Drivers are causal factors that tend to increase expenses. Costs occur for three groups: (1) students, (2) institutions, and (3) society. Costs and prices can mean a variety of

1 Tuition rose 490% at public universities ($642 to $3,151), 540% at private universities ($2,881 to $15,581), and 510% at public two-year colleges ($245 to $1,245) - The National Commission on the Cost of Higher Education (1998)

different things, and despite their substantially different meanings, the following terms are often used interchangeably when people discuss higher education costs and prices.

- Instructional Cost - What institutions spend to provide education and related educational services to students.
- Instructional Costs Per Student - The average amount spent annually to provide education and related services to each full-time equivalent (FTE) student.
- Sticker Price - The tuition and fees an institution charges
- Attendance Cost - All costs students incur while attending (including housing, transportation, books, tuition, etc.)
- Net Student Price – Total cost to students after subtracting financial aid from Attendance Cost

The National Commission on the Cost of Higher Education (The Commission), in 1998 produced a document titled: *Straight Talk about College Costs and Prices*. Because this report summarizes most other related works, it provides the basis for the following section. Where used, other sources are cited specifically.

Primary Cost Drivers for Institutions and Students

- Reduced support by state and federal government has increased the percentage of costs paid by students
- Programs and students are growing more diverse and require a broader array of support. For example, the average costs to institutions of complying with the Americans with Disabilities Act range from $700,000 for public two-year institutions to $13 million for public research institutions. This is a relatively new and real cost. Increasing hours of availability for non-traditional students is another comparatively recent cost increase.
- Continually increasing technology requires constant upgrades and faculty/staff development. The Commission (1998) states: "Although technology holds promise for making educational operations more efficient and less costly, there is no evidence to date to indicate that the use of technology in higher education has resulted in widespread cost savings to colleges and universities."
- Remediation costs have increased as broader segments of the population attend higher education (e.g. Florida community colleges spend about $53 million per year on remedial courses).
- Growth in higher education enrollments over the past 30 years has caused construction of new classrooms, laboratories and dormitories. Now, a decaying, aging infrastructure, and massive deferred maintenance will cause considerable future costs (NACUBO deferred maintenance estimates for the nation are some $26 billion).
- Faculty salaries - Over the last couple of decades faculty have seen significant increases in salary and benefits, some of which has offset earlier losses. These cost increases have been offset somewhat by hiring more part-time and non-tenured faculty and by increasing the number of hours faculty spend in the classroom.
- Increased competition for a limited traditional student pool between 1991 and 1996 created the need to pour more and more money into marketing to maintain or increase

enrollments in a very competitive arena. Unfortunately, such costs tend to remain even after needs disappear, at least partly because competitors continue to market.

- Increased regulations require considerable expenditures to comply (e.g. Stanford estimates that their costs for complying with increasing regulations works out to 7.5 cents of every tuition dollar.). This cost driver exhibits two primary characteristics:
  - Increasing numbers of accreditation agencies, in particular, specialized agencies. Currently, some 60 specialized agencies oversee more than 100 different types of academic programs.
  - Increases in the number of administrators to handle more regulations and provide more services.
  - Increases in institutional financial aid may add to increasing tuition, since much of this financial aid comes from tuition revenues (Lapovsky, 1999).

Other, Less Readily Measurable Cost Drivers

- Expectations - Expectations from several groups influence costs, and all have risen. Prospective students expect to see gyms equipped with state-of-the-art equipment and facilities, a complete range of course offerings, dormitories wired for computers and stereo equipment and specialized counselors able to advise on personal as well as academic and career matters. Parents look for childcare, part-time students expect evening and weekend availability, the curriculum has become more specialized and institutions now support entire disciplines that didn't exist a generation ago. Faculty expect the university to provide space, equipment and time for their research. This is very different from life in "College" as experienced by students earlier this century.
- Baumol & Oates (1976) convincingly argue that service sector costs (education, health care, etc.) must rise faster than inflation because they "...have shown themselves over the centuries to be relatively resistant to productivity-increasing innovation." They note "...there is no painless cure for this disease" and we should therefore expect it to continue. In the non-personal services economic sector, when production becomes more efficient, fewer hours are required to produce a given product of the same or better quality, for example, an ear of corn or a widget. Unfortunately, for personal services (life-enhancers such as education, health care, or musical performance) to produce the same quality requires, approximately the same amount of time today as it did 200 years ago. For example, a 30-minute Schubert trio requires 1.5 hours of skilled labor whether performed today or 100 years ago. A teacher reading and providing feedback to a student on an assignment will require about the same amount of time now, in the past, or in the future. As non-service production becomes more efficient, less time and smaller percentages of the labor force are used to produce the products, thereby lowering per-unit cost. For example, in 1900, about 50% of the civilian labor force worked in agricultural jobs, today, less than 5% do with greater production. Therefore, as productivity increases, greater labor force percentages necessarily are allocated to personal services (40% of the U.S. labor force in 1929, 55% in 1967), increasing their comparative cost. Further, "If wages of policemen, teachers, or street cleaners fall significantly behind those in manufacturing, in a prosperous economy labor will simply move out of the former occupation and look for jobs in the latter.... The evidence suggests that over longer periods wages in the personal services keep up with those paid

elsewhere much more frequently than is sometimes believed.... So long as wages in the two sectors of the economy maintain approximate parity, whether they rise or fall, the relative cost of the personal services must increase...".

Hidden Cost Drivers

Two hidden cost drivers are explicated using real world examples:

- The first involves the funding tendency to provide more money to those who spend more. I will never forget when managing an 8-month grant in 1974, when, after three months I told the grant administrator that we could do more than the grant required using only 75% of the money allocated. She informed me that if we didn't use "all of the money," future grants would not be fully funded. I therefore spent 99.85% of the money allocated, increasing the project's cost by some 33% over what was needed. Unfortunately, this funding method continues to occur in the public sector. Obviously, no incentives for cost containment occur in such situations, and, just as obviously, any non-monopoly business that operated in this fashion would soon face bankruptcy.
- The second involves the disturbing recent tendency to try to raise below-average salaries to national averages in the name of justice. By definition, if the below average salaries go up, the average goes up, necessarily keeping them below average the next year. Thus the processes of raising below-average salaries never end and enormously increases costs. The influence of salaries is enormous. Middaugh (1998) notes: "...'Student Credit Hours per FTE Faculty' emerges as the prime cost driver in most equations."

Although greater than inflation cost increases may be necessary (Baumol & Oates, 1976), it appears essential that we in higher education do everything possible to contain costs as much as possible. The final section of this paper summarizes nationally recommended cost-containment methods as well as methods that may prove useful to reduce the influence of the hidden cost drivers.

Hidden Cost Driver - Spend More to Get More

Real World Example

The State University System (SUS) of Florida, provides graduate funding to specific institutions using a plan for the number of Student Credit Hours (SCH) to be produced in a year. Because some disciplines are necessarily more costly to support, funding is computed separately by discipline. Costs per SCH are computed separately for Graduate I (usually Masters) and Graduate II (usually above Masters) levels. Institutions receive funding based on their own local costs. SUS average costs by discipline at the Graduate I level range from about $300 per SCH in "Library Sciences" to about $900 in "Area, Ethnic and Cultural Studies." The Graduate II level is similar, with costs ranging from about $500 per SCH in "Foreign Languages and Literature" to almost $1,900, again, in "Area, Ethnic and Cultural Studies." Thus, from a funding perspective, 1,000 SCH brings a university $300,000 in "Library Sciences" Graduate I compared with almost $1 million dollars in "Area, Ethnic and Cultural Studies" and at Graduate II those range from half-a million dollars in "Foreign Languages" to almost two million dollars in "Area, Cultural and Ethnic Studies."

A recent study (Micceri, 1999), conducted to determine what differences occurred across SUS institutions at the graduate level, came to the following conclusions:

- Except in a few noteworthy cases, large differences in the mix of graduate disciplines do not tend to occur across institutions. Programs in Education, Business, Health Sciences, Engineering, Public Administration and Social Sciences, when present, tend to generate more graduate FTE and degrees than other fields at all SUS institutions. Education generally produces the greatest percentage of SCH both at the Masters and Doctoral level.
- High-expenditure disciplines such as "Area, Cultural and Ethnic Studies" do not appear to occur simply because of low SCH relative to base costs. In several disciplines at various institutions, low SCH associates with lower, rather than higher costs per SCH. Excluding "Area, Cultural and Ethnic Studies," which is the most expensive discipline everywhere, among comparable low-SCH disciplines at each of four SUS Research Institutions (UF, FSU, UCF and USF), 40% were below the institutional average (some substantially so) while 60% were above.

Given the current funding methodology, in order to increase USF's funding, it appears necessary to raise expenditure levels. To accomplish this, any of the following actions would prove useful:

- Substantially increase faculty salaries or other expenditures in disciplines below SUS average expenditures, or, less preferably, decrease faculty average credit hour loads in those disciplines.
- Increase the SCH generated by extremely expensive disciplines such as "Area, Cultural and Ethnic Studies," the Physical and Life Sciences, "Philosophy & Religion," Health Sciences, Engineering and the Visual and Performing Arts.
- Reduce SCH in the less costly disciplines such as Education, Business and Public Administration.
- Shift budget functions that are currently under administrative codes, but could go under academic codes to the academic sector, thereby increasing academic support costs.

These suggestions make it clear that the funding formula, as it currently exists, provides no incentive for cost containment. One might consider proposing an alternative funding approach in which those institutions that are below the SUS average for a discipline receive a special bonus for keeping expenses low.

The proceeding represents an example that reflects a far more widespread and general problem that almost always occurs when no "bottom line" exists in an organization. Unfortunately, this describes most public systems. Critics may say that this is neither a good, nor a widespread example for the following reasons:

- Many systems base differential funding on discipline cost differences, because some disciplines require smaller class sizes (e.g. Fine Arts) while others require expensive equipment or laboratories (e.g. Engineering).
- Some systems have recently introduced performance-based funding approaches.

In both cases, those who have spent more in the past will continue to receive more in the future. If one discipline can continue to receive more funds for whatever reason, what

incentive is there to reduce costs? Regarding performance-based funding, in an ideal world where which one could actually find some reasonable measure of "performance," this approach could work well, However, in this highly imperfect world guided by political agendas and tradition, one can have very little faith in the efficacy of such approaches.

Hidden Cost Driver - Raise below Average Salaries to Average

One disturbing trend in salary equity relates to the use of national salary surveys such as those conducted by OSU and CUPA as a basis of defining justice in salary issues. The underlying logic is hard to refute: "We would never hire a faculty/staff member who is below average in ability, so obviously they should not be paid below average salaries." A specific example of this logic comes from a recent document produced by the USF President's Staff (1999):

> "2. Permanent increases to base pay may be given:
> • to align base pay more appropriately with market"2

When such logic is followed, attempts are usually made to bring local salaries "in line" with market "averages." These market averages are usually defined by national salary studies such as OSU or CUPA. Although this makes some sense from a justice perspective, it is very dangerous from a mathematical perspective, for, of course, if one raises those who are below the mean to the mean, that necessarily raises the mean, which means those raised are again below the mean.

As a simple example of the effects this logic produces, we can see that in Table 1, raising the original salaries of five faculty to the mean, increases the mean by 12%. Of course, all of those raised remain below the new mean, and this occurs even without any raises for those who are above the mean. As you can see the process continues, with respectively a 6% increase the second year and a 4% increase in the third year. Further, a greater number of salaries fall below the mean each successive year. First there were two (shaded - 40%), then three (60%), and finally, four (80%).

Table 1

Example of Effects from Raising below Average Scores to the Mean

	Original	1st yr	2nd yr	3rd yr
Mean =>	5	5.6	6.0	6.2
Salary 1	3	5.0	5.6	6.0
Salary 2	4	5.0	5.6	6.0
Salary 3	5	5.0	5.6	6.0
Salary 4	6	6.0	6.0	6.0
Salary 5	7	7.0	7.0	7.0

This approach not only increases costs (in salaries), far faster than might be desired, it also causes a continually greater percentage of faculty to have salaries below the mean. Fortunately, not even the most affluent universities and empathic administrations have adequate discretionary money to move all faculty up to their OSU or CUPA averages. Thus

2 This quote applies specifically to staff and non-unit faculty, however, similar logic is used for faculty.

this cost driver has smaller effects than might occur if this concept of justice were to prevail fully.

Real World Example

To provide a real-world example, I used 1998/99 nine-month salary data for 787 full-time (1.0 FTE) regular instructional, tenure-track rank faculty (Assistant, Associate, Professor), who hold no administrative ranks other than those in departments (no Deans or administrators) from USF's Education and General Colleges (Architecture, Arts & Sciences, Business Administration, Education, Engineering, Fine Arts, Nursing and Public Health).

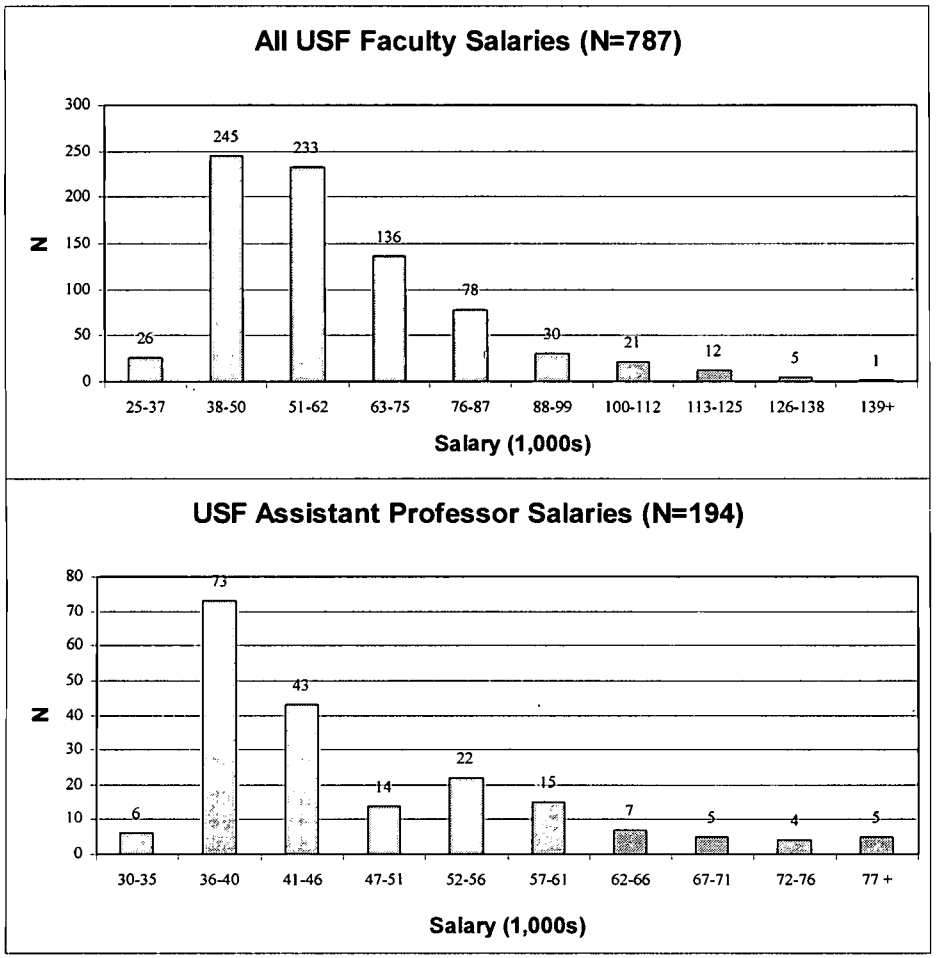
Salary Distributions and Comparison with OSU/CUPA

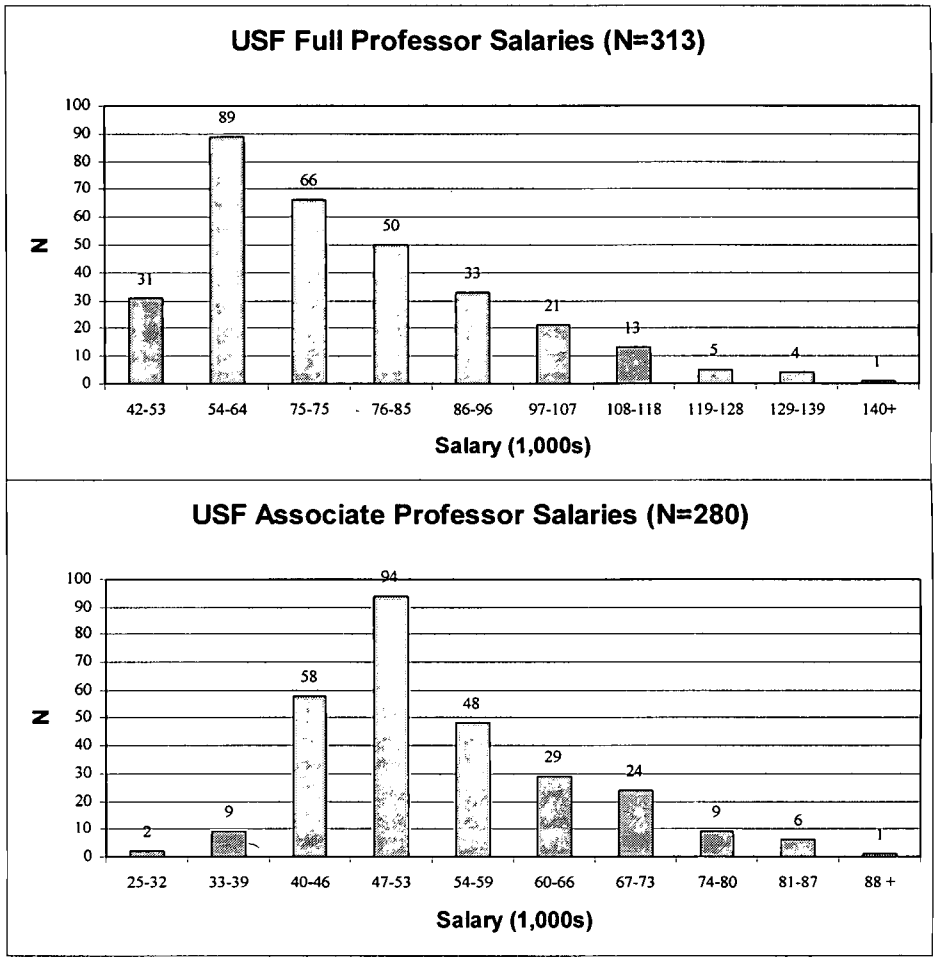
Among 787 USF rank faculty, 452 (57.4%) had salaries below their OSU comparables and 59.1% below the university average. This occurs because of the highly skewed nature of salary distributions (Figure 1). As an example of how MEANingless this form of "average" becomes in the typically asymmetric salary universe, while the mean salary for all professors was $60,300, the median was $55,600. This 9% difference in "average" salaries occurs because a few extremely high salaries have an inordinate influence on the arithmetic mean, but no influence at all on the median (point below which 50% of salaries fall). We should also note that although there are no real salary "ceilings", there is an effective floor below which few, if any salaries fall. This floor is approximately $55,000 for Full Professors, $40,000-$45,000 for Associate Professors and $35,000 for Assistant Professors. Although these minimums appear low when compared with salaries in business, recall that they are 9-month salaries. The $55,000 equates to a 12-month salary of $70,500 (Florida formula), which is not substantially different from floor-level salaries among highly trained individuals in business. Of course, not all faculty either find (or wish to find) work during the summer sessions, or engage in consultation that might increase their income to 12-month levels, so those 9-month salaries reflect actual income for many.

USF's total base salary pool (not including benefits) for these faculty in 1998/99 was $47,600,000. In Florida, most recent years have seen approximately 3% annual across-the-board salary increases,

Figure 1

Plots of USF Rank Instructional Faculty Salary Distribution (in 1,000s)





The last two columns of Table 2 show another unfortunate effect of this approach, that more faculty fall below the mean over time. In 1998/99, only 59% fall below the mean, however, this percentage steadily increases, until, by 2010, 85.6% do. The total amount of salary dollars expended by a university using this logic increase over the 3% annual rate by 21% within five years ($104,906 to $86,257), and by 27% within 20 years.

Table 2

Future Average Salary Increases Using 3% across-the-board Raises and Movement of Below Average Salaries to USF Average – N = 313 Full Professors

	3% Increase		Move to Mean			Number Below Mean	
	Mean Salary	Annual Increase	Mean Salary	Annual Increase	% Annual Increase	N	%
1998/1999	$74,406		$74,406			185	59.1%
1999/2000	$76,638	$2,299	$83,507	$9,101	12.2%	213	68.1%
2000/2001	$78,937	$2,368	$90,101	$6,594	7.9%	232	74.1%
2001/2002	$81,305	$2,439	$95,547	$5,446	6.0%	242	77.3%
2002/2003	$83,744	$2,512	$100,401	$4,855	5.1%	250	79.9%
2003/2004	$86,257	$2,588	$104,906	$4,504	4.5%	255	81.5%
2004/2005	$88,844	$2,665	$109,206	$4,300	4.1%	259	82.7%
2005/2006	$91,510	$2,745	$113,390	$4,184	3.8%	261	83.4%
2006/2007	$94,255	$2,828	$117,524	$4,135	3.6%	261	83.4%
2007/2008	$97,083	$2,912	$121,661	$4,137	3.5%	264	84.3%
2008/2009	$99,995	$3,000	$125,789	$4,127	3.4%	266	85.0%
2009/2010	$102,995	$3,090	$129,942	$4,154	3.3%	267	85.3%
2010/2011	$106,085	$3,183	$134,152	$4,209	3.2%	268	85.6%
2011/2012	$109,267	$3,278	$138,429	$4,278	3.2%	268	85.6%
2012/2013	$112,545	$3,376	$142,799	$4,370	3.2%	268	85.6%
2013/2014	$115,922	$3,478	$147,269	$4,470	3.1%	268	85.6%
2014/2015	$119,399	$3,582	$151,846	$4,577	3.1%	268	85.6%
2015/2016	$122,981	$3,689	$156,537	$4,691	3.1%	268	85.6%
2016/2017	$126,671	$3,800	$161,350	$4,813	3.1%	268	85.6%
2017/2018	$130,471	$3,914	$166,290	$4,940	3.1%	268	85.6%

Cost Containment Approaches

Baumol & Oates (1976) state well the threat we face:

> The character of the budgetary process contributes substantially to the problem. The services with their constantly rising costs are particularly vulnerable to unconsidered budgetary restrictions made without understanding of the cost behavior that their technology forces upon them. It is only natural, when the cost of some activity doubles or trebles in a decade while the quality of its product seems to be declining and other prices are relatively stable, to feel that somehow

> waste and inefficiency must be at the root of the problem. This is particularly true in the public sector where the connection between services received and taxes paid is often only vaguely understood by the individual citizen.

It therefore behooves us to do everything in our power to contain costs as much as possible. Unfortunately, as The Commission (1998) notes:

> Institutions of higher education, even to most people in the academy, are financially opaque. Academic institutions have made little effort, either on campus or off, to make themselves more transparent, to explain their finances. As a result, there is no readily available information about college costs and prices - nor is there a common national reporting standard for either. (National does not mean Federal; it means a standard that is understood and commonly accepted in the profession.) Indeed, differences in financial reporting standards that have evolved in the current environment of quasi-self-regulation contribute to confusion about how to measure costs in a straightforward way. Colleges report on financial standards using one methodology; report expenditures using another; and conform to government cost-recovery principles with yet a third.

Immediately below are excerpts from The Commission's cost containment recommendations. These are followed by suggestions relating to the hidden cost drivers discussed in this paper, but only alluded to by The Commission. Additional discussion relates to cost containment of expenses that result from recent competitive increases to attract a short-term limited pool of prospective students.

The Commission's Recommendations and Action Agenda

The Commission organizes its recommendations around a five-part action agenda grounded in the concept of shared responsibility. Many different participants have contributed to the academic cost dilemma; all of them must be involved in resolving it. In The Commission's view, these actors have a shared responsibility for achieving five policy goals:

I. strengthening institutional cost control;

II. improving market information and public accountability;

III. deregulating higher education;

IV. rethinking accreditation; and

V. enhancing and simplifying student aid.

I. Strengthen Institutional Cost Control

The Commission recommends that academic institutions intensify their efforts to control costs and increase institutional productivity.

> In recent years, American colleges and universities have made major efforts to reduce expenditures and control costs. The Commission applauds this progress; however, it also believes that much more must be accomplished. To do so, the academic community must focus sustained attention on its own internal financial structures, the better to understand and ultimately control costs and prices. To

that end, the Commission makes ten implementing recommendations to strengthen cost control and improve institutional productivity (*see report for details*).

II. Improve Market Information and Public Accountability

The Commission recommends that the academic community provide the leadership required to develop better consumer information about costs and prices and to improve accountability to the general public.

What is required, first, are comprehensive, easy-to-understand analyses of cost and price issues for different types of institutions by sector (e.g., public and private institutions, two- and four-year, with distinctions between four-year colleges and universities). These analyses should then be transformed into handbooks, available to the public, that provide the following cost and price information:

- the cost of educating students (i.e. the total institutional expenditure - capital costs included -- to provide the education);
- actual tuition charges (i.e. sticker prices);
- the general subsidy (i.e. the cost minus the tuition charge);
- instructional costs by level of instruction;
- the total price of attendance (i.e. tuition, fees and other expenses);
- a net price "affordability" measure (i.e. total price minus grants); and
- a net price "accessibility" measure (i.e. total price minus all financial aid).

III. Deregulate Higher Education

The Commission recommends that governments develop new approaches to academic regulation, approaches that emphasize performance instead of compliance, and differentiation in place of standardization.

New approaches need to be developed to ensure public accountability in ways that are less costly and more easily manageable. The Commission believes it is time to replace the current command-and-control approach to academic regulation with an approach that emphasizes performance and accommodates the type and volume of regulation to institutional history, size, and need.

IV. Rethink Accreditation

The Commission recommends that the academic community develop well-coordinated, efficient accrediting processes that relate institutional productivity to effectiveness in improving student learning.

The Commission recognizes and encourages the movement underway at all six regional accrediting associations to focus more on assessing student achievement. Accreditation bodies -- both regional and specialized -- have been inclined to emphasize traditional resource measures as proxies for quality. Such traditional measures are often difficult to link to demonstrated student achievement. Specialized or professional accreditation has, for the most part, continued to

focus on resource measures in making judgments about quality. In fact, to many campus observers, they appear often to be acting more in the economic interest of the professions they represent than in the interest of assuring student achievement.

V. Enhance and Simplify Federal Student Aid

The Commission recommends that Congress continue the existing student aid programs and simplify and improve the financial aid delivery system.

Other Considerations Related to Cost Containment

The two additional cost drivers discussed in this paper are both amenable to reduction.

Regarding the problem of having to spend more to get more, obviously, funding methods must be revised to provide incentives to those who spend less rather than to those who spend more. This could take the form of bonuses for less costly production and penalties for more costly production. Obviously, other factors should also be considered in this process. For example, some disciplines must necessarily instruct students more on the apprenticeship than the classroom model, for example, music. Further, some disciplines necessarily require greater costs such as hardware and higher faculty salaries or more support staff to either meet the needs of students or meet competition from external markets. Here I argue against formula funding, unless the formula provides incentives for cutting costs and disincentives for increasing costs. Any such formulae would be better applied to median and percentile point locations rather than the arithmetic mean, which is almost always pulled upward by outliers (extremely high values).

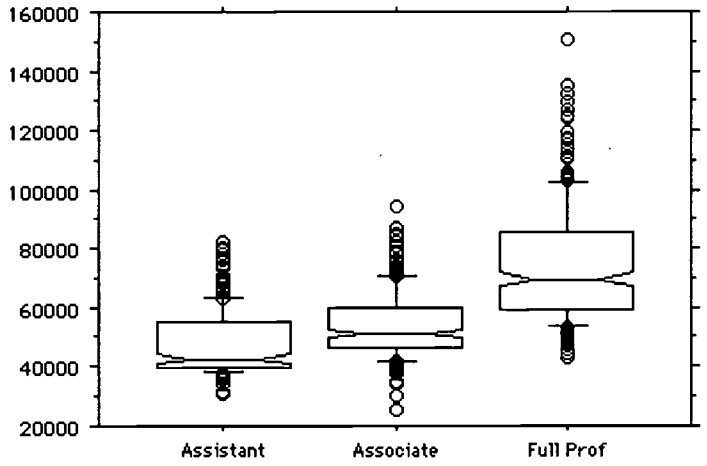
An possible alternative would be to fund at the college or even at the university level. This would force colleges or institutions to support the presence of expensive programs by balancing them with less-expensive programs.

Regarding faculty salaries, the discussion has shown how fruitless and costly attempts to raise those below average to the average must necessarily be. The fact that floors exist at every professorial rank clearly show that minimal salaries have been defined within rank. Rather than comparing faculty having lower pay with averages, which must necessarily be pulled upward by extremely highly paid individuals, it is far better to see how far above the floor an individual faculty member's salary locates. Obviously, such floors must be within discipline (Computer Science, Marketing and Information Systems today demand substantially higher salaries than Foreign Languages). Further, data such as that provided by OSU and CUPA should be standardized by cost-of-living. Obviously, a salary of $70,000 is worth far more in De Moines, Iowa than in San Francisco. To provide more useful data for national comparisons, groups such as OSU and CUPA would do better if they provided standardized salaries and non-standardized salaries by percentile ranks, including at least the following: Minimum, 10th percentile, 25th percentile, 50th percentile (median), 75th percentile, 90th percentile and Maximum for each discipline. This would not be a particularly difficult statistical task when the data are available, and would provide a far more useful estimate for justice purposes than the arithmetic mean, which is so influenced by high values in salary data (e.g. from California or New York).

An excellent way to compare the distribution of values across disciplines or ranks is the use of box and whisper chart. Figure 2 shows a Box and Whisper Chart of USF faculty salaries by rank. The indented part of the central box with the line designates the median salary for each rank; the top of the box shows the 75th percentile and the bottom, the 25th percentile. The upper and lower lines show respectively the 90th and 10th percentile ranks, with circles showing the extreme values. This way of presenting information clearly shows the presence of floors at all three ranks. The proximity of median and 25th percentiles is a strong indicator of a floor effect for all ranks, but particularly for Assistant and Associate Professors. We can also see that for all professors, the highest salaries are about twice the median salary and that some extreme salaries tend to associate in different ways with each rank. Among full professors, the high salaries extend far above the 90th percentile, while low only go a small amount below (floor, but no ceiling). A similar distribution occurs among Assistant Professors, however, among Associate Professors, extremely low salaries extend almost as far below the 10th percentile as high salaries extend above the 90th. This figure also shows that the 25th percentile of Full Professor salaries falls very near the 75th percentile of Associate Professor salaries, indicating that despite very large salary differences across disciplines, among full professors, even the mid range of salaries is not unreasonably low relative to the more highly valued disciplines (at the Associate Professor rank). Such analyses must be run within a discipline, both for salaries and overall cost per SCH.3

Figure 2

USF 9-month Faculty Salaries by Rank



3 Note that the apparent contradictions regarding medians discussed earlier result from a median computed from all professors (N=787), while those in Figure 2 reflect medians within rank.

One Final and Important Consideration

A third issue relates indirectly to several of the cost drivers discussed. Recently, higher education institutions experienced a shortage of traditional-aged candidates (18-24) that were graduating from high school. While some 2.8 million students graduated annually between 1971 and 1981, from 1984 to 1994, those numbers dropped to between 2.2 and 2.5 million. Total college enrollment in the 18-24 age group changed relatively little between 1969 and 1994 (always near 8.8 million), although the total number in that group ranged from 23 million to 31 million over that period (Makunovich, 1997). Thus, smaller cohorts attend college in greater numbers, while larger cohorts attend in smaller numbers. This may partly result from a cut-and-fill effect caused by fierce competition among colleges to enroll the limited numbers of prospective students in smaller cohorts.

In the 1990s, increased competition for a limited number of prospective students became manifest in effects ranging from extensive campus and dormitory renovations to increase attractiveness, to the implementation of extraordinary recruitment efforts and marketing by admissions offices. Lapovsky (1999) shows how this competition has recently reduced institutional tuition streams through the increasingly popular practice of Tuition Discounting. Admittedly, some of this results from the recent proliferation of input-based College Rating systems and attempts by institutions to raise their rankings by bringing in freshman with higher academic standards. The financial aid research clearly shows that money attracts students and more money tends to attract better students. Institutional financial aid, frequently in the form of Tuition Discounting has increased steadily as a percentage of tuition revenues in recent years. All such efforts have contributed to driving institutional costs upward. Another related factor involves increased student expectations. Universities have tried to make themselves more appealing to students, frequently though making campuses more attractive and/or through increased services designed to either improve retention or increase recruitment among a more diverse student population.

However, times have changed. High school graduate numbers began to increase rapidly starting in 1997. Projections suggest a national increase of about 20% between 1996 and 2006 with far larger increases in Florida and California. This translates to projected national college enrollment increases among 18-24 year-olds that range from a low of 1.8 million between 1996 and 2008 (Gerald & Husser, 1997) to a high of 2.6 million (Macunovich, 1997), with the greatest effects occurring in Florida and California. Further, interest in attending Higher Education has never been greater. Regarding current tendencies to attend Higher Education, Berkner *et. al.* (1998) note that 75% of the 1992 national high school graduating class had attended Higher Education by 1994, and that 65% enrolled during 1992. These enrollment figures are rather amazing and indicate that almost all prospective students actually become students today. Given these types of figures, it appears that soon, the monies and effort expended to draw students to your university will be not only unnecessary, but will produce queuing problems of substantial magnitude. Unfortunately, once one has put a line item into a budget, it becomes very difficult to delete it, even when it no longer serves a useful function. I recommend, therefore, that institutions carefully review recently added (past

10 years) costs that relate to recruitment and retention to determine whether they continue to be useful. The effects of this enrollment growth may not be immediately apparent, but within two or three years, rather than trying to increase enrollments, universities will probably be doing their best to contain, and perhaps to even reduce enrollment. Anticipation of this effect can benefit an institution. A lack of anticipation may prove very costly when more students than an institution can deal with show up at her doors. This may occur sooner if the economy experiences a downturn and greater unemployment stimulates older individuals to return to school or more Community College graduates to continue their education when jobs are not readily available for AA/AS holders.

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