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Centralized (CAM) Versus Decentralized Budgeting (RCM) Approaches in Implementing Public University Strategy

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Abstract

This paper compares and critiques two budgeting models used at public universities: *Central Administrative Management* (CAM), and *Resource Centered Management* (RCM). These approaches represent alternative resource allocation methods: under CAM budgets are assigned centrally based primarily on history, while RCM relies on decentralized rules and pricing mechanisms. A primary question is: Do administrators possess the needed expertise and information to make informed budgetary decisions, or are decisions better executed in a decentralized manner, relying on "market-like" prices as guides?

Effective budgetary frameworks display the following features: 1) transparency; 2) ease of implementation; 3) predictability; 4) responsiveness; 5) alignment of incentives; 6) minimal influence costs; 7) economic efficiency; 8) equity; 9) internalizing private benefits and costs; 10) internalizing public benefits and costs, and 11) increasing revenue/reducing costs. Our assessment is that CAM is preferred for its ease of implementation, predictability, perceived fairness, and conceptual if not actual ability to deal with public benefits and costs. RCM has the advantages of transparency, ability to respond to changes in the environment, incentive alignment, reduction of influence costs, economic efficiency, internalizing private benefits, increasing revenue, and reducing costs. Neither model works effectively in the absence of a carefully developed vision and mission that set strategic priorities.

Centralized (CAM) Versus Decentralized Budgeting (RCM) Approaches in Implementing Public University Strategy

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"I find myself more and more relying for a solution of our problems on the invisible hand which I tried to eject from economic thinking twenty years ago."
John Maynard Keynes

A turbulent combination of environmental factors is causing public universities to re-examine fundamental beliefs about their mission, strategic positioning, and organizing structure. While some threats are overstated, it is hard to ignore the impact of permanent cuts in taxpayer appropriations, rising tuition, increasing student debt, declining completion rates, low-cost competitors, and emerging technologies (Fethke and Policano, 2012), (Policano, 2018), and (Barr and McClelland, 2018).[1] To cope with these disruptive factors, major universities need to adopt distinctive strategies and efficient organizing processes that accommodate price sensitive students, burdened taxpayers, and a resistant internal culture (Archibald and Feldman, 2006) and (Marshall, 2018). A key component of any strategic design is a resource allocation model that facilitates the adopted vision. Good budgeting reinforces effective strategy by aligning incentives and improving transparency.

[1] Private universities in 2008-09 experienced large declines in their endowment income, which were equivalent to major cuts of the taxpayer appropriation. Often, individual colleges of distinguished private universities are expected to absorb much of the associated shock (Brodhead, 2009).

This paper compares and critiques two budgeting models commonly used at public universities in the United States: *Central Administrative Management* (CAM), and *Resource Centered Management* (RCM). These distinctive approaches represent opposite resource allocation methods: 1) CAM allocates funds and assigns budgets using centralized-governing fiat; and 2) RCM uses decentralized ("invisible hand") pricing mechanisms. The fundamental issue is whether central administrators possess the needed expertise and information to make informed budgetary decisions, or are decisions better made in a decentralized manner, relying on "market-like" prices to guide individual decisions. Similarly, the key intellectual challenge confronting "enlightened' socialism involves answering the same question: Can government planning effectively compete with free markets in efficiently allocating scarce resources among innumerable competing ends? Interestingly, Keynes, who championed the former in his approach to aggregate economic policy, reverted in later life to the latter.

The ideal structure for allocating resources depends on the intrinsic nature of the products and services ("products") offered by colleges and universities. Are these products best described as non-exclusive public goods, like a clean environment and national defense, or, are they best described as exclusive private goods, like custom-made shirts or personal computers? Decentralized private markets work well in providing a wide selection of computers and related software, but not as well in ensuring a pollution-free environment. In those cases where markets fail— few or many, depending on one's point of view— government (centralized) direction is relied on to provide public goods. In a similar way, the best way for public universities to allocate resources, centralized or decentralized, depends on whether benefits are captured exclusively and internalized by those receiving the benefits, or whether benefits are generally shared by society.

Higher education products exhibit degrees of exclusivity, with a broad menu of choices, ranging from exclusive, distinctive private and public universities to non-exclusive, lower quality public and private colleges. The available options are arrayed competitively by price, quality and student selectivity (Hoxby, 2016). Enrollment in top dental colleges, medical schools, and distinctive MBA programs is primarily exclusive. Some of higher education's products are clearly non-exclusive. For example, the significant payoff to basic research is non-exclusive, as are the benefits to society of having a healthy, broadly educated workforce (National Science Foundation, 2012). The debate over who should pay for higher education largely rests on the exclusive/non-exclusive distinction. Is the return to higher education largely exclusive, mostly captured by graduates, in which case students and parents should pay, or is the return largely non-exclusive, mostly captured by society, in which case taxpayers should pay.

One plausible argument then is that the budgeting approach selected by a university is the one best adapted to the degree of exclusivity of its products. There is a historical revealed preference for CAM. A survey of College Budget Officers by Inside Higher Education (2001) found that 60 percent of the responding universities used CAM as the university's financial model. Of some importance, CAM structures aligned with similar public-funding approaches used by state legislatures, who provided the primary funding. While CAM once dominated, the situation may be changing. As taxpayer support declined and tuitions (prices) rose, the pressure for greater decentralized accountability intensified (Powell, et.al, 2012)).

One reason for a shift in emphasis from CAM to RCM is that those paying for educational products perceive and exclusively receive the benefits. To tuition-paying students, the private return to their investment in education is what matters, and it becomes less acceptable to have their tuition revenue used to cross-subsidize others. Specifically, if mobile students

internalize the benefits of education, they are more inclined to select from a vast array of competing higher education alternatives. Greater accountability and transparency for tuition payment are required to align incentive structures of providers of education to changing enrollment demand patterns. We believe this trend is inducing a growing number of public universities to adopt RCM. Private universities, long reliant on tuition revenue, adopted RCM decades ago. The self-reliant financial model of private universities has proven to be successful, not only for its focus on efficiency but also for enhancing quality. While national rankings of universities have many faults, recent rankings by U.S. News and the Wall Street Journal include no public university in the top twenty.

While technical discussions of RCM and CAM are available, there is little critical assessment that contrasts the two approaches and guides decisions concerning their adoption.[2] This paper evaluates CAM and RCM budgeting models and discusses the strengths and weaknesses of each. We conclude that adoption of RCM can enhance both efficiency and some elements of fairness but is not without challenges. Some treasured, worthwhile objectives of higher education, like diversity and access for low-income students, become more difficult to fund in an RCM environment. Implementation is a challenge. For example, some conversions to RCM have attempted to initially "hold harmless" all units. Building this promise into the RCM, while undoubtedly gaining wider buy-in, creates both expectations and expenditure patterns that sustain the inefficiencies and organizational slack of previous budget regimes.

2 An early discussion of RCM is presented by Whalen (1991). The University of Florida RCM Manual (2015) provides an excellent overview of the principles of RCM, as well as a documented example of implementation. A recent review of RCM by the Arizona Board of Regents is available at: https://rcm.arizona.edu/review-subcommittees. Also, see Indiana University (2011).

Our analysis suggests that the best outcome can be achieved by combining the positive features of both RCM and CAM into a hybrid framework. To do so, we suggest: 1) strategically selecting transparent, fewer, and vision-directed subsidies; 2) retaining a degree of centralized budget control to internalize shared benefits and costs; 3) adopting activity-based-accounting measures of program costs; 4) benchmarking best-in-class costs across institutions; 5) aligning the structure of tuition to account for both program opportunity costs and students' ability to pay; and 6) providing insurance coverage that buffers units against short-term disruptions.

Basic Principles of University Budgeting

There is still great commonality in the features of the budget process at public universities. The state appropriation, tuition revenue, indirect cost recovery revenues, and other minor sources of income are collected centrally and then distributed to individual colleges and shared-services providers; centrally distributed subsidies are sometimes referred to as "subvention" funds. The distributions are either made centrally (CAM) or by decentralized formulaic assignments (RCM). Embodied in the budgeting process are four decisions: the revenue to reserve for shared initiatives, the method used to allocate funds to the academic units, the tax to levy on enterprise programs and private donations; and the negotiated rate of indirect cost recovery.

Neither CAM nor RCM will work well unless budgets are guided by a distinctive and differentiated, sustainable positioning strategy. Distinctive visions ideally focus on hard-to-imitate outcomes and require the use of specialized resources and capabilities. The challenge is to align key resources and capabilities with selected priorities, even in the face of rising tuition and growing stresses between the units that are subsidized and those that pay internal taxes.

Central Administrative Management (CAM)

The basic approach

The CAM framework, which is commonly used for the academic core of public universities, is based on a distribution from the provost or central administration of tuition revenue, taxpayer support, and indirect cost recovery revenues; allocations rely on the use of an inertia-based financial process, usually called "incremental budgeting." The previous year's budget is augmented marginally, often starting with across-the-board percentage allocations intended to cover inflationary cost increases and, sometimes, to accommodate new initiatives. Annual budget requests are presented as a list of adjustments and requests needed to maintain a slightly modified version of the status quo. The underlying premise of CAM is that continued improvement can be achieved incrementally by moving gradually from the established base of expenditures; thus, if a small step taken improves things, keep going, Precedence, predictability, and incremental improvements are guiding features of CAM.

Under CAM, however, the receiving units spend what they receive, with little awareness of, or even interest in, how much revenue their unit actually generates. Some units spend more than the revenue they generate while others spend less; this dynamic supports a vast array of internal cross subsidies (cost sharing) to balance the budget. The determination of which areas are subsidized is often a mystery; accountability appears to be enforced for those areas not "in favor," while others can exist with substantial subsidy. The resulting pattern of subsidies is defended as consistent with mission statements. Commonly used statements like "we value the creation and dissemination of research" are so broad with no explicit priorities added that they can justify an ever-expanding scope. In effect, there is an implicit, non-transparent internal tax and subsidy scheme associated with CAM allocations that few understand or question until funding sources change dramatically.

Advantages of CAM include its simplicity and predictability. If the appropriation is expected to decline by a given percent, it is relatively straightforward for each unit to compute its subsequent budget reduction. A stylized approximation might quite reasonably presume that each program in the university is linked to the general fund by fixed-proportion weights that sum to unity. These weights are historically anchored, culturally internalized, and not expected to change. An annual estimate of new revenue is multiplied by the weights to determine individual unit budget allocations. This fixed-proportions approximation turns out to be a fairly accurate predictor of subsequent budget allocations.

To illustrate the actual, rather limited effects, of incremental budgeting, Table 1 presents fixed weights for each University of Iowa college, constructed using budget allocations in 2008. Using the 2008 weights and the 2013 total allocation of $315.8 million, the table presents predicted and actual allocations for 2013. Generally, the deviations of predicted from actual values over this period are modest; and they cannot be explained by changes in enrollment. For Business and Nursing, which stand out, tuition supplements account for most of the reported budget increases.

Table 1

A Fixed-Weight Allocation of University of Iowa General Fund Revenue, 2008-2013

College	Relative Shares 2008	Actual Allocation 2013	Predicted Allocation 2013	Percentage Prediction Error 2008-13	Percentage Change in Enrollment 2008-13
CLAS	.376	$114,737,249	$118,819,511	3.6%	-1.0%
Business	.071	$24,538,384	$22,451,562	-8.5%	26.8%
Dentistry	.072	$24,538,384	$22,776,062	-3.3%	5.3%
Education	.052	$15,255,950	$16,269,536	6.6%	3.8%
Engineering	.058	$17,879,495	$18,221,040	1.9%	29.3%
Law	.051	$18,350,391	$15,999,848	-12.8%	-20.3
Medicine	.200	$62,600,165	$62,940,911	.5%	3.1
Nursing	.031	$9,073,764	$9,686,431	6.7%	-34.3
Pharmacy	.028	$8,754,117	$8,794,613	.5%	1.4
Public Health	.032	$11,548,836	$10,344,354	-10.4%	0
Graduate College	.030	$9,545,390	$9,543,974	0.1%	.3
Total	$303,670,313	$315,847,842	$315,847,842	-1.4%	2.9

An often-expressed advantage of CAM is its ability to fund "public goods" whose benefits are difficult to internalize to individuals. The Carnegie Foundation (1973) identifies general instruction in the first two years of core liberal arts programs as having many public-good benefits: society benefits to a greater extent than any individual student when a higher percent of the population has a core undergraduate education. Basic research provides a good example of a public good; Bloom, et.al (2013) suggest that the social benefits of basic research are roughly twice the private benefits that accrue to the individual researcher. One problem with public goods is the "free rider" issue, where benefits accrue to everyone, but no one wants to pay. Expenditures on shared activities including libraries, general university promotion, IT backbone network, student services, lobbying, and legal activities are examples. Because shared benefits and costs of these activities are not easily allocated to units, they provide justification for centralized budgeting and CAM.

Those who believe that higher education provides primarily public goods favor CAM. The appeal is that a "benevolent dictator," often the provost, will make allocation decisions involving public goods more effectively than will a decentralized system. In defense of enlightened "provost–allocations," Cantor and Courant (1997), at the University of Michigan, argue:

> *"We do, at the end of the day, live in a world rich in the exceptional activities it supports; not a world altogether described by market principles, in which the marketplace would determine which activities were rewarded and which were not. We want to reward those who can garner revenues for their commitments, and yet simultaneously have some room to embrace those whose commitments make all of us, not only those who can generate revenues, better as a University."*

This statement, which recognizes the existence of public-good benefits, will garner applause on university campuses. When there are shared benefits, administration of resources can play a key role in developing equitable outcomes. But what forces restrains the natural instincts of provosts and presidents to "do good things," or worse, "to do good things badly," especially when their decisions are unaccompanied by willingness to pay and opportunity cost evaluations? We believe that recognizing the willingness by *someone* to pay, net of opportunity cost, is a desirable disciplining force, and a reasonable starting point to any discussion about the benefits of "exceptional activities."

What Can Go Wrong with CAM?

Cultural Resistance to Change

Conceptually, CAM provides a structure that can facilitate transformational change. If the challenge is to move the organization "from here to there" to enable a dramatic change in the direction of the university, a top-down CAM, arguably, allows an innovative central administration the potential to enact global initiatives that enhance the university's overall distinction and value-creation activities.[3] Thus, if major changes are needed, centralized decision making is a necessary condition. For example, it's possible to move an institution from CAM to RCM budgeting, but the reverse move is much less likely. Enforcing quality standards across colleges is a central responsibility. Similarly, CAM allows for making big mistakes that threaten institutional survival, especially if the selected project or activity is not financially sustainable.

[3] Roberts (2004) elegantly illustrates that standard convexity assumptions, with accompanying decentralized marginal analysis, break down when there are non-convexity issues, like the presence of shared fixed costs. Such issues affect important features of higher education. In an RCM environment, allocating decentralized financial responsibility for covering shared fixed costs is a significant issue.

If selected initiatives affect relative rather than global outcomes, there is difficulty in achieving consensus in the shared-governance environment. It is impossible to govern a university without faculty support. However, an environment centered on faculty governance, tenure, and independence of action, while laudable for academic reasons, delivers up a formidable and entrenched aversion to top-down resource allocation decisions that will enhance some programs at the expense of others. Discipline-based faculty tend to be conservatively disposed against any change that threatens their departmental focus. This is a main reason why bottom-up strategic plans that threaten relative interests are neither strategic nor operational; the relative changes required simply cannot be adjudicated.

The paradox is that CAM accommodates the scope for exerting major change, but the embedded culture of higher education offers formidable resistance. When there is upheaval in the environment, an inertia-base CAM comes under strain. Changing circumstances include shifts in funding sources; changing student tastes; declining public research and instructional funding; and increasing legislative and governing-board mandates. These types of changes will necessarily receive immediate attention responses in a decentralized RCM structure. Rather than enacting focused responses, CAM budgeting can become a source of sluggish adjustment, as it affects either incremental adjustments or across-the-board cuts. New challenges have to be recognized, and alternatives have to be presented— one model may need replacement by another—these are the advantages of decentralized decision making. Under CAM, issues can arise about whether central administrators recognize that a strategic problem exists. Once an alternative is identified, it must gain support from a conservative, disciplined-based faculty, requiring execution in a resistive environment. It's easier to continue doing the same things,

making incremental adjustments to every unit budget, or to just move on and leave the problems to someone else.

Lack of Accountability and Influence Costs

One of the most recognized problems with CAM arises from the weak accountability of those who are responsible for generating revenues and creating costs. Lack of accountability can lead to a number of problems: 1) costly influencing and repetitive lobbying activities, especially by those in highly cross-subsidized units (Roberts, 2004) and (Johnson and Turner, 2009); 2) little incentive to be accurate when projecting enrollments, revenues and costs for new initiatives; and 3) opaqueness that discourages innovation, specifically if the property rights associated with entrepreneurial activity are not clearly assigned.

CAM has the potential to create layers of administrators, whose primary function is to redistribute incremental amounts from units that create revenue to units that don't. Provosts, and their accumulated staff, spend considerable time interacting with deans and program directors, who spend time influencing the budget distributions to their favor. The associated "influence costs" of these activities absorb significant resources by engaging in activities that destroy value; thus, organizational slack (Leibenstein, 1969) is accommodated by CAM. In this context, there is concern that an administrative class is emerging with professional managers replacing tenure-track faculty, both by increasing their own salaries and by expanding their numbers (Ginsberg, 2011). Instructional expenses are growing at a substantially lower rate than spending on other staff-intensive activities, like student services, and academic and institutional support (Ehrenberg, 2012). Research indicates that, after controlling for enrollment and input prices, decreases in the tenure-track faculty to professional staffing ratio is an important explanation for cost increases (Martin and Hill, 2013). As noted by Bain consultants (Denneen and Dretler,

2012): “Boards of trustees and presidents need to put their collective foot down on the growth of support and administrative costs. Those costs have grown faster than the cost of instruction across most campuses. In no other industry would overhead costs be allowed to grow at this rate—executives would lose their jobs.”

Problematic Internal Cross Subsidies

The way programs are financed and their accompanying pattern of expenditures matters. High-cost programs (medicine, dentistry, and law) typically receive cross subsidies from low-cost programs in business and liberal arts.[4] It is unclear whether these cross-subsidies sustain efficient high-cost programs, or, whether high-cost programs develop because they are subsidized. Put another way: Are medical and dental educations highly subsidized because they cost so much to deliver, or does it cost so much to deliver them because they are highly subsidized? Causation is the key to understanding this issue, yet it is seldom investigated. There is great diversity across programs in their delivery costs and ability to attract students. Challenged areas will lobby to maintain historical allocations, while growing programs press for additional revenue. Conflicts of interest and a contentious “we-versus-them” mentality can become a serious issue. Subsidizing low-demand areas with revenues received from high-demand programs will undermine incentives to improve in both the subsidized and taxed programs. This pattern is especially threatening to the growing, revenue-producing areas that are

[4] Average list tuition in 2019 for the top private US medical schools ranked in the top 50 by US News, is $57,079, while the average list resident tuition for public US medical ranked in the top 50 is $36,214 (US News, 2019). Since these programs (presumably) have comparable costs, list tuitions indicate an average tuition discount to resident medical students of about $20,000 per enrollment. This observation is supported by the fact that average list tuition for nonresidents in the ranked public medical schools is $56,622. The implied internal subsidy is roughly double the average state appropriation per total resident enrollment, and it requires significant cross subsidy from other programs.

taxed excessively. Over time, subsidization of lower quality-higher-cost areas at the expense of higher-quality-lower-cost areas undermines the overall quality of the university.

Challenges to New Program Development

A problem arises when new programs are established, especially if there is insufficient analysis of enrollment patterns, priorities, and resource needs. Programs are proposed with a pledge that additional resources will not be required, but it is almost always the case that additional funding is needed. The initiator of the program has often left the scene when the underfunding issue becomes apparent.[5] Generally, there is too little concern for ongoing operating costs for new buildings, or for the financial implications of a host of costly activities like the granting of broad-scope tenure and the lack of mandatory retirement policies. In capital budgeting, future tuition revenue is pledged as the guarantor of debt service, but seldom is it specified just whose tuition revenue is being pledged. A realistic and impartial formal preliminary accounting of benefits and costs can ensure that those required to provide an ongoing subsidy have a chance to express their willingness, and sustained ability, to do so. Granting a subsidy should be a transparent strategic decision that follows the normal governance process. When there is no assigned accountability, grandiose projects predicated on hubris can arise. Assigning financial responsibility under decentralized budgeting can ensure better alignment of incentives and direct accountability, and it can help to avoid expenditure overages that are accommodated by an opaque CAM budgeting process.

[5] When revenues for new programs exceed expenditures, there should be an agreed-upon understanding regarding the disposition of net revenues— how much is retained and how much is reverted? A self-imposed *non-reversion of gains* can lead to wasteful spending initiatives at the unit level. For example, unspent general education funds at the college level are often required to be reverted to a central account; consequently, they are spent.

CAM's lack of transparency can discourage innovation if the property rights associated with entrepreneurial activity are not clearly assigned. Developing new programs that generate additional enrollment can provide a return to the unit, but often CAM budgeting makes no accommodation for this activity. Ad hoc arrangements made concerning the returns of revenue to the unit are not credible: administrations change, external factors develop, and demand falls. Financial transparency and dedicated allocation rules that align incentives can better accommodate these issues.

Lack of Benefit-Cost Alignment

The distortions associated with CAM are not limited to the distribution of explicit tuition revenues. The state appropriation is a direct transfer of value from taxpayers that replaces lower tuition mandated for resident students; but it is often described as an "unrestricted donation" to the university. This is a misleading characterization. The appropriation is better viewed as a component of resident tuition revenue that depends on attendant patterns of enrollments. Specifically, students will select their desired programs, and to cover costs resources will need to accompany those flows. This implies that the state appropriation cannot be allocated centrally on a discretionary basis that ignores revealed enrollment patterns, yet it often is.

When the marginal benefits to consumers (students or patients at an academic medical center) are not aligned with marginal costs, profit-making opportunities develop for others. Opportunistic competitors attract paying customers by charging lower prices and making specific accommodations to narrowly targeted populations. Proprietary universities do not support basic research, and community hospitals and other health care providers do not subsidize either medical education or medical research. Indeed, the biggest gains in enrollments and market shares in recent years have been those achieved by low-overhead, two-year community colleges

and not-for-profit providers. These low-cost, focused providers are not involved in sustaining a vast array of high-cost academic programs that either cannot, or will not, set prices to cover costs. Web-based instruction (MOOCs) can threaten all programs, and proposals in California, and elsewhere, to require its public universities to accept credit for on-line courses are popular (Gardner and Lee, 2013).

Losing tuition revenue from low-cost- high-enrollment courses adversely affects the mission of research-intensive public universities. These core courses provide the cross-subsidy support that enable research and low-enrollment specialty courses, which are particularly vulnerable to competitors. Who really can say whether a basic financial accounting course offered by a low-paid, experienced adjunct at a community college, at one-third the tuition charged by a major research university, is inherently inferior? For the community college, as long as there is an elastic supply of willing adjuncts, offering additional courses depends on whether incremental tuition revenue covers incremental cost. CAM, as commonly implemented, lacks this basic discipline.[6] If a department in a research university does not capture the revenue it creates, there is no incentive to align revenues with costs.

A threatening trend is legislative encouragement of two-year community colleges to provide low-cost access to a growing menu of basic core courses. These offerings, which sometimes encroach on higher-level courses, encourage less-costly matriculation agreements to four-year research-intensive universities. This arrangement, however, eliminates a major source of cross-subsidy revenue for diversified research universities. Paradoxically, competitive threats

[6] At the UI, a provost suggested the low-cost leasing of facilities to a local community college so they could hire willing UI graduate student to teach basic accounting courses, primarily to UI students. Students happily arbitraged across both tuition and entry standards. Continuing education programs, which are not burdened with excessive overhead, have learned to exploit these situations, by offering "comparable" courses at lower rates.

to basic courses often garner little concern from research faculty, who prefer to offer small enrollment, discipline-based specialty courses. From the perspective of many faculty, there is a conceptual separation of revenue and cost considerations. Thus, exploiting unattended niche markets becomes a strategy of ambitious competitors. As taxpayer support declines, continuation of extensive cross subsidies will open more of these opportunities to competitors.

Financing of public goods requires a different decision structure than that used for private goods; see Bowen (1977) for a listing of public goods in higher education. Generally, the benefits of pubic goods are non-exclusive: one individual's enjoyment of a public good does not detract from the enjoyment of others. For example, the reputation of a university (or its football team), has a public good element to it. The financing problem is obvious: If everyone can enjoy the benefits without excluding anyone, no one is motivated to pay. Thus, public goods decisions are commonly made centrally; choices affected by the political system, rather than by the decentralized market. One can argue that this public-private distinction is reflected (revealed) by the sources of revenue. Almost all revenue for primary education is politically determined, but this is not the case for higher education. Revenue for major public research universities currently derives from four sources: private tuition, taxpayer appropriations, federal grants and subsidies, and auxiliary (enterprise) revenues. According to the Delta Cost Project **(**2016), between 2003 and 2013, the contribution from net tuition rose significantly as government support declined, revealing an increasing "privatization" of higher education revenues.

Resource-Centered Management (RCM)

"Who is knowledgeable in such virtue, that of human being and citizen? For I suppose you have considered it, since you possess sons. Is there someone," I said, "or not?" "Quite so," he said. "Who," I said, "and where is he from, and for how much does he teach?" "Evenus," he said, "Socrates, from Paros: five minae."

Plato's Apology of Socrates

What role should price, and markets, play in allocating resources in public higher education? The alternative to CAM is a decentralized, market-like system, where prices, rather than centralized authority, determine the allocations of revenues. Resource-Centered Management (RCM) systems attempt to incorporate the desirable elements of private markets, while recognizing that the approach does not always fit tightly with the complexities of higher education. In market-based allocations, attention is paid to both willingness to pay for products and to their opportunity costs. Value increases when willingness to pay rises above opportunity costs.[7] There are significant rewards for success in market-driven enterprises, but the effects of failure be brutal. An obvious example of both success and failure is not-for-profit higher education, where tuition revenue is the primary form of payment (for most private colleges,

[7] Economics defines value as the difference between willingness to pay and opportunity cost; see Roberts (2004) and Fethke and Policano (2012). Efficiency in pricing occurs when the price of a product equals its marginal cost. Price reflects consumers' marginal willingness to pay, and marginal cost reflects the additional spending on the resources required to supply that service. An efficient tuition is one that approximates the marginal cost of education. Alternatively, what is the marginal cost of a hip operation at an academic medical center? It seems reasonable to expect patients, or someone, to be willing to pay at least the marginal cost of an exclusive service that benefits the recipient, but why should they also pay to cover overhead expenditures (medical education and research costs) that have nothing to do with the cost of their operation? If there is competition in the market for hip replacements, they won't pay if competition drives prices to the average cost of the low-cost provider. Economic efficiency is both rewarding to the successful and brutal to those who fail.

endowment income is a negligible contributor). In general, private colleges are acutely aware of student willingness to pay.

One motivating factor to adopt RCM is to incentivize innovations in existing programs and to develop new programs that generate additional revenue. There are good reasons, even apart from fairness issues, why some features of CAM are still needed. The key is to find the right balance. Many public universities are moving toward adoption of modified RCM systems, primarily because of the growing dominance of tuition revenue in meeting university budgets.

The Enterprise Model as an Example to Emulate

A promising starting point for developing a budgeting approach is to emulate aspects of units within public universities that determine prices, pay all costs, and are taxed to cover a portion of university's public-good benefits. These so-called "enterprises" include university hospitals and clinics; dormitory and food services; a few athletic programs; self-financing degree programs, including some professional graduate programs, distance education; executive programs; and a small number of research centers and technology-transfer programs.

The seeking of peer-reviewed, federally funded research support is a highly competitive, entrepreneurial activity. In universities with academic health centers, like University of Michigan (UM) and University of Iowa (UI), enterprise revenue is much larger than the revenue of the academic core. For enterprises, RCM budgeting systems are the sine qua non of their existence, and it is likewise possible to make some academic units self-supporting. According to a 2017 Inside Higher Education Survey of College Business Officers, 63 percent of the respondents indicated that they intended to launch new revenue-generating academic programs; and 58% indicated they will launch new revenue producing master's degree programs.

One example of a self-sufficient academic program is the re-development of an off-campus MBA program at the University of Iowa. The program had previously been offered in off-site locations and administered by a central continuing-education office, drawing its support from tuition revenue and university funding. Permission was granted to initiate and expand the program, under the condition that effort must be self-supported. In its resulting RCM manifestation, prices were set by program administrators (approved by regents), taking market conditions into consideration. All subsequent tuition revenue was retained, and all expenses were internalized to the program. Instructional quality was overseen by regular faculty who, along with specialist adjuncts, taught the program's courses. Critically, there was no state or central university subsidy. Program value was measured by whether the willingness to pay by students and their employers (who often paid the fees) exceeded the (opportunity cost) of providing the program. A subsequent review indicated development of a successful academic enterprise. When this assessment was developed there were no tuition discounts, all costs, both operating and capital costs (facilities rent) were internalized, and sufficient tuition revenue was reverted to the general fund of the university to cover the compensation of faculty. The RCM nature of the program encouraged decision-makers to respond quickly to changes in enrollment patterns as well as to directives from funding sources (mostly private firms and donors).[8] Frequent attempts by faculty, and self-interested students, to develop low-enrollment electives were usually not accommodated, since expressed willingness to pay for these courses did not cover incremental

[8] The philosophical attraction of supporting self-contained, successful enterprises to private donors cannot be understated. For the initial five years of the re-energized UI MBA program, a private donor contributed annually an amount equal to about 40 percent of tuition revenue. In 2019, enrollment in this self-supporting program exceeded 1,000 students; it is highly ranked nationally, and it contributes considerable, and reasonably predictable amount, to the support the business college.

costs; administrators understood that tuition increases were constrained by price-responsive students and their employers who would consider alternative education options. The RCM arrangement enhanced a focus on managing student enrollments, program costs, and competitive quality and thus met the stated attributes often expressed for a desirable budgeting process: decentralized decision making, financial autonomy, aligned responsibility, innovation, continued private support, and oversight of quality.

Against this example of a market-disciplined background for an enterprise, we can examine some of the features of implemented RCM frameworks. The guiding idea behind RCM is to decentralize decisions by bringing them closer to their origin. The RCM approach is not new, and tuition-driven arrangements have a tradition in higher education. As early as 1088 in Bologna, students organized and paid for their own education and selected among mostly secular topics, with law as the favored subject.[9] In this initial arrangement, the outcomes of higher education were basically viewed as being exclusive private goods and compensation was negotiated between students and professors.

Incentive Alignment Features of RCM

An RCM process encourages decision-makers to respond to changes in enrollment patterns, directives from research funding agencies, and the intentions of private support. As tuition rises and public subsidies decline, price-responsive students consider alternative education options. In an environment where students, rather than taxpayers, pay for higher

[9] Only later was centralized funding invented. In Paris (1160-1250), where Catholic theology was the main subject, faculty members were paid by the church. By 1284, the initial colleges of Oxford and Cambridge were supported by the crown and the state. In the U.S., taxpayer support of higher education is a Twentieth Century phenomenon, deriving largely from the need to fund public universities during the Great Depression.

education, RCM induces a focus on managing student enrollments, program costs, and competitive quality. This is the main reason why many high-quality private universities have long adopted RCM. It can also be argued that decentralizing decisions provides greater transparency financial flows and promotes innovation and entrepreneurship.

For RCM to be effective, each unit must manage its expenditures, adjust its tuitions, and determine the quality and program scope. These moves are guided by university-wide quality standards. Rewards accrue by attracting students, research support, and private donations, while improving operating efficiency. Success leads to growth, prosperity, and sustainable operations, while a lack of willingness to pay by someone prompts either greater effort or competitive failure.

Under RCM, formal rules assign tuition revenue, indirect cost recoveries, and, less frequently, the state appropriation to programs (typically to colleges) based on activities that can be attributed to each resource center. For example, tuition revenues might be allocated to each college according to some combined measure of generated student credit hours. University overhead (shared services) costs are reimbursed back through explicit taxes on imputed expenditures. One plausible market-like approach occurs where each college directly receives all the tuition revenue it generates; this receipt exhausts the total tuition and subsidy revenue of the university when properly measured to include the appropriation.[10] Importantly, this revenue reflects the willingness to pay of nonresidents, and the politically-determined willingness to pay of residents and taxpayers. Two adjustments are made to the college allotments. First, transfer

[10] A simple way to grasp this concept is to start with the proposition that nonresidents, who are not subsidized, are required, often by explicit state law, to pay the full cost of their education. If the university is to breakeven, resident tuition revenue plus the state appropriation must cover the overhead not covered by nonresidents. Effectively, in this stylized representation, resident tuition plus the appropriation per resident equals nonresident tuition.

prices are paid by every academic unit to shared-service units. Second, a surcharge is negotiated to be paid by units whose revenue exceeds their costs to those units whose costs exceed their revenue. There are also many examples of hybrid CAM and RCM models where discretionary funds are retained for university-wide innovations and to provide "emergency" funding.

Surcharges and associated subsidies will not disappear in higher education. Some programs can generate excess revenue and some programs cannot. Taxes are imposed on some units and subsidies are awarded for others. For example, an appropriate tax might be imposed on profitable business colleges, or, football programs can be taxed on its total revenue that will partially cover the costs of non-revenue programs. More generally, surcharges collected centrally are applied to cover the cost of subsidized programs, as determined by strategic vision and shared fixed cost considerations. When subsidies are granted, there should be agreement that these areas add societal value that should be supported. If taxed business education or football programs come under pressure, others will appropriately feel the bite. Under this approach, the taxed units are incentivized to pay attention to both their enrollments and to the structure of their tuitions or prices. Subsidized units might even come to better appreciate the source of their subsidy, and, perhaps, to make the best possible case for their continuation. Improved facilities for business student and football players that bring in net revenue cannot be so easily criticized, when it is publicly recognized that these facilities and associated activities generate funds that subsidize the expenses of others.

Shared-service activities require a supporting flow of revenue. However, the internal charges paid for shared service should approximate market prices. More precisely, efficient internal transfer prices should reflect the marginal, rather than average, cost of providing the service. If there are reasonably competitive markets for some of these products, the private

market is a good place to benchmark internal transfer prices, and internal users should be given the opportunity to purchase from external providers. If shared-service units cannot sustain themselves when they receive no more than market-based transfer prices, it raises questions about their viability. The use of cost comparisons to judge efficiency applies equally to instruction costs. The claim made by universities that there are cost efficiencies associated with doing everything themselves should, if credible, lead to internal transfer prices that are lower than external market prices for equivalent services.

Implementation of RCM

A goal of RCM budgeting is to provide incentives to receiving units that attract and retain students, without distorting decisions regarding relative emphasis on majors versus credit hours. Similarly, steps taken by a unit to improve operating efficiency should be rewarded if the cost savings accrues to the initiating program. Thus, the RCM allocation should award legitimate enrollments and cost reductions in a way that enhances. This provides a challenge under formulaic implementations. Actual RCM allocations are usually determined through an agreed upon formulas where the allocation to each unit depends on net revenue, a relative cost of delivery, and a weighted average of credit hours. A generic formula that determines the budget allocation of credit hours to each center, $B_{ij,}$ is:

$B_{ij} = (1-r)R\omega_i[\lambda ECH_j + (1-\lambda)TCH_j]$, with i, j = 1, 2…, n.

Here, R is total revenue assigned to the RCM; r is the percent of funds that is set aside centrally for institutional grants; $0 < \omega_j < 1$ is the relative weight assigned to a unit's cost; ECH_i is the number of enrollment credit hours generated by the unit's majors; TCH_i is the number of teaching credit hours generated by non'-majors; and H is total SCH, with $\sum_1^n ECH_i +$

$\sum_{1}^{n} TCH_i = H$ and $\sum_{1}^{n} \omega_i = 1$. Summing this expression across all credit hours and resource centers satisfies the overall annual break-even budget, $B = (1-r)RH$. Each year, the total revenue that will be allocated via the RCM formula is determined, and the budget rule allocates that revenue to the colleges, given the weights assigned to majors and teaching credit hours and the college's cost. Some applications allocate tuition revenue without incorporating cost weights ($\omega_i = 1$ in the above formulation). Some retain the entire appropriation centrally to cover shared-service costs, while others tax the resource centers to cover shared expenses. A few applications allocate both tuition revenue and a portion of the appropriation, taking differential contributions into consideration.

In some RCM applications, the assigned weights become contentious points of discussion. At Iowa State University (ISU, 2012), there is no differential weighting of program costs ($\omega_i = 1$), and undergraduate tuition revenue net of financial aid (with r = .24) is distributed to the colleges with twenty five percent based on enrollment by majors ($\lambda = .25$) and seventy five percent based on teaching credit hours. The University of Michigan (UM, 2007) initially allocated all tuition revenue based on major ($\omega_i = 1$ and $\lambda = 1$).The weights were subsequently changed to equal weighting of enrollment by majors and other instructional credit hours ($\omega_i = 1$ and $\lambda = .5$). The University of Florida (UF, 2010), after retaining some revenue internally, allocates combined tuition and appropriation revenue, using a weighted cost of delivery, with seventy percent of the allocation based on teaching credit hours and thirty percent based on enrollment credit hours ($\omega_i \neq 1$ and $\lambda = .3$).

What Can Go Wrong with RCM?

Transfer Pricing Issues

RCM effectively replaces the central administration's budget allocations with decentralized administration, which is based largely on the creation of internal transfer prices. These prices indicate what a unit pays, say, for their having students "purchase" one SCH from another college. Ideally, these transfer prices (weights assigned to a units cost per SCH) should reflect the marginal cost of the acquired SCH. Too often, however, actual transfer prices reflect the average cost of a SCH, which includes overhead expenditures; this distorted price can lead to significant problems (Ehrenberg, 2014). If a course offered to a business student in liberal arts is priced at the average cost of a SCH in liberal arts, there develops a profitable incentive to offer the course "in house." Thus, courses in traditional liberal arts areas like elementary mathematics and elementary statistics may be captured by business colleges, only for their revenue-generating attributes. Similarly, engineering faculty eye basic physics courses, and liberal arts colleges seek to offer (business-like) courses in areas like "organizational management" and "leadership." This problem is connected to the improper design of transfer prices that does not reflect marginal costs, and to related issues around assignment of ownership rights. Under RCM, academic administrators must spend their time establishing/defending ownership rights and developing correct measures of performance and quality, rather than, as they often do in a CAM system, trying to influence budget allocations.

Tuition revenue allocated by the RCM is often not sufficient to cover variable costs, let alone total expenditures, which include variable costs, central overhead, and unfunded research expenditures. Many programs depend on taxpayer support and internal cross subsidy. To provide that support, some portion of the appropriation is often held-back centrally. Iowa State University and the University of Michigan, for example, rely on provost discretion to allocate the taxpayer appropriation to make up for these differences. The University of Florida employs a

weighted cost of delivery to assign budgets, which guarantees each college an allocation that covers its differentiated full cost (UF, 2010). In both cases, the allocation model represents a hybrid (mixture) combination of CAM and RCM that can raise the same transparency issues, renewed lobbying and inefficiencies as those confronted under CAM. Those units experiencing rising tuition revenue will argue against being "unfairly" taxed, and the units are dependent on the appropriation naturally resist cuts, usually by claiming that they are indispensable to the university's mission.

A major factor in adopting RCM is to provide incentives for academic units to not only lower costs but also to increase tuition revenue. Ozan, Kramer, & Bradley (2018) analyze the effect of RCM adoption on tuition revenue at four public research universities, who adopted RCM during 2008 to 2010. Their results show a positive relationship between RCM and tuition revenue at three of the four institutions (Iowa State University, Kent State University, and the University of Cincinnati) and no relationship at the fourth (University of Florida). While these results tend to support adoption of RCM, too much focus on revenue generation can be harmful. Simply acquiring tuition revenue may lead to a reduction in quality ("a race to the bottom"). Thus, a quality-unrestricted mandate to develop new programs and increase enrollment can lead to diminished focus on quality or centrality of a university's mission. Admitting lower quality students by pursuing, for example, an open-enrollment policy can affect the brand and positioning of the university.[11] If top students choose to go elsewhere because quality falls,

[11] When state support declines and limitations are placed on resident tuition increases, the remaining options are to lower admission standards and/or to cut expenditures. The current trend to eliminate the taking of ACT and SAT as a requirement of admission appears to be one step of promoting multiple objectives, not simply revenue enhancement, by lowering of entry standards and thus quality (Newsweek, 2019).

revenue for the university falls and the "golden goose" is killed – or, at the very least, is wounded.

Enrollment mix can be improperly accounted for in budget allocations. For example, if internal prices reflect the average costs to a college of undergraduates and graduates, with a graduate SCH costing significantly more, there is a built-in incentive to substitute away from undergraduate enrollments. For example, the cost weight assigned to a graduate SCH in business (20.70) at the University of Florida is nearly twenty times larger than that assigned to a lower-division SCH (.97); see University of Florida (2010). With these differences in costs, the incentive can emerge to replace undergraduate enrollments and increase graduate enrollments; it is necessary to add 21 undergraduate SCHs to capture the RCM-assigned revenue the business college receives from one graduate SCH. The tuition charged graduate students, which is now about 2.7 larger than undergraduate tuition, would need to be about 20 times greater for there to be overall financial indifference for the university. One way to address this issue is to assign each college the tuition revenue and associated appropriation it generates, and then to charge taxes to recover its share of fixed expenditures. Several business school deans argue that such an allocation will allow them to forgo drawing on upon the state appropriation, permitting those funds to be used elsewhere. Interestingly, such proposals have been rejected by the university community as exhibiting excessive privatization of higher education (Gordon, 2012).

Holding Some Units Harmless

Adoption of RCM threatens programs that face high costs and modest revenue generating capacity. To placate these units, initialization of RCM often starts with the weighting of the previous cross-subsidized CAM allocation. To obtain buy in, the administration uses phrases such as "holding units harmless" and "making units whole." How is this done? Often, the

initializing year's allocation is divided by full-time equivalent enrollment to arrive at a "cost per FTE." Then subsequent enrollments are weighted by these "per enrollment costs" to arrive at subsequent RCM allocations. This initial RCM adoption replicates the previous subsidy-distorted CAM structure. In effect, the participation of subsidized programs is achieved by building into the nascent RCM the subsidized expenditures that prevailed under the previous CAM allocation. Some argue that the intent of the initialization of the cost weights is in fact an attempt to permanently maintain the historical framework.

The often adopted "holding units harmless" initialization fails to recognize that program expenditures will evolve depending on the way a program is financed. Those programs dependent on subsidies regard them as embedded rights. As noted, heavily subsidized units develop teaching and research programs in a different way than do unsubsidized enterprises. Such programs may not efficiently provide either high-quality instruction or research; in some cases, their offering simply reflect subsidy-supported organizational slack.

Mismatched Skills

A transformation from CAM to RCM requires a different administrative mindset, and, presumably, also a different kind of administrator. We readily recognize that it's impossible to ask a tenured faculty member in French to teach physics; there is a credible mismatch in skills. Basically, the costs of faculty whose skills are not in demand are sunk costs, that is, they are fixed costs with no alternative use. Likewise, there are administrators comfortable in a CAM environment who will not thrive under RCM. It's conceivable that incremental CAM budgeting attracts a certain personality type, just as being entrepreneurial and self-directed attracts a certain type. Why indeed become a provost in an RCM environment if resource allocation decisions are decentralized? It's quite possible that some administrators cannot move from inherent financial

dependency of CAM to self-directed RCM; there are many good bureaucrats who cannot think outside of the box. Adoption of RCM may require introducing different hiring and promoting profiles.[12]

Comparative Features of CAM and RCM

Universities have multiple, often competing objectives—equity versus efficiency is a primary example. It is important to properly position an incentive-based RCM system into the context of a university's selected positioning strategy, and into its accompanying enrollment management decisions. While it is laudable to emphasize "shared values" that include high quality undergraduate education and the diversity of its applicant pool in terms of economic and racial/ethnic diversity, there must be revenues coming from some source (tuition, appropriations, and endowments) to support these initiatives. It is difficult to dictate rules to a revenue-losing enrollment management scheme. For example, small liberal arts private colleges and public universities, with limited endowments and dependent on tuition revenue and state support, struggle as they seek to develop courses attractive to fee paying students. Absent sustainable sources of funding, top-down enrollment management decisions are simply pipe dreams. CAM's tradition is to support enrollment management decisions using internally directed cross subsidies, effectively taxing revenue-producing units and subsidizing others. As we have noted, this approach becomes problematic as mobile students, who pay taxes in the form of higher tuitions, are unlikely to accept the consequences— they will go elsewhere. RCM recognizes that

[12] It's not uncommon for business and engineering programs to recruit deans from private industry, with the intent of infusing an externally focused agenda that is more comfortable with market-based decision making. It's our view that these efforts are of mixed success, usually because of an inability to understand a basic research culture. Similarly, non-traditional presidents are hired to address the realities of changing public funding, often with considerable controversy accompanying the appointments.

enrollment management cannot be affected independently of willingness to pay and opportunity cost criteria; this inevitably means that un-funded shared value objectives are going to be more difficult to support under RCM. Simply put, a move to a more efficient allocation of resources that emphasizes willingness to pay and opportunity cost will challenge "fair" allocations of resources. Some programs "that a major university just cannot do without" will lack viability in an intensely competitive-market environment.

We argue in this paper that an effective budgetary framework has the following desirable characteristics: 1) transparency; 2) ease of implementation; 3) predictability; 4) environmental responsiveness; 5) alignment of incentives; 6) minimal influence costs; 7) economic efficiency; 8) equity; 9) internalized private benefits and costs; 10) internalized public benefits and costs, and 11) increasing revenue/reducing costs. Our assessment of the two budgeting approaches on each of these dimensions is provided in Table 2. CAM is preferred for its initial implementation, predictability, perceived fairness, and dealing with public benefits and costs. RCM has advantages for its transparency; ability to respond to changes in the environment; incentive alignment; reducing influence costs; encouraging economic efficiency, internalizing private benefits; and increasing revenue/reducing costs.

Table 2

Comparative Assessment of CAM versus RCM

Budgeting Approach	CAM	RCM
Transparency		X
Initial Implementation	X	
Predictability	X	
Environmental Responsivness		X
Incentive Compatible		X
Minimal Influencing Costs		X
Efficiency		X
Equity	X	
Internalizing Private Benefits		X
Internalizing Public Benefits	X	
Increase revenue/Decrease Cost		X

Summary and Conclusion

The choice between the polar versions of centralized management (CAM) and decentralized pricing (RCM) involves consideration of a fundamental issue: Does "enlightened" centralized decision making by senior academic administrators do a better job of allocating a university's scarce resources than does decentralized decisions guided by market-like pricing mechanisms? Beyond the traditional issue of complexity, the question is firmly connected to "the big tradeoff" conflict between equality and efficiency (Okun, 1975). In this context, does CAM treat people on a more equal basis than RCM, while RCM is inherently more efficient? Our view follows Okun's theme regarding equity versus efficiency: market pricing and RCM have an important and even inevitable place within modern public universities, but market pricing also needs to be kept in its place, by using appropriate centralized oversight and a guiding mission.

Public higher education is influenced by both temporary and permanent changes in enrollment patterns and funding sources. Under CAM, responses to short-term fluctuations are buffered centrally, while long-term changes in funding sources are, if anything, only gradually confronted. CAM budgeting is primarily about maintaining the status quo, often by supporting a

program scope that requires perpetual cross subsidy. RCM appears to better address the permanent shift to a model where funding is becoming more reliant on revenues paid by students and taxpayers who face expanding alternatives (students are less restricted geographically and taxpayers must confront mandates). The intent of RCM is to instill into academic units a sense of competition, innovation and self-reliance. Programs that attract new revenues and reduce expenditures are encouraged, while programs that fail to attract revenues and to consider opportunity costs need to be prompted to improve, be downsized, or even be eliminated.

Critics of RCM argue that a revenue-driven university will result in the demise of certain academic areas—often, the humanities and arts feel threatened. But the RCM adjustment process does *not* imply that all decisions are left to market criteria, or to the guiding metric of profitability. Areas that provide valued external benefits require support, but the rationale for continued existence should not be based on an opaque, historically anchored entitlement. Embedded entitlements lead to complacency, and they support inefficient delivery systems. Areas that are deemed critical, but are not financially self-reliant, can be made more cost efficient and still be subsidized. RCM recognizes that the underlying pattern of internal subsidy and public-good benefits be transparent; otherwise costly influencing and lobbying activities will continue unabated. Targeted subsidies need to reflect choices that are associated with the long-term university vision, and they also identify sources of financial sustainability, based on the expressed willingness to pay by *someone.* Students, donors, funding agencies or other areas of the campus must express their perception of the value of the area by their willingness to fund its activities.

Including revenue and cost decisions when implementing an RCM can improve both the efficiency and the equity of the budgeting process (Fethke, 2014). Adding flexibility to the

structure of tuition can increase access, even reduce the average tuition level, and increase the combined welfare of all students and taxpayers. Change can occur while meeting the demands of the governing board for increased access, basically by reducing average tuition (Fethke, 2014).

The transformation process to a distinctive vision accompanied by a new budgetary framework and tuition structure flexibility will be politically difficult and emotionally charged, especially for programs and faculties that are least efficient, lack demand for their products, and are not externally focused. Still, with permanent reductions in state support there is only one feasible way forward – to become more like distinguished private universities, with increased dependence on tuition revenue and enhanced decentralized accountability. Indeed, public universities may be facing a Hobson's choice regarding privatization— "take it or leave it." Major public research universities have been in transition for some time. At University of California, since 1991, state funding per FTE has fallen by over 60 percent, while tuition revenue per student has risen by 57 percent. Several UC System universities, including UC Davis and UCLA, are in the process of implementing decentralized budgeting models. With tuition-set-aside programs and other financial packages, a growing number of public universities, including those in the UC System, the State University of New York, University of Michigan, and University of Texas have adopted programs that guarantee free tuition for admissible students whose family's income is below a specified level. Private universities have shown that both access and quality can be enhanced with market-focused higher tuition-higher aid approaches, especially when supported by significant private donations.

The success of public universities relies on their ability to adapt to a changing funding environment. Priorities need to be set, initiatives need to have identifiable funding sources, and the budgetary framework needs to support the strategy. Universities that respond will be those

that adopt a distinctive vision, enhanced activity-based budgetary frameworks and flexible tuition structure, one that appropriately values both private and public willingness to pay for higher education. Those who choose to live in the past, waiting for a return of public support will suffer a decrease in quality, a loss in enrollment and eventual financial distress.

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