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August 2, 2011

**MARK YUDOF, PRESIDENT
LAWRENCE PITTS, PROVOST AND EVP
NATHAN BROSTROM, EVP, BUSINESS OPERATIONS
UNIVERSITY OF CALIFORNIA**

Re: Final report of the Academic Council's Implementation Task Force

Dear Mark, Larry and Nathan:

On July 14, 2011, I sent to you a draft report of the Academic Council's Implementation Task Force, along with a set of 20 recommendations derived from the report that were adopted by Council. I requested that you forward these documents to the Rebenching Task Force so that they could be included in the materials the Task Force is considering. During the past month, the Implementation Task Force refined its draft report, particularly the section on funding Ph.D. students, and submitted its final report to Council, along with three additional recommendations. At its meeting on July 27, 2011, Council unanimously adopted these additional recommendations as follows:

14. A model based on a "co-pay arrangement" should be developed to allocate additional state funding, via *secondary allocations*, for Ph.D. students on campuses with targets above the 10% ratio. (page 23) The state funding should be allocated, along with campus resources (e.g., revenues from non-resident tuition or other sources, donations, and income from endowments), to fund the difference between the "unblended average cost" of a Ph.D. student and the blended figure.

20. CCGA and UCPB should also consider whether recommendations 15 and 16 should apply to academic Master's students.

22. The Academic Council recommends that such decisions continue to be made at the local level.

The complete set of Council's recommendations is attached. I also enclose the final report, and a one-page Executive Summary. The final report serves as explanatory background to the recommendations. The Academic Council requests that you circulate the complete set of recommendations and the revised report to the Rebenching Task Force. The collective set of recommendations and the accompanying report lay out a sound and equitable framework for allocating state funds among the campuses and managing enrollment, while preserving and

promoting excellence at all UC campuses. Council advises that the rebenching process move forward as expeditiously as possible. Council's recommendations will provide useful guidance as the rebenching process proceeds.

Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Daniel L. Simmons". The signature is written in a cursive, flowing style.

Daniel L. Simmons, Chair
Academic Council

Copy: Debora Obley, AVP-Budget and Capital Resources
Michael Clune, Director, Budget and Capital Resources
Academic Council
Martha Winnacker, Academic Senate Executive Director

Encl. 2

IMPLEMENTATION TASK FORCE REPORT
Recommendations Adopted by the Academic Council and Respective Votes

General Principles

(Adopted Unanimously)

1. Rebenching is urgently needed as the second phase of UC's budget reforms, and should proceed as soon as possible. *(page 1)*
2. The fundamental objective in evaluating budget reform, enrollment plans, and other policies should be to preserve UC's excellence in research; the Academic Council explicitly puts quality before access and affordability, if necessary. *(page 1)*
3. State funding allocated to campuses based on undergraduate and graduate instruction must support the research enterprise, not just "podium time" for instruction. *(page 2)*
4. The state subsidy per student should not depend on the campus the student attends; this recommendation follows from our core value that UC is one university with one standard of excellence at its ten campuses. The cost of a UC-quality education is the same on every campus, and the campuses should be funded accordingly. *(page 2)*
5. It is essential that the University enroll the number of California residents that the state considers funded. *(page 9)*
6. The Academic Council favors reducing the incentive for campuses to over-enroll unfunded, resident undergraduates. For campuses that over-enroll resident undergraduates, there should be no state subsidy provided for students above targeted enrollments. *(page 17)*
7. The University should establish a transparent basis for allocating state funding that is also adjustable as campuses evolve; particularly, as campuses differ in the extent to which residents are replaced by non-residents. *(page 18)*

The Proposed Mechanism for Allocating State Funding for Undergraduate Enrollments

(Adopted 18 to 1)

8. The President and the state shall negotiate a UC budget and the undergraduate resident enrollment target (TE1). *(page 11)* The President allocates funding to
 - a. Earmarks, or "off the top" items
 - b. Undergraduate and graduate education
 - c. Medical school students' education
 - d. Other professional students' education
9. The President assigns resident undergraduate enrollment targets to the nine undergraduate

campuses—te1(1) through te1(9)—to sum to TE1.¹ (page 12)

10. The President determines a *funding ratio* $f = TE2/TE1$, where TE2 denotes the number of resident undergraduate students the University considers funded. (page 16)

AC = average cost of a UC-quality education, to be defined by Budget Office, in consultation with the Academic Senate. The Academic Council recommends using a “Blended Average Cost” spanning general-campus undergraduates and graduate students. The substantive point is to cover average cost, however defined, with the sum of net tuition and the state subsidy.

SS = Required State Subsidy (per student) = AC –tuition net of return to aid (t)

SS and AC are independent of any particular campus. It follows that $TE2 = \text{total state support for undergraduates}/SS$.

11. State funds are allocated to the campuses based on their actual enrollments, relative to targets. (page 16)

If the campuses all meet their targets, total funding is

$$SS*TE2 + t*TE1 + t*(\text{over-enrollment}) = SS*f*TE1 + t*TE1 + t*OE$$

A campus *i* that falls short of its target by *n* students receives

$$(SS-n)*te2(i) + t*(te1(i)-n).$$

12. Targets must be flexible. A campus seeking to reduce its target can do so if another campus is willing to increase its target. Targets also will evolve as the President’s negotiations lead to different outcomes for TE1. (page 18)

Recommendations for Ph.D. students

(Adopted Unanimously)

13. Targets for Ph.D. students should be established, with funding provided to every campus to allow a minimum ratio of Ph.D. students to funded resident students of 0.10. Targets above the 10% figure should be set, for campuses that can currently sustain enrollment of additional Ph.D. students, to allocate state funding on the same principle as for undergraduates: all (targeted) Ph.D. students should receive the same state subsidy. (page 21)²

14. A model based on a “co-pay arrangement” should be developed to allocate additional

¹ The framework does not depend critically on how these are assigned, but we propose using 2009-10 enrollment data. (page 12)

² If a blended AC is used, then Ph.D. students would receive a state subsidy sufficient that net tuition plus SS would equal blended AC. If an unblended AC is used—a separate AC reflecting the higher cost for educating a Ph.D. student—then the subsidy would adjust accordingly.

state funding, via *secondary allocations*, for Ph.D. students on campuses with targets above the 10% ratio. (*page 23*) The state funding should be allocated, along with campus resources (e.g., revenues from non-resident tuition or other sources, donations, and income from endowments), to fund the difference between the “unblended average cost” of a Ph.D. student and the blended figure.

Recommendations for Professional School Students

(Adopted Unanimously)

15. As with Ph.D. students, medical and other professional school students should be allocated state funding once a determination is made concerning the desired ratio of tuition (net of financial aid) to the program’s Average Cost (*page 25*). For the professional schools that are given funding autonomy, whereby which receive no state funds are allocated, it should not be required that they charge a premium for non-resident tuition. (*page 26*)

Other Recommendations Pertaining to Academic Graduate Students

(Adopted Unanimously)

16. The Academic Council recommends that the Academic Senate oppose charging non-resident tuition (NRT) for Ph.D. students (*page 20*). Until the practice of charging NRT for Ph.D. students ends, the Senate should oppose policies that require that NRT be paid by the funding source for employment of the Ph.D. student. (*page 19*) The Academic Council requests that the administration work with CCGA, UCORP, and UCPB to study these two policies and to model their effects. (*page 20*)
17. Until the practice of charging NRT for Ph.D. students ends, the required state subsidy for Ph.D. students shall be calculated as a weighted average of the separate figures required to cover Blended Average Cost for California resident Ph.D. students and non-resident Ph.D. students. (*page 23*)
18. Targets for Ph.D. students must be adjustable over time. (*page 23*) The Academic Council asks that CCGA and UCPB develop a framework for setting targets for graduate enrollments.
19. CCGA and UCPB shall take up the question of whether a separate process is needed for academic Master’s students or whether they can be pooled with undergraduates for funding purposes. The two committees shall report their recommendations to the Academic Council no later than the November meeting. (*page 18*)
20. CCGA and UCPB should also consider whether recommendations 15 and 16 should apply to academic Master’s students.

Recommendations Pertaining to Instructional Titles

(Adopted Unanimously)

21. In the context of the current financial exigencies, the Academic Council recommends maintaining, and expanding where appropriate, the University's use of lecturers (both Unit 18 and Lecturers With Security of Employment). *(page 27)*
22. The Academic Council recommends that such decisions continue to be made at the local level.
23. The Academic Council recommends against creating a new job title in the Academic Senate, with increased teaching expectations and reduced research expectations, analogous to the Clinical X title in the Medical Schools. *(page 27)*

The Implementation Report

July 2011

Submitted by the Implementation Task Force

Academic Council

University of California Academic Senate



Report of the Implementation Task Force

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Academic Council Implementation Task Force Executive Summary

The recommendations in this report address the state of California's disinvestment in the University of California system, a trend that threatens the University's character as a public research university, and that has driven numerous efforts to define a way forward that preserves the University's excellence—most notably the UC Commission on the Future and the Academic Council's Special Committee on a Plan for the University of California. The Implementation Task Force also makes its recommendations in the context of the fiscal impact of UCOP's "Funding Streams" and "Rebenching" budget reforms and proposals for reducing enrollments and the number of ladder-rank faculty, which required us to consider both the University's long-term funding environment and its funding model under Funding Streams/Rebenching. Hence, the report addresses the ongoing Rebenching project.

The Academic Council adopted twenty recommendations from this report in June, 2011, and three additional recommendations in July, 2011. These are summarized briefly below, followed by a complete list.

1. *General recommendations.* Budget Rebenching should proceed as soon as possible in a way that emphasizes a transparent funding model and ensures that the University enrolls as many *funded* resident undergraduates as state funding levels permit, while reducing the number of unfunded students. If necessary, the University should place quality above access and affordability in its budget process. The key to preserving the University's excellence is continued support for research, because research excellence provides the foundation for every aspect of UC's mission.
2. *Enrollment Funding.* For each type of student—California-resident undergraduates, graduate students, and students in the health sciences and other professional schools—the UC President's Office should establish systemwide and individual-campus enrollment targets and allocate state funds on a per student basis, up to targeted enrollments, so that every campus receives the same amount of state funding for each student of any type. Campuses that exceed targeted enrollments should not be penalized, but neither should they receive additional state funding. For Ph.D. programs, sufficient funding should be provided to ensure that every campus can maintain a ratio of at least one Ph.D. student for every targeted undergraduate student. A higher ratio would be preferred, but 1:10 represents a minimum ratio for graduate enrollments necessary to fulfill the research mission. The Task Force recommends that the Senate and administration investigate the feasibility of ending the practice of charging non-resident tuition for Ph.D. students.
3. *Ladder-Rank Faculty and Other Instructional Titles.* The University should not reduce its reliance on lecturers, particularly in the short run, to minimize the consequences of budget cuts for class sizes, course availability, and time-to-degree.

IMPLEMENTATION TASK FORCE REPORT
Summary of Recommendations Adopted by the Academic Council

General Principles

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Implementation Task Force Final Report

Part I

Introduction

The ongoing UC financial crisis has increased the urgent need to address longstanding problems in the allocation of the University's budget. These problems are separate from, but compounded by, the sustained reduction in state support for the University. This long-term erosion of state support has reached a critical level, as the state is on the verge of becoming a minority stakeholder, jeopardizing both the University's public character and its quality. But notwithstanding the level of state funding, the creation of a financial model and budget process that are simple, transparent, and designed to support UC's excellence is long overdue. The "Funding Streams" model recently adopted by the Regents is phase one of budgetary reform; "rebenching" the funding formulas for allocating state funds to the campuses will help complete the process.

The Academic Council formed the Implementation Task Force to propose a detailed plan for the University. Fundamental to our academic vision of UC quality is the interrelated nature of instruction and research, at both the undergraduate and graduate levels. *Preserving UC's commitment to research excellence is the only way to preserve its quality.*

The Task Force focused on three critical issues: enrollment, the relation between enrollment and budget, and the size and composition of the faculty. The Task Force recognized the need for clarity concerning the funding environment; hence, our recommendations include proposals for rebenching. It is a given that the preservation of access, affordability, and quality require more state funding. But until that funding is restored, UC must manage its reduced state support in a way that does the least harm. We support President Yudof's recent statements that quality is non-negotiable, and we agree that the failure to protect UC's research mission will harm the excellence of the University far more than any other measures to respond to our reduced budget. In evaluating the choices before us, we have sought to identify those that meet the University's budgetary challenges with minimal impact on quality. It must be emphasized, however, that our aim is to minimize impact; no one on the Task Force thinks that the current budget crisis will not harm the University.¹

Overview of the Implementation Task Force Recommendations

This report offers specific proposals for enrollment management, based on key assumptions about how state funds will be allocated through rebenching. Because enrollment relates directly to the cost of instruction and instructional needs, we also discuss the relation between enrollment

¹ For a sobering perspective on the effects of more than a decade's worth of disinvestment by the state, the series of reports from UCPB provide thorough documentation of the consequences. The "Futures" Report, the "Cuts" Report, and the "Choices" Report can all be found here: <http://www.universityofcalifornia.edu/senate/committees/ucpb/reports.html>.

and budget and the size and the composition of the faculty. We assume that following the Funding Streams and Rebenching reforms, UCOP will continue to take a portion of state funds “off the top” to fund central administration and specific research programs that have been identified as benefiting the system as a whole.² The main sections of the report address the allocation of the remaining portion of state funding to the University’s mission.

UC’s designated role as the state’s research university in the California Master Plan suggests that our teaching mission cannot be separated from our research, public service, and outreach missions. It follows that state funding must support instruction that is embedded within the University’s research mission. Thus, while we propose that state funding be allocated on a per student basis, it cannot simply pay for “podium time” for faculty delivering instruction.

The model for allocating state funding described in this report makes use of different target enrollments—for the UC system and for the individual campuses—for each population of students: undergraduates, graduate students in academic Ph.D. programs, and students in the medical schools and other professional schools. The fundamental principle behind this framework is that the per student allocation of state funds could differ between these populations but should not differ across campuses; in this framework, each UC student receives the same state subsidy as any other student in the same classification, regardless of campus. *These recommendations are rooted in the core value that UC is one university with one standard of excellence at its ten campuses, and the cost of a UC quality education is the same on every campus.*

We propose a timeline with distinctions between the short term, a period of limited budgetary adjustment options; the medium term, in which we contemplate greater flexibility available to the campuses despite a continued environment of budget austerity; and the long term, in which we imagine the University in a more favorable state-funding environment. We begin with a brief review of current budgetary reforms at the University. Next we discuss enrollment management in the context of rebenching, the relation between enrollment and the budget, and possible changes to the size and composition of the faculty in the emerging fiscal context of the University of California.

Review of Budgetary Reform: Funding Streams and Rebenching

The University is engaged in a two-stage process of budgetary reform. The first phase, dubbed “Funding Streams,” is being implemented now, effective July 1, 2011; it provides greater

² The details are still to be worked out, but we understand that under Funding Streams/Rebenching, the campuses will be free to fund their UCOP “assessment” with varying percentage contributions from different fund sources, but we understand that they will be instructed to provide some minimum amount from state funds. In our view, all systemwide activities funded through the assessment should pass a very strict test: does the system as a whole benefit from targeting funding in this manner, to a degree that justifies not simply passing on the funding to each campus? Funding sent to the campuses translates to additional ladder-rank faculty, potentially, and hence, additional research support and productivity. On the other hand, there will continue to be opportunities for systemwide research efforts that take advantage of expertise across multiple campuses but that are beyond the available scope of any one campus. The Task Force notes that any specific UCOP allocation or funding “carve-out” for a particular area of research and public service will require substantial justification before diverting funds from campus support, but some carve-outs will presumably continue to demonstrate their worth.

transparency in budgeting and clearer incentives to campuses regarding enrollment. Funding Streams allocates the *non-state* portions of the budget to campuses on the basic principle that revenues generated by a campus should remain on the campus. Funding Streams replaces the current system of cross-subsidies and historically determined, ad hoc formulas for redistributing nearly every revenue source. It is an easily understood correspondence between the generation of revenues and the budget that results.

The second phase of budget reform, “Rebenching” is intended to provide a rational allocation system for *state* funds. In the view of the Task Force, rebenching is not primarily a redistributive exercise; rather we see it as a way to ensure that every UC campus has adequate funding to provide a UC-quality education. Accordingly, we do not think that the outcome from rebenching should be simply to move every campus to the UC system’s current systemwide average level of per student funding. Instead, the goal should be to define the level of funding that maintains quality, and to indicate the revenues needed to achieve that level of quality.

There is widespread recognition of the need to enroll all *funded* California resident students and to reduce enrollment of *unfunded* students. We outline a funding model which ensures that UC enrolls the students for whom the state provides funding and which provides a framework for more transparent accounting of the funded student population. In addition, rebenching must address potential unintended consequences of the enrollment revenue incentives created by Funding Streams, to ensure that campus enrollment decisions are consistent with the University’s larger, systemwide needs and its obligations under the Master Plan.

We endorse the view of the Academic Council that the success of Funding Streams depends on the rapid implementation of rebenching. Without it, campuses will continue to face substantial uncertainty concerning their long-term funding prospects. Questions about the future size and shape of the University can be addressed only in conjunction with budget reform, to ensure both that funding is adequate to support the desired University configuration, and that the financial incentives lead campuses to make decisions consistent with that configuration. Configuration refers to the distribution of students across the campuses, the number of graduate students on each campus, and the level of quality on each campus, comprising choices about class size, student-faculty ratios, and the composition of the faculty. Each of these factors affecting quality is in turn affected by the funding for instruction.

In summary, this report addresses not only issues of size and shape in enrollment, but also rebenching, taking the Funding Streams reform as a given, initial condition. The report addresses the core issues of access, affordability, and quality in the financial context of the system as a whole and recommends a funding model that reflects the University’s core values. We believe the plan expressed here can help establish and implement the Senate’s views on the size and shape of the University, the new funding model, and UC’s ability to fulfill its Master Plan responsibilities. However, we are aware that a business plan is no substitute for adequate funding, no matter how well it reflects core values. Until state funding recovers, UC faces a diminished trajectory and reduced quality; the Task Force concludes that, until that recovery occurs, it is better to manage the reduction in quality so as to minimize the harm done by inadequate funding.

Part II

A Plan for Managing and Funding Systemwide Enrollment

For both practical and pedagogical reasons, systemwide enrollment planning must encompass both undergraduate and graduate education. Fostering a strong link between undergraduate and graduate education is vital to a research university. Strong graduate programs are fundamental to providing undergraduates with a quality education, because graduate students help provide undergraduates with access to research and instruction that is grounded in that research. It is in the training of the next generation of researchers that much new knowledge is produced. The research experience is shared in the interactions between graduate and undergraduate students—notably in the former group’s role as teaching assistants, but also in the many interactions between graduate and undergraduate students in non-classroom learning environments, such as research laboratories. *Investing in high quality graduate education therefore has large spillover benefits for undergraduate education, and vice-versa.*

All UC campuses have similar goals for graduate enrollments, as befits a research university. We assume that each general campus would like to enroll graduate students in proportions competitive with other top research universities; however, only some of the campuses can do so at present.³ Among the nine general campuses in the UC system, only Berkeley and UCLA have percentages of graduate and professional students that are commensurate with those of other *public* AAU campuses; no UC campus (other than UCSF) comes close to the percentage at the private AAU campuses.⁴ The UC campuses with larger graduate populations will want to sustain them, and those with emerging graduate programs will want to fulfill their aspirations and enroll more Ph.D. students in a strategic way, but neither goal is achievable unless it is supported by the funding model adopted for the system. Thus, our funding recommendations will be based on defining a measure of the funding required to educate an appropriate mix of undergraduate and Ph.D. students, in a research environment at a university of AAU stature.

The rest of this document pertains to providing a budget that is adequate to deliver the curriculum to every type of student at a level that maintains UC’s quality. We will assume that it is the cost of educating students, *broadly defined to encompass providing funding to preserve the quality that underlies that education*, which then will drive decisions about allocating state funding. The first calculation is to determine the actual cost per student; the Average Cost (AC). Then, after decisions about tuition and return to aid are made, the difference between average cost and net tuition must be funded with either state funds or other campus resources. Average cost thus plays a critical role in the framework described in this report. It is worth a digression here to bring clarity to various notions of this average cost of a student, and how they are to be applied.

³ The UC [Accountability Report](#) contains comparisons between UC campuses and other AAU campuses. UC’s percentage of graduate and professional school students is below the average in the category Other AAU Public institutions and (well below) Private AAU institutions.

⁴ *Accountability Report*, p. 62. Note that the data used in this report do not separate graduate and professional school students.

It is helpful to think hypothetically of separate budgetary allocations for graduate and undergraduate enrollments, respectively, along with corresponding measures of the average cost of a student of a given type. These cost measures are also likely to be only hypothetical, given the difficulty in separating all costs into graduate or undergraduate components. But with such measures in hand, at least three equivalent ways to express funding could be used.

1) Simply funding each activity separately would be represented by a funding formula that sums the various average cost figures, multiplied by student numbers (assuming here, for simplicity, two types of students, PhD students and undergraduates):

$$\text{Budget} = AC_{\text{PhD}} * \text{PhDs} + AC_{\text{UG}} * \text{UGs}$$

2) Equivalently, one could replace the Average Cost for Ph.D. students with a ratio of AC_{PhD} to AC_{UG} , multiplied by AC_{UG} :

$$\text{Budget} = AC_{\text{UG}} * (AC_{\text{PhD}}/AC_{\text{UG}}) * \text{PhDs} + AC_{\text{UG}} * \text{UGs}.$$

Note that in this calculation, a single PhD student becomes a “*weighted* student”—that is, each Ph.D. student receives a multiple of the undergraduate level of funding. The per student allocation is increased proportionally by the ratio of the two AC figures. For instance, if AC for Ph.D. students is twice as large as AC for undergraduates, this could be reflected in the first formula using actual cost figures, or in the second formula using only one AC figure, the undergraduate one, but where Ph.D. students receive a weight of $AC_{\text{PhD}}/AC_{\text{UG}}=2.0$. Hence, the two budgets (1 and 2 above) would be identical.

3) The underlying rationale here is to obtain one average cost measure that encompasses both undergraduate and Ph.D. students. There are a number of reasons to prefer one average cost measure that blends the cost of educating both student types. The blended measure can be extended to include additional types of students, e.g., academic Masters students, since the approach is not limited to two student types. The same budget as above could have been expressed using a *blended Average Cost* measure, obtained by dividing total budget by the total number of students; for the example above, this is

$$\text{Blended AC} = \text{Budget}/(\text{PhDs}+\text{UGs})$$

Providing this blended figure to both undergraduate and Ph.D. students—*with the same enrollments as in the other expressions*—yields the same amount of funding. It might appear that undergraduates are then over-funded, while Ph.D. students are under-funded, but the blended average cost is sufficient to fund both types of student.

We find that it makes more sense to separate funding requirements for the health sciences and other professional schools, but that the natural way to think of educating either undergraduate or graduate students, in the general-campus research environment, is to use a blended figure for the average cost of a student that can be applied to either type of student.⁵ One reason is the varying

⁵ Providing adequate support to undergraduate education at a research university requires, at the very least, one Ph.D. student for every ten undergraduates. Ideally, the ratio should be greater. Using the 1:10 ratio, the average

state contributions to costs in the various professional schools. Another reason for this distinction is purely convenience—it is easy to determine the funding going to a professional school, but considerably more difficult to separate funding in one college into undergraduate and graduate components. In fact, we are unlikely to be able to discern any figure for AC other than some blended measure that represents the average cost measure (as defined above) for operating a large, general research campus.

The key problem for applying such a cost measure to UC's funding needs is that there are not currently fixed ratios of Ph.D.s to undergraduates, on the various campuses. As will become evident, it is this situation that accounts for separate treatment of undergraduate and graduate funding in the sections that follow, and which calls for a more complicated approach to graduate funding involving both blended average cost and what we term a "secondary allocation", to compensate for the underfunding of Ph.D. students (above the targeted minimum level) on campuses with more of these students. Without that complication, there would no difference among the three alternatives described earlier: separate allocations based on separate cost measures, expressing the same outcome using "weighted students", or treating students as homogenous, through the use of a blended cost measure.

One additional concern favors the blended approach to average cost. If we were to ignore the fundamental characteristic of every UC campus as a research campus, assigning a much higher figure for the cost of Ph.D.s might suggest that UC could solve its budget problems by educating more undergraduates, relative to Ph.D.s. Such an inference would represent a misreading of the University's situation. As already noted, maintaining the ratio of Ph.D. students to undergraduates is fundamental to providing the research environment that defines a UC campus. Creating a funding environment through a blended approach that provides adequate support for the University's research and graduate education missions, jointly with undergraduate education, is therefore an important aspect of our Task Force recommendations. The costs and the associated benefits of graduate education and its role in research and undergraduate training need to be demonstrated to the state of California, in explaining our funding needs. To create artificial distinctions between costs that pay for one part of the educational mission from those that fund the other part simply obscures their joint, interdependent nature. Although disaggregation of student types may sometimes make sense (e.g. when separate accounting might be used to change the programmatic emphasis on a campus), separating graduate education from undergraduate education, on the general campuses, does not provide useful guidance for sustaining UC's excellence as a research university. The plan described in this report therefore emphasizes UC's research excellence, and the inability to separate graduate and undergraduate

cost of instruction is a blended cost, taking into account the higher cost of educating Ph.D. students. These higher costs include faculty time advising on Ph.D. dissertations, as well as salary and tuition remission for Ph.D. students for service as TAs and GSIs. To illustrate, if a campus had 20,000 undergraduates and 2,000 Ph.D. students, its educational expenditure would be product of 22,000 × the value of the blended average cost of instruction. For another example, to support a 20% ratio of undergraduate to graduate students on a campus with 20,000 undergraduates, there would be a different blended cost figure, averaged over 24,000 students. The blended average cost figure would of course be higher, the greater the proportion of Ph.D. students. Given the necessary connection between undergraduate and graduate instruction as defined by the Master Plan, the blended average cost must somehow be covered by a combination of state support and tuition, for both undergraduates and Ph.D. students, regardless of their residency status.

education without changing the fundamental character and contributions of the University at large. The plan also recognizes and attempts to address both the common aspirations and the different initial circumstances that have produced the current configuration of graduate education on the ten UC campuses.

Despite the interdependence of graduate and undergraduate education, the enrollment funding problems differ significantly for each. The main concerns for undergraduate enrollments center on the mix of residents and non-residents that the campuses choose to enroll, and on the need to design a funding model that ensures that UC enrolls all eligible, funded undergraduates. The State of California is responsible for funding undergraduates who are eligible to attend the University under the Master Plan goals. The state does not have a significant concern with resident graduate students, and funding issues are primarily about each campus having sufficient resources to ensure the health of its graduate programs. Because of these substantial differences, we discuss undergraduate and graduate enrollment targets separately, though they are linked in our recommendations. We begin with a discussion of the different enrollment choices campuses face, depending on the length of time for adjustments to budget conditions. This is followed by general recommendations for managing enrollments at both the undergraduate and graduate Ph.D. levels. Next, we present a specific plan for undergraduate enrollment management and funding, and finally, a specific plan for enrollment management and funding of academic graduate students, and separately, students in the professional schools. Throughout this discussion, we incorporate planning considerations for the short-, medium-, and long-term.

1. Managing and Funding Undergraduate Enrollment in Three Time Frames

Our plan calls for establishing a single target for total undergraduate California resident enrollment across the nine undergraduate campuses. We assume that, once this systemwide target is set, UC would then establish individual campus targets. No numerical target would be established for non-residents, but consistent with current policy, non-resident applicants would be held to a higher admission standard. Campuses are motivated to increase non-resident enrollment because current state support and resident tuition revenues are inadequate to fully fund the educational mission. The primary reasons that the University might want to constrain non-resident enrollment are political, including concern that the system as a whole is not enrolling enough residents, or that individual campuses may place too much emphasis on the revenue potential of non-resident enrollments. Resident enrollment targets should implicitly reflect such political constraints, but as long as they are set properly, no additional controls seem necessary. Thus, we do not propose establishing a second target (including non-residents) for total enrollment on any one campus. We anticipate that the number of non-residents will rise on all campuses over time, depending on both the resident targets and the amount of state funding for residents, with different potential outcomes characterizing three time frames we describe below. The campus targets will therefore need to be adjustable, as campuses are able to make more adjustments, the longer the time horizon.

1a. Short-term cost of instruction: The cost of instruction for undergraduate students depends on the number and composition of the instructional faculty (i.e., ladder-rank faculty, lecturers, graduate student instructors/TAs) and the configuration of course offerings, classroom sizes, and other factors that are difficult to adjust quickly. For example, the number of ladder-rank faculty

cannot be adjusted downward in the short term. In any given year, some faculty will choose to retire or resign and if some of them are not replaced, the total number of faculty will decline, but reducing instructional costs significantly, through attrition, is a slow process.

Thus, in the short term, campuses cannot expect to meet budget cuts by spending less on ladder-rank faculty. It is also ill-advised for them to seek to spend less on lecturers, because retaining lecturers, and perhaps even temporarily expanding their numbers, is a cost-effective way to reduce the ratio of student FTEs to instructional FTEs and thereby mitigate any reduction in quality that may attach to larger class sizes or increased time to degree. The marginal cost of enrolling additional students is close to zero in the short run if campuses are able to enroll them without adding classes or sections. In this setting, campuses may have an incentive to maintain enrollments despite budget cuts, or even enroll additional unfunded resident students, since the tuition generated (net of return to aid) exceeds the short-term marginal cost. Most campuses cannot increase the number of non-residents as rapidly.

We anticipate that campuses will also find it difficult to expand or even maintain their current enrollments of Ph.D. students. As the campuses accommodate the current budget cuts, it is likely that they will consider cutting funding for TAs and graduate education. But cutting TA funding should be avoided for the same reason as for lecturers; TAs provide a cost-effective way to accommodate larger course enrollments without additional ladder-rank faculty. Given the additional, adverse impact on the research mission from reducing Ph.D. enrollments, we urge that maintaining graduate enrollments be given high priority, even in the short run.

A primary concern for the short run is that adding students without additional classes and sections will degrade and ultimately compromise the quality of our educational programs. However, given the dramatic budget cuts, and the University's inability to reduce instructional costs in the short run, we think campuses should have the freedom to add unfunded students if they choose. There will be effects on educational quality and the student experience—including increased difficulty in scheduling necessary classes, increased rationing of admission to impacted majors, and longer time to degree—that will need to be monitored closely. These impacts will be sufficiently severe as to make them unacceptable for more than a few years. Even in the short run, adding students in some disciplines will be infeasible; there are majors that cannot accommodate additional students, and specialized courses—particularly labs—that cannot simply be transferred to a larger facility. As a result, while all UC campuses have made significant progress in increasing their graduation rates and reducing the average time to degree, there is a real risk that those gains will be reversed, and such a reversal cannot be tolerated except as a short-term response to a fiscal crisis. This point bears repeating so that there can be no mistaking the intentions of this Task Force: there are certain responses to the budget crisis that we view as acceptable in the short-term, but that we consider absolutely detrimental over the longer term. We oppose any long-term increase in the student-faculty ratio, particularly one motivated by short-term budget considerations. *It is most definitely not something to be considered as "the new normal."*

Ib. Medium-term cost of instruction: Over the next 3 to 5 years, it will be possible to reduce instructional costs through faculty attrition. The annual rate of attrition for ladder-rank faculty varies by campus, but is on the order of 2 to 4 per cent overall. As a consequence, the marginal

cost of enrolling additional students is definitely *not* zero in the medium term. If additional students are taught by additional ladder-rank faculty, the incremental cost of enrolling additional students will be essentially the current average cost of instruction. However, if additional undergraduate students are taught by additional lecturers, the medium-term incremental cost of enrolling additional students would be lower, although it is unlikely to fall below tuition, net of return to aid. Campuses should expand enrollments only if average cost is funded by a combination of state support and tuition.

As in the short term, we recommend increased oversight by departmental faculty over the next 3 to 5 years to ensure that there are enough courses and sections to keep the average time-to-degree from increasing. Because our fiscal situation will remain challenging over the medium term, we anticipate that campuses may continue to seek ways to lower the average cost of instruction per student. Greater care in scheduling courses throughout the academic year; reducing the number or frequency of smaller, elective courses in favor of core requirements; increased class sizes; better information concerning the courses that best fit particular majors; and a number of other options should all be analyzed, with the objective of improving both efficiency and quality. These choices are best made at the local level, and the Task Force does not favor any one measure over others. Instead, we recommend that departments engage in self-study concerning courses and majors, share their ideas with other departments, and consider following the model of UCLA's *Challenge 45*, by making changes to the curriculum that best accommodate our budget circumstances, while protecting the departmental research and teaching missions.

Where pedagogically appropriate, campuses should hire additional lecturers to provide classes and sections, since they provide quality instruction at a lower cost per student. This will ensure that students have access to the classes they need for graduation in their majors in a reasonable time frame. We acknowledge that this strategy also represents a diminution of UC quality, because it reduces the access of undergraduate students to ladder-rank faculty who are leading world experts in their fields. However, if our financial resources remain seriously diminished in the medium term, this course of action would be less damaging than the other available options. It represents a choice to try to ensure that undergraduate students still have access to world experts *in some of their courses*.

The appropriate use of lecturers versus ladder-rank faculty will need to be studied at the local level, on a course-by-course basis, and we are not in a position to make specific recommendations concerning specific courses to be assigned to lecturers. To be clear, the Task Force intends no slight in equating additional lecturers with reduced quality. Lecturers typically have high teaching loads and minimal support for their research, so it would be unreasonable to expect them to have the same research productivity as ladder-rank faculty. That is the basis for our comparisons to the ideal where student-faculty ratios are lower and sufficient ladder-rank faculty are available to deliver the curriculum. This recommendation in no way detracts from the standard of excellence expected from the University's lecturers, nor the critically important role they play in delivering the curriculum. See Section 7 beginning on page 26 for further discussion on this topic.

Thus, in the medium term, we recommend that campuses reduce unfunded enrollments, to ensure that admitted students have a quality education. Hiring additional lecturers would also help to

minimize the impact of faculty attrition on graduate education. Since nearly all courses taught by lecturers are undergraduate courses, ladder-rank faculty can bear a higher load for teaching and advising Ph.D. students. But as long as the University's budget cannot support maintaining or expanding enrollments, it will be necessary to adjust the size of the University to align with its funding.

1c. Long-term cost of instruction: Our fervent hope is that, in the long run, state funding per student will again be sufficient to fully support a UC-quality education, taught primarily by ladder-rank faculty (assisted in many cases by Graduate Student Instructors). In this optimistic scenario, UC could restore the number of ladder-rank faculty and gradually reduce its dependence on lecturers through attrition. Of course, UC should continue to use lecturers in situations where they are pedagogically more appropriate than ladder-rank faculty. We also hope that, in the long run, the University will be able to achieve the proportions of undergraduate and graduate students that were envisioned in the Master Plan.

Restoring the historical ratio of students to ladder-rank faculty will require additional revenues, however. With state funding and tuition the only two significant revenue sources available to support instruction, it is no surprise that each general campus now seeks to increase non-resident enrollments as a way to more closely align revenues with costs. We expect every campus to enroll more non-residents in both the medium-term and long-term. We also expect tuition increases for resident students, and increased scrutiny of enrollment patterns. With this in mind, the next section of our report proposes a model for allocating state funding to the campuses that ensures that UC continues to enroll all funded resident undergraduates, but which also allows the campuses incentives to expand their enrollment of non-residents while managing over-enrollments of unfunded California residents. It is necessary to include the process of rebenching in this discussion. Without implementing a method for allocating state funds to the campuses that covers average cost for all students, we will be unable to achieve the high quality UC education that is expected from the system as a whole.

2. Enrollment Management and Rebenching

Our recommendations link enrollments to funding under rebenching, with the goal of ensuring that UC enrolls all funded, California-resident students, while minimizing the incentive for campuses to enroll unfunded students. In linking state support to targeted and not actual enrollment, the Task Force anticipates that campuses would prefer to enroll non-residents rather than residents beyond the agreed-upon resident target. Our framework provides a transparent method for documenting the effects of funding shortfalls, demonstrating the inadequacy of state support for Master Plan commitments.

The approach also follows from the Academic Senate's review of the Funding Streams reform. The Academic Council's response⁶ notes that UC needs to modify its enrollment management tools, particularly in the short run, because the Funding Streams reform primarily addresses revenue streams that are not associated with enrollment. Tuition and fees are the exception, of course; Funding Streams calls for leaving these funds on the campus that generated them, other than reallocations to provide financial aid. But the reform defers any changes in the allocation of

⁶ http://www.universityofcalifornia.edu/senate/reports/DS_LPrefundingstreamsppl_FINAL.pdf

state funding until the Rebenching effort is complete. Thus, budgetary reform to date does not provide clear mechanisms for enforcing enrollment targets for undergraduate California residents. In effect, Funding Streams introduces incentives that could undermine central enrollment planning, thereby presenting impediments to maintaining UC as a single University, which, in turn, weakens our ability to make a case for additional funding from the state. Put simply, it is reasonable for the state to conclude that UC's funding is adequate if UC continues to enroll more unfunded resident students. Thus, the Academic Council's statement on the Funding Streams proposal concludes that there is a need to strengthen the link between funding mechanisms and tools for managing undergraduate student enrollments systemwide. This conclusion and our recommendation for funding enrollment are both aimed at the disequilibrium that currently exists, as we mix our historical method for allocating state funds with the Funding Streams reform for other revenue streams; it is not intended to be a criticism of how the Office of the President has managed enrollments historically.

This effort is especially critical to ensure that the system as a whole enrolls no fewer than the number of resident undergraduate students agreed to in negotiations with the state, and in the context of rebenching. At the same time, any enrollment management tools should support a high-quality education for students on every campus, while minimizing incentives to over-enroll unfunded resident students, which threatens the quality of education for all students on a campus. Our acceptance of the desire for more non-resident students, on each campus, should not be taken as abandonment of our core values of access and affordability for California resident undergraduates. However, access and affordability require funding, and the Task Force observes that the University is not achieving any of its goals by providing affordable access to a lower quality education. If state funding recovers, there should be less need to actively recruit non-residents for their beneficial effects on revenues.

3. Linking State Funding to Undergraduate Enrollment

The plan we recommend begins with enrollment targets. The President should set a target number (*TEI*) for California resident undergraduates that the University will accommodate. We recommend that the Board of Admissions and Relations with Schools (BOARS) work with the administration during this process and adjust the guarantee pool⁷ to align with the target and to ensure that admissions priorities are met through the admission of both guaranteed and non-guaranteed applicants. We assume that the target will be no higher than the 2009-10 resident enrollments; that year's pattern of undergraduate enrollments serves as a pre-crisis benchmark.⁸

⁷ Beginning fall 2012, UC will guarantee admission to at least one campus to applicants who are in the top 9% of their high school class or in the top 9% of all high school graduates statewide (the pools combine to total approximately 10% of high school graduates.) The new admissions policy also holds space for strong applicants who are not in these guarantee pools, but defined in the policy as "entitled to review" if they meet certain academic requirements and thresholds, so that UC selects from the top 12.5% as envisioned by the Master Plan. Should future funding constraints reduce space to 10% or below, BOARS will restructure the guarantee pool to ensure that some entitled to review applicants are not excluded from admission consideration because the guarantee pool fills all the space.

⁸ The choice of any particular base year is not critical, but one must be chosen, and a pre-crisis base year is appropriate to reflect historical enrollment patterns. We envision annual adjustments to the targets, as needed,

Over time, the President should increase *TEI*, as state funding recovers, or reduce it, if there are further cuts. The Task Force envisions this target as evolving, therefore, based on the outcome of negotiations with the state, in return for a given amount of state funding.

Next the President should work with Chancellors, standing committees of the systemwide Academic Senate, and divisional Senate committees to set enrollment targets for resident undergraduates at each campus, with the campus targets adding up to the system target number, *TEI*. We propose basing initial campus targets on the percentages of undergraduate resident students at the nine undergraduate campuses in 2009-10. By agreement with the state, the total enrollment in the short-term is likely to be just over 200,000 full-time students (undergraduate, graduate, and professional school students). Supposing for illustration purposes that 80% of these students are resident, undergraduate students, the initial value for *TEI* is 160,000, and a campus with 15% of the resident undergraduates in the entire system in 2009-10 will have an assigned target of 24,000 resident undergraduates. However, an important aspect of our calculations and recommendations is that current state support for UC falls well short of the level needed to enroll 160,000 undergraduates, as we shall demonstrate.

3a. Estimating the Average Cost of Instruction (AC). Our recommended funding model allocates state funds to each campus based on a goal of providing total funding equal to the average cost (AC) per student. The required state subsidy is calculated by subtracting net tuition (t) from AC:

$$SS = AC - t.$$

There are various ways to calculate a figure for AC, as described below. This report's recommendations, however, do not depend on the specific choice, which we recommend be made in consultation with the Budget Office at UCOP.

One estimate of AC can be derived by adjusting historical levels of support per student for inflation. For instance, to provide the same level of support as in 1990-91, we might estimate AC to be \$21,370 currently.⁹ A student funded by the state will have AC fully covered by two sources: net tuition (the tuition rate minus the mandated return-to-aid for scholarships) plus the state subsidy. Thus, although these students are referred to below as state-funded, only part of their funding is paid by the state. To enroll 200,000 students, based on this estimate of AC, UC would need a total of over \$4B in funding (from tuition and state support combined). Tuition net

and the target for UC Merced would presumably be adjusted to reflect its enrollment growth since any particular base year. The recommendations in this report do not depend on the particular base year chosen.

⁹ That amount is a blended rate that applies to all students, and is obtained by taking 1990-91 levels of state support, UC general funds, and student fees, and applying an adjustment for inflation. It understates costs because it does not include the cost of providing financial aid. Also, the general rate of inflation may not be an appropriate measure of the increase in costs for UC campuses. Currently, funding falls well short of this figure, which is not surprising in light of a proposed \$500M budget cut (now \$650M). (See slide 4 in the presentation to the Regents from March 16, 2011, at <http://www.universityofcalifornia.edu/regents/regmeet/mar11/f1attach.pdf>) A quick calculation using the rounded figure of \$20,000 per student indicates that a \$500M cut is on the order of receiving no funding whatsoever for 25,000 students---one large campus. Such hypothetical figures serve to illustrate our recommendations, and the size of the budget problem, but to add precision to figures for AC for each type of student considered, the Task Force recommends that a detailed, updated analysis be conducted by Academic Senate participants and individuals from the Budget Office at UCOP.

of return to aid (approximately \$7,000 per student) yields around \$1.4B, meaning that state support of \$2.6B would be required. The currently proposed state allocation would not cover that figure, and would fall short even if the University did nothing else -- there would be no state funding for the Division of Agriculture and Natural Resources or other research and public service initiatives too numerous to list.

For the foreseeable future, we do not anticipate the state providing funding sufficient to provide the state subsidy for all applicants to UC who fall within the top one-eighth or 12 1/2% of high-school seniors, as specified in the Master Plan. Hence, the number of funded students, which we denote TE2, will fall short of TE1, and the difference between the target number and the number of funded students (TE1-TE2) denotes the number of unfunded students in any given year. The absence of state funds means that the revenue supporting an unfunded student comes from only one source, the net tuition the student brings to the campus, which currently amounts to less than half the total support required for a funded student. Because these students receive no support from the state, they are referred to as unfunded, but in reality, no individual student is funded or unfunded; these terms are used to identify the number of state supported students and non-state supported students on a campus or in the system as a whole. As long as there are any unfunded students, the total revenue available to support instruction is less than the total cost of instruction provided by the University. The shortfall is made up by eroding educational quality, through practices such as leaving faculty positions unfilled and expanding class size. As cuts have accumulated in recent years, these stop-gap measures used to fill holes in student funding have largely already been used, leaving few options but to reduce the number of course offerings. This not only exacerbates the reduction in quality, it also increases time to degree, as students find fewer options for completing degree requirements in a timely manner. An unintended but unavoidable consequence of this pattern is a disaffection of the citizens of California from the University itself because the actions that are inevitable under such funding shortfalls are the very same actions that affect students and parents most directly, such as longer time to degree, which carries with it a greater overall cost to families for a UC education.

We recommend that the UCOP Budget Office be responsible for modeling and estimating AC. It is beyond the scope or capabilities of this Task Force to amass the data required. However, we do have some views about how it should be calculated. The most important step is to recognize that it is both impractical and also somewhat meaningless to imagine that there are separate cost figures available for every classification of student. Moreover, on the general campuses, the delivery of instruction based in research means that the appropriate cost figure is not one for podium time alone. To provide undergraduate education in a research environment requires funding the research environment; that means not only what might be classified as direct costs of delivering education, but also the faculty and graduate student time that goes into research, translating research into curriculum, delivering the curriculum, and providing access to the research experience for undergraduates, as well as graduate students. Because of their fundamental role in research and in communicating the role of research to undergraduates, we see no way to separate the support for graduate programs from the support for undergraduate programs. UC, and any research institution, is effectively a multi-product enterprise, and the funds to support the University yield multiple outputs. Hence, we recommend the use of a blended figure for Average Cost (AC). The term blended is used simply to connote that AC is

the average cost of instruction for undergraduate and graduate instruction, considered together, in an ongoing and productive research environment.

The blended approach recognizes that providing adequate support to undergraduate education in a research university requires supporting graduate programs. Further consideration of graduate programs in our model requires distinguishing Ph.D. training from training in the professional and medical schools, because these programs serve different functions in the University and for the state, and they have different relationships with the undergraduate population. Regarding the academic Ph.D. program, it seems to us that, at the very least, a ratio of one Ph.D. student for every ten undergraduate students should be maintained. Ideally, the ratio should be higher. Supposing just for the purpose of illustration that we did know fully separate average cost figures for undergraduates (AC_{UG}) and PhDs (AC_{PhD}), one might think of the blended AC figure as a weighted average of two separate costs. If the ratio of Ph.D. students to undergraduates is 1:10, the weights for AC_{UG} and AC_{PhD} would be (10/11) and (1/11), respectively. As further illustration, a ratio of 2:10 (20%) would mean that blended AC was calculated with weights of (10/12) and (2/12), respectively. The absolute size of the campus would not affect this calculation, but the proportion of Ph.D. students in the total number of undergraduate and Ph.D. students would affect the weights. Medical school and most other professional school students can and should be separated from this calculation, and we return to the distinctions between types of students later, in taking up our separate recommendations for graduate, medical, and other professional school students.

3b. A transparent measure of funded and unfunded undergraduate enrollments. An essential part of communicating UC's funding needs, to the state and to stakeholders, is to document the many adverse consequences of the University's inadequate state funding. Thus, it is crucial to have a transparent, precise count or measure of the number of unfunded students, which is what we propose. Such a measure is more than a reflection of a political negotiation; it is a quantitative record of the additional funding needed to preserve UC's quality. To this end, the number of funded students, TE2, is calculated as follows. First, each future year's average cost per student (AC) will be estimated. This will require careful analysis of the true cost of delivering a UC-quality education; it should not simply reflect what the University currently spends, given the number of compromises of quality that have already been made. In other words, this figure should provide an estimate of the actual cost of educating a student at the UC level of quality. Student tuition (denoted by t , which is net of return to aid) will then be subtracted from AC to determine the internal funding need per student. The internal number of funded students (TE2) will be calculated by dividing total state funding for undergraduate students (UG funding)¹⁰ by the internal funding need per student ($AC-t$). It is important to understand that this number may be different from the number of funded students identified by the Department of Finance or the

¹⁰ It is helpful to think of two stages to the budgeting process, within the University. The "first stage" determines the total amount of state funding available for various broad categories. The second stage allocates those amounts to the various campuses. It is the second-stage allocation that our recommendations address. To complete the funding model we recommend, a basis for the "first-stage" allocation is needed in which state funds are channeled into the various categories: undergraduate education; separate allocations to graduate education, separated into academic and professional school categories; and certain "off the top" or "earmarked" categories, such as the systemwide research programs alluded to earlier. Later sections of our report examine these allocations. For now, it is sufficient to examine the allocation of state funds for undergraduate education, in this "second stage".

Legislature. Moreover, in the foreseeable future, it surely will be smaller. Thus, to determine TE2, the calculation is as follows:

$$TE2 = \text{UG Funding}/(\text{AC}-t) = \text{UG Funding}/\text{SS},$$

where t denotes tuition (net of return to aid), and the difference between AC and t is the required state subsidy (SS). We intend t , AC, and SS to be common across the campuses.

This formula determines the number of funded students as a function of the average cost of educating a student at UC (AC), the tuition (t), and the total state funding for undergraduates (UG Funding). Note that this is preferable to a calculation of the actual state subsidy, which would simply be undergraduate funding divided by the total number of (California resident) students. To ensure a quality education, it is the figures for average cost and the required subsidy that needs to be set, prior to these calculations; they cannot simply be residual values, determined by separate choices about total funding for undergraduate education and a target enrollment. In other words, in this calculation the cost of a UC-quality undergraduate education is determined *a priori*, based on what it actually costs, rather than determined *a posteriori*, after state allocations are made.¹¹

Our Task Force does not propose automatic increases in tuition based on any annual shortfalls in state funding. Such action would subject students and their families to great uncertainty, as the President and the Regents have clearly recognized. However, we do recommend that such calculations be routinely conducted and used in long-term planning models.

3c. Impact on educational quality. These calculations serve to deliver a critical message: as long as the funds provided by the state plus tuition (net of return to aid) do not cover the full cost of educating a total of TE1 undergraduate students, there will inevitably be compromises in the quality of that education. One measure of quality could be the proportion of funded students—

¹¹ The actual state subsidy in any given year is useful only in determining the tuition that would be required, to make up for funding shortfalls (AC minus the actual state subsidy, divided by $1-t$ to account for return to aid). Put differently, the Task Force strongly urges that UC determine its mission, and then seek a budget to carry out that mission, rather than defining the mission by the funds available. For instance, suppose AC is rounded to \$21,000, and tuition net of return to aid is rounded to \$7,000. The state subsidy for a funded student would then need to be \$14,000, to cover average cost for that student. If total funding for undergraduate education equals \$1.4B, hypothetically, TE2 is \$1.4B/\$14,000, or 100,000 undergraduate students. If TE1=TE2=100,000, then all UC undergraduate students would be fully funded. When TE1 is greater than TE2, there is over-enrollment, and TE1-TE2 undergraduates are unfunded. Suppose the University actually enrolls TE1=160,000 resident undergraduates. The additional 60,000 students would be unfunded: they would bring no additional revenues from the state, only net tuition of \$7,000 per student. The actual state subsidy would be \$1.4B/160,000 or \$8,750 per student—over \$5,000 per student below the required amount. In order for UC to obtain revenues sufficient to educate TE1 students, tuition would need to rise by enough to yield an additional \$5,000 per student after return to aid, for all 160,000 undergraduate students, not just the unfunded ones. If the University maintained its policy of returning 1/3 of tuition increases as financial aid, a \$7,500 increase in tuition (from today's roughly \$11,000) would be required to make up for the state funding shortfall. (It is important to emphasize that the numerical values in these calculations are provided for illustrative purposes and that they are hypothetical, with rounded values chosen to simplify the arithmetic.)

which we refer to as the system’s funding ratio. This proportion will be obtained by dividing the internal number of funded students by the negotiated total target for resident undergraduates:

$$f = TE2/TE1.$$

Note that 1-f is simply the ratio of unfunded students to the total state target. When this latter value is greater than zero, it means that state support does not meet the needs of California resident students who have been admitted to UC under the provisions of the Master Plan. As President Yudof has said, we can have access, affordability, and quality, but not all three, in these fiscal circumstances. If quality is indeed non-negotiable, then the University will have to reduce its Master Plan obligation over time—either access (student numbers) or affordability (tuition) represent the only other choice variables.

4. A Long-Term Funding Plan Under Rebenching

We have already described three temporal phases of anticipated adjustment to budgets and enrollment targets; only in the long run do we anticipate a state budget sufficient to return to any past norm/standard for higher quality, as reflected in the funding ratio f or the ratio of students to ladder-rank faculty. For a planning horizon including only short- and medium-term budget reality, our recommendation for funding under rebenching allows for the possibility that the state does not provide full funding. We will assume that $TE2$ remains less than $TE1$, i.e. $f < 1$. As long as $f < 1$, each campus will be underfunded, with the proportion of underfunding uniform across campuses.¹²

4a. How are enrollment targets to be managed on the individual campuses? If a campus exactly meets its enrollment target for resident undergraduates, it will receive average cost (AC) for each of its funded students, and tuition only for its unfunded students. While we have already indicated our preference for using a blended measure of AC, the discussion in this section translates directly to a setting where an unblended, separate AC figure for undergraduates (AC_{UG}) and funding for undergraduate education are both available. The specific amounts would of course differ under the two alternatives, but the fundamental principles and the operation of the funding framework both remain the same.

If every campus exactly meets its enrollment target, revenues to the campuses will consist of the state subsidy for $TE2$ students plus tuition for $TE1$ students, as shown below. Rearranging terms shows that this is equivalent to the full AC for $TE2$ students, and net tuition only, for $TE1-TE2$ students.

$$SS*TE2 + t*TE1 = (SS+t)*TE2 + t*(TE1-TE2) = AC*TE2 + t*(TE1-TE2)$$

Using the funding ratio that describes the proportion of funded students ($f=TE2/TE1$), revenues can also be expressed as follows (multiplying and dividing by $TE1$):

¹² Note that this is not a statement about the total resources a campus draws on, only the amount of state funding. If one campus can make up the funding gap using donor funds, it would typically be characterized as having a different funding ratio than another without such funds. Our measure pertains only to the allocation of state support.

$$\begin{aligned}
& TE1*(SS+t)*(TE2/TE1) + t*(TE1-TE2)*(TE1/TE1) \\
& = TE1*AC*TE2/TE1 + t*(TE1-TE2)*(TE1/TE1) \\
& = TE1*AC*f + TE1*t*(1-f) \\
& = TE1 [AC*f + t*(1-f)]
\end{aligned}$$

The total funding for undergraduate instruction across the campuses will be the average cost of instruction (AC), multiplied by the enrollment target (TE1), multiplied by the internal proportion of unfunded students (f), and then they will collect tuition collected from the unfunded students. It is convenient, for some purposes, to think of the per-student funding as a weighted average of AC and t; the weights are f (funded students) and 1-f (unfunded students). (That is the purpose of rearranging terms in lines 3 and 4 above; if TE1 is factored out of both terms, the result is the expression in square brackets above, the blended per-student revenue.) The values for f in the last term above range from 0 to 1, with f=0 representing complete privatization—a tuition-only model—and f=1 representing the outcome where AC is fully funded by the state for every resident undergraduate student.

The formula expressed for an individual campus (campus 1), would be

$$te1(1)*AC*f + te1(1)*t*(1-f),$$

using $te1(1)$ to denote the target assigned to campus 1.

4b. What happens when enrollment targets are not met? Both target enrollments and funding for undergraduates are negotiated in advance, in such a way as to allocate students and state funds across the nine general campuses. When an individual campus does not meet its enrollment target, it falls short of its negotiated number of students, and, accordingly, loses the associated state funds. In instances where a campus falls short of its enrollment target ($te1$) for resident undergraduates by a certain number of students, denoted by n , it should receive a specified reduction in state funds, and of course it foregoes the net tuition from those students. The total effect is represented as

$$(te2-n)*SS + (te1-n)*t = (te2-n)(SS+t) + (te1-te2)*t$$

In other words, the campus gives up the revenue associated with a funded student, which consists of state support and tuition (net of return to aid), which equals the average cost of instruction.

If a campus exceeds its enrollment target, it will get no additional state funding, but it will receive the funding associated with an unfunded student, specifically tuition net of return to aid and no additional state support:

$$te1*AC*f + te1*t*(1-f) + n*t,$$

i.e., n^* is the increase, relative to funding when the campus exactly meets its target.

Thus, if a campus falls under its enrollment target, it gives up a *funded* student; if it enrolls residents above its target, it gains *unfunded* students. This approach provides strong incentives for campuses to hit their targets. It penalizes over-enrollment. However, as noted earlier, over-enrolling seems like a short-run strategy to deal with recent declines in state funding. But over time, both in the medium and longer term, the Task Force does not anticipate that campuses will want to over-enroll by significant numbers of students due to the negative impact on quality. Furthermore, because the enrollment situation on the campuses will change, each year the campuses will be free to propose reductions or increases in their enrollment targets. Since the UC system must meet the overall UC enrollment target to obtain the maximum amount of state funds allocated to the system, reductions in targets at campuses must be exactly balanced by increases in targets at other campuses. Data and projections based on these proposed models, to be generated by UCOP, will make the implications of this approach more clear for the UC system. If, for example, the proposed reductions exceeded the proposed increases, the President could grant all of the proposed increases and grant some but not all of the proposed reductions.

5. Managing and Funding Enrollment of Ph.D. Students

We turn now to the funding of Ph.D. programs. We do not treat all academic graduate programs together; graduate and undergraduate programs differ the most when Ph.D. programs are considered. Without wishing to minimize their importance, particularly in fields where a “terminal Master’s degree” is common, the Task Force assumes that Master’s programs likely fall somewhere in between undergraduate and Ph.D. programs, when considering factors determining the average cost of the program, such as class sizes or the faculty time commitment per student. A decision must be made as to whether academic Master’s students can be treated like undergraduates, for purposes of funding under rebenching, whether they should instead be included here, or whether some intermediate approach is needed. The Task Force recommends that CCGA and UCPB take up the funding of Master’s programs, using either our undergraduate or graduate funding model. In addition, those committees should consider extending other recommendations below to academic Master’s students, specifically whether Master’s students should be charged non-resident tuition and whether their tuition should be paid by the sources of funding for their salaries, in the event Master’s students are employed by the University.

We have already emphasized the interdependence of undergraduate and graduate education for a research university. Again, we stress that the interaction between Ph.D. students and undergraduates is one of the defining characteristics of a research university. Every aspect of UC’s mission is enhanced by expanding and improving the University’s Ph.D. programs. The University and the state should never accept a vision for UC’s teaching mission that emphasizes only undergraduate education.

The education of Ph.D. students is labor intensive and requires a low student-faculty ratio. Ph.D. students initially take classes that are necessarily much smaller than typical undergraduate classes. Then students make the transition to research: intensive reading of the academic literature in their intended subfield, identifying a research topic, and finally writing a dissertation. The students’ need for advice and feedback from their faculty advisors grows

greater at each stage of this process. Because the process is so labor-intensive, Ph.D. students are more expensive to educate than both undergraduates and Masters students in professional fields. However, there are substantial benefits for every aspect of the University's mission from that process. Ph.D. students play an important role in introducing undergraduate students to the research experience, and their discoveries contribute directly to the research mission. It would be short-sighted to ignore these spillover benefits in funding Ph.D. programs.

5a. Two special considerations in Ph.D. enrollments—Residency and tuition costs. Ph.D. students are primarily non-resident students, and international students represent a high percentage of the students in many Ph.D. programs. Ph.D. students are recruited by graduate programs to fulfill the research, training, and teaching needs of a program. The recruitment process is on the national scale, and for many disciplines it is on the international scale, and in all cases it is highly competitive. To enroll the best graduate students, recruits are offered competitive financial aid packages that include commitments for employment as either a graduate-student researcher (GSR) or graduate-student instructor (GSI), and they are viewed not just as students but as colleagues in these roles. The funding source, not the student, provides funding for both in-state tuition and non-resident tuition, as a benefit of employment. This arrangement represents a substantial burden for faculty employing Ph.D. students as GSRs, diverting research funds from other uses, and encouraging the use of post-doctoral researchers instead of more expensive Ph.D. students. This substitution is tempting even for resident students, but when non-resident tuition must be paid, it is even more so.

The consequence of such practices has been to limit the number of non-resident Ph.D. students on UC campuses. Anything that limits either the size of Ph.D. programs or their ability to recruit the very best students reduces the quality of those programs. Given the soaring cost of resident and non-resident tuition, in some cases faculty have understandably tried to avoid paying graduate tuition from their own grant and contract funding. Although substitution of post-doctoral researchers can be justified based on their contributions to the research enterprise, post-docs do not participate as directly in the educational mission of the campuses, which, in turn, restricts the desired amount of graduate-undergraduate contact. We expect that the campuses, similarly, will find GSIs increasingly expensive, and they will seek other ways to support instruction. For instance, campuses will likely seek to hire more undergraduate "readers" or "graders" instead of TAs/GSIs, which would further erode the undergraduate experience. *It should be the policy of the Academic Senate to end the practice of requiring that the funding source for salaries of GSRs or GSIs also pay the tuition of GSRs and GSIs.*

Employment as a GSR or GSI is an important part of the training of Ph.D. students, and provides a means for students to cover their living expenses while in graduate school. UC's Ph.D. programs would not be competitive with those of other top research universities, without these commitments of employment. Indeed, it is already the case that many students who are admitted with offers of funding accept more generous packages from other institutions. There is a great deal of competition for the most promising Ph.D. students, and because their numbers are fewer and their importance to the University's mission is so great, the quality and reputation of a Ph.D. program and a department's research enterprise depend critically on the successful recruitment of high-quality students. In many ways, attracting high quality Ph.D. students closely resembles the recruitment of faculty. And just as UC would never consider any policy other than trying to

recruit and retain the very best faculty, regardless of their California residency status, we do not differentiate state residency status among the Ph.D. students in our funding plan. For UC to remain a top research institution, it must be able to compete for the top Ph.D. students regardless of where they reside when they apply. *Therefore, the Task Force recommends that it should be the policy of the Academic Senate to end the practice of charging non-resident tuition for Ph.D. students.*

We see immediate benefits from adopting these recommendations. First, our many non-resident Ph.D. students who have not yet advanced to candidacy (and are often less productive as GSRs, as a result) would become more affordable for faculty who would not have to use research funding to pay non-resident tuition, as a benefit of employment. In addition, the choice of students for both GSR and GSI positions would be made solely on the students' qualifications, and not be based on residency status and a desire to avoid providing funds for non-resident tuition.

Moreover, the notion that UC is capturing significant outside resources by billing contracts and grants for non-resident tuition is questionable. Putting aside the fact that fewer new Ph.D. students are employed as GSRs, given the high cost, for non-resident tuition revenues to be considered to be additional resources for the University, one must believe in the notion that funding agencies will simply add on to the grant amount any such charges, rather than expecting the Principal Investigator to reduce other expenses. We suspect that there may be some increase in total grant funding received, in at least some instances, but well less than the full amount charged, and that the various costs associated with this policy are too high to justify continuing it. Especially in the current era of likely Federal belt-tightening, UC should not base its funding model so exclusively on a plan to shift high tuition costs to Federal funding sources. Even without Federal largesse, the University cannot maintain its research excellence without Ph.D. students, so UC should not base its budget model upon a belief in the continued willingness of one funding source to allow these costs to be passed on.

These two recommendations above regarding graduate funding are likely to be widely supported by Academic Senate faculty, but we anticipate that they will require further study. In particular, GSIs are represented employees, so our recommendations likely fall under the purview of collective bargaining. It seems clear that continuing current practices are unsustainable—increases in graduate tuition put too much burden on grant funds, in particular, and NRT will continue to interfere with UC's competitiveness for recruiting graduate students. But a careful analysis is needed to determine the effects of our proposals on graduate education, in the new budget environment. UC must remain competitive for top Ph.D. students, and policy should be guided by that goal, not necessarily one of maximizing revenue for other purposes. We recommend that CCGA, UCORP, and UCPB work with the Budget Office and the Office of Research and Graduate Studies to examine the consequences of further relaxation of the requirement that non-resident tuition be paid by Ph.D. students' funding sources, and of ending the practice of charging non-resident tuition for Ph.D. students, regardless of who pays. For several years, UC has exempted students who have advanced to candidacy from most of the higher cost from non-resident tuition, yet we are aware of no study demonstrating that this has harmed the University or its budget.

In summary, the Task Force favors an aggressive stance by the Senate in support of preserving the excellence of UC's Ph.D. programs, and sees these recommendations as strengthening Ph.D. programs. However, it is imperative that this stance be backed by a funding plan that will enable its realization. Before discussing the relative merits of several alternatives for allocating state funding to Ph.D. programs, it is worth elaborating the relationship of the enrollment and funding recommendations for undergraduates, described earlier, to the alternative choices for funding Ph.D. programs. To do so, it is useful to ignore temporarily both the residency issues and concerns related to particular funding sources discussed previously, to avoid complicating the discussion unnecessarily.

5b. Funding Recommendation for Ph.D. Students. We begin by reiterating the principle that the state subsidy for an undergraduate student should not depend on the campus the student attends. Applying this principle from our undergraduate recommendation to the current distribution of Ph.D. programs, it is clear that the campuses with more graduate programs, or more established graduate programs, and more graduate students will receive more state funding. Any other outcome would violate the core value that UC is one university. *The Task Force strongly recommends that funding allocations be made on a per student basis, not a per campus basis.*

We recommend that all Ph.D. students up to a campus target (described in further detail below) receive the same state subsidy. Targets are required for Ph.D. students, but not for the reasons discussed for allocating state funds to undergraduate education. There is no concern with ensuring that a minimum of resident graduate students is enrolled; the state does not have expectations for a minimum number of funded resident graduate students, as is the case for undergraduates. We assume that each campus would like to enroll students in Ph.D. programs in proportions competitive with other top research universities. If a campus falls below such a target, it is likely because either available funding, the faculty's ability to take on more advising, or the quality of the applicants did not support admitting more students.

Therefore, the only reason that graduate targets are needed is to ensure that both the costs and benefits of increasing Ph.D. enrollments are fully realized on the campus considering an expansion. One alternative would be to simply divide the total funding for graduate students, however that might be determined, by the number of Ph.D. students. But in that case, a campus that expands its Ph.D. numbers imposes costs on the rest of the system, as the average allocation would decline for every campus, and the expanding campus would perceive only part of the cost of expansion, as all other campuses also experienced a decline in funding. Targets, in short, are needed in any environment where the state cannot offer to provide a subsidy for each new Ph.D. student, regardless of the total enrollment.

As before, the discussion of funding Ph.D. programs begins with our blended definition of average cost, denoted AC . As with the undergraduate formulae, additional funds are necessary as long as AC exceeds net tuition, t . (Again, we assume that some tuition revenues are redistributed as financial aid, so only the net tuition is available to fund Ph.D. programs.) Also, as with the undergraduate plan, with sufficient funding, every Ph.D. student added to each campus would simply bring a state subsidy equal to the difference between AC and t . But because funding is limited, targets are needed, and in the current funding environment, it will be infeasible for some time to expect state funding to provide the full subsidy required. Therefore,

campuses seeking to maintain or expand their Ph.D. enrollments will need to find alternative sources of funding, such as revenues from non-resident tuition paid by undergraduates.

To support Ph.D. programs, and hence, to function as a research university, campuses will need to maintain a minimum ratio of Ph.D. students to undergraduates—such as the ten percent suggested earlier.¹³ However, we cannot limit funding for graduate education to the point where only a ten percent ratio of Ph.D.s to undergraduate students is supported. If this were to happen, some campuses would have large numbers of unfunded Ph.D. students; this would not only violate the principle of equity, as previously stated, but it would also put great pressure on those campuses' Ph.D. programs to shrink. We also cannot simply set the targets at the high end, funding on the order of a 20 percent ratio, which would provide about the amount of funding necessary to cover costs for UC Berkeley's Ph.D. programs. Providing funding sufficient to allow every campus to fund Ph.D. students at this high level would be infeasible, given our current budget, and would provide funding to most campuses for Ph.D. students they do not currently enroll.

In comparing these two extremes, observe that the first recommendation provides a minimum level of funding for the campuses with the smallest number of Ph.D.s, and the second represents our long-term goal for all campuses. Our recommendation therefore lies in between these two extremes. We recommend that the target for each campus be set at the greater of two numbers: 10% of the campus resident undergraduate target, $te1$, and actual 2009-10 enrollment of Ph.D. students on the campus. Thus, every campus would receive funding for Ph.D. programs equal to at least 10% of its share of $TE1$.¹⁴ The funding per student would be SS , or some fraction of SS , if it is deemed infeasible to fully fund SS . Such a shortfall is not acceptable in the long run, given the adverse consequences for the quality of our Ph.D. programs, but it may be necessary in the short-run, as long as $f < 1$ (i.e. the funding ratio is less than 100%) for the undergraduate funding model.

For campuses whose targets exceed 10%, state support would be comprised of two pieces. All Ph.D. students up to the campus target would be funded with the same blended state support provided to undergraduates or Ph.D. students up to 10%. In addition, there would be a secondary allocation of a certain number of dollars for each Ph.D. student above the 10% ratio, up to the campus target; this allocation would be the same for each campus with a target above 10%. This secondary allocation is required since blended AC is less than the unblended AC for a Ph.D. student (AC_{PhD}). In theory, the secondary allocation would exactly equal the difference between the unblended AC_{PhD} and the blended figure, if the unblended cost could be determined with

¹³ While we adopt ten percent as the minimum, the Task Force also considers this inadequate; if this figure does not rise over time, UC's trajectory as a research university is limited.

¹⁴ Should the state fund Ph.D. students equal to 10% of the undergraduate target, $TE1$, or 10% of the total undergraduate population? If a campus is to deliver on the promise of a research-based education for *all* of its students, then it should maintain at least a 10% ratio of Ph.D.s to all undergraduates, not just resident ones. On the other hand, non-resident tuition represents a source of funding for enrolling additional Ph.D. students. Recognizing both the limited scope for state funding and the fact that the state is not supporting non-resident enrollments, we recommend a floor for state funding of Ph.D. programs on every campus that provides SS for 10% of the undergraduate target, $te1$.

sufficient precision. However, measuring unblended average cost for Ph.D. students may be infeasible, as already noted. More critically, if we insisted that every Ph.D. student were fully funded with state funds (for the amount not covered by tuition), then UC’s limited state funding would require that the campuses dramatically curtail the total number of Ph.D. students. For this reason, we recommend studying a *co-pay arrangement*, under which the campus would provide a certain percentage of the secondary allocation from campus-generated sources, such as non-resident tuition, donations, and endowment income, but would also receive state support. The goal in the short and medium terms should be to allow campuses to maintain their current numbers of Ph.D. students, and allow those numbers to grow over time as campuses continue to develop their graduate programs in a strategic manner.

Our preferred alternative for the long term is for each campus to receive state support sufficient to fully fund Ph.D. programs with enrollments competitive with top research universities nationwide. However, in the short and medium terms, especially if state funding remains inadequate to fund even the 10% ratio, every campus will need to draw on other revenue streams to meet the cost of funding Ph.D. programs. The Task Force does not consider this to be a sustainable funding practice, and considers the provision of adequate funding for Ph.D. programs absolutely paramount for ensuring the University’s research excellence. The Task Force recommends that CCGA and UCPB undertake a detailed study of possible co-pay arrangements, along with their analysis of mechanisms by which Ph.D. targets should be set. The committees should evaluate alternatives for both mechanisms with the aim of finding the best approaches to supporting Ph.D. programs.

5c. Resident and Non-Resident Ph.D. Students. The discussion above ignores residency status. As noted, the Task Force recommends that UC end the practice of charging non-resident tuition for Ph.D. students. However, until that occurs, there will be two different amounts paid for tuition. Resident students pay t and non-residents pay $t+NRT$. This complicates the determination of the appropriate state subsidy.

Since we do not propose using state funds to support only California-resident Ph.D. students, instead we recommend that the state subsidy be averaged across the two types of student. The Task Force anticipates that the share (s) of resident Ph.D. students will not vary significantly by campus. For N Ph.D. students, the total funding need is $N*AC$, and the total required state subsidy will be

$$N*AC - s*N*t - (1-s)*N*(t+NRT)$$

The simplest way to proceed is to define the per student figure for SS as the above expression—the total state subsidy required—divided by N , the total number of targeted Ph.D. students.

5d. Adjustments of Ph.D. Targets over time: The Task Force does not support permanently locking in the current pattern of enrollments, where the campuses differ in graduate enrollments. Campus autonomy enables the campuses to chart their own paths, but we do not see how any UC campus can achieve research excellence without strong graduate programs. Hence, we recommend a funding model that provides a minimum level of support for high-quality graduate programs on every campus, but which also recognizes the growth that each campus is able to

achieve over time, and provides funding for the campuses to increase their Ph.D. enrollments above that minimum.

It would be necessary to create some sort of transition plan, so that campuses with initially lower targets will receive increasing funding based on higher targets, as they are able to expand their enrollments. A plan as simple as basing the targets on the prior year's enrollments would allow updating, but would also feature the problem that growth on one campus imposes costs on all of the others. We see no easy solution to the problem of how UC can raise graduate targets in the absence of more funding for graduate education. We recommend that CCGA and UCPB develop recommendations for the setting and evolution of graduate-student targets.

The Task Force thus views the graduate enrollment targets as a floor; state funds should be allocated to support graduate education, but the targets need not be limiting for the campuses. If it is found that the campuses can expand enrollments by generating additional revenues, which they would retain under the Funding Streams model, we would support such expansion. It is unlikely that expansion will be uniform—different disciplines have different abilities to draw on external research support through research grants obtained by faculty. Some others can support graduate students with teaching assistantships, but these too are not uniformly needed across departments or disciplines. We assume these same differences will exist across campuses, in part reflecting differences in disciplinary strengths and emphases.

The funding plan also must address the consequence of falling below targeted enrollments: should the campus give up per student funding as soon as it falls below target? We do not want to see such an outcome, but the Task Force recognizes that, especially in the next year or two, campuses may well be reducing their graduate student numbers, adjusting to budget cuts. We recommend that a campus falling below the 10 percent target still retain that level of funding; such a shortfall is likely to be temporary, in response to budget problems, and the Task Force does not want to exacerbate the problem with a further budget cut. CCGA and UCPB should consider whether the same policy should apply when campuses with targets above 10 percent fall short of their targets, and for how long.

The Task Force also recommends that CCGA and other Senate committees continue to monitor the financial health of graduate programs, and supports the proposal of the UC Commission on the Future (COTF) that program reviews should include detailed budget information. These reviews should also focus on the funded status of students in the program. The percentage of students receiving full support is a key indicator of the program's health and competitiveness, and should be routinely documented.

6. Medical and Other Professional Schools

The professional schools vary considerably, with a wide range of funding needs and missions. While the Task Force recognizes that not every professional school carries the same priority for state funding, we also recognize that at least some are comparable to academic Ph.D. programs, in terms of the importance of state funding. To establish a specific recommendation for each school is infeasible, as is sorting each into various priority rankings. Instead, we describe a general approach that can be used.

First, it is necessary to consider various points separately. The first concerns the range of costs the schools face. The Task Force anticipates that every professional school has per student costs that are higher than those for UC's undergraduates. Some are only slightly higher, due to a combination of smaller class sizes and higher salaries for faculty, relative to the broader range that pertains to undergraduate education. For instance, schools of law or business do not involve expensive lab equipment, student-faculty ratios as low as the health sciences, or faculty time to advise individual dissertations. Class sizes for law or business are likely to be larger than those in the typical Ph.D. program, but smaller than the largest undergraduate classes. But the faculty also are paid higher salaries than the average for all general-campus faculty. At the other extreme are the medical schools and other schools in the health sciences (e.g. nursing, dentistry), which seem likely to be the highest-cost schools in the University.

Second, there are differences in the tuition that schools can charge, due to the demands they face and the earning potential of the program's graduates. The Task Force does not endorse a policy that UC should charge "what the market will bear", based only on beliefs about professionals' salaries, but also recognizes that there already is a precedent for expecting professional school students to provide for a higher share of the cost of their education, in the form of tuition. The Task Force also anticipates that, in this time of increased emphasis on self-supporting programs and professional school supplemental tuition, professional schools are likely to be given increased autonomy and simultaneously be expected to be increasingly self-sufficient. At the same time, the Task Force strongly opposes any erosion of the shared-governance role for the Academic Senate in establishing policies for these programs.

Third, there are differences in the state's interest in subsidizing professional schools. UC has experienced a range of views about state support for professional schools, from one extreme where the Legislative Analyst or CPEC questions the need for a new school (such as UCI's law school), on the one hand, or providing no funding (such as for UCD's nursing school or, more recently, the UCR medical school), to the five existing medical schools, where the state has maintained the view that the training of doctors is a priority for funding.

In cases where the state provides support, the Task Force recommends that the state subsidy be defined as before, as the difference between the program's average cost and tuition net of financial aid. For the various health sciences schools, the Task Force anticipates that the funding needs will remain substantial; the state subsidy should be sufficient to cover costs after tuition revenues for targeted numbers of students. In the hypothetical case where all students are California residents, the state subsidy would be calculated as before, where $SS = AC - t$, and that is the amount that should be provided, on a per (targeted) student basis, to each medical school. As with undergraduates, the President will need to define target enrollments based on the availability of state funds

Other professional schools could be modeled similarly. The ratio of t to AC must be higher, where the state or University assigns a lower priority for allocating state funds, but the same

approach works.¹⁵ In the limit, a school that becomes entirely self-supporting, as has been proposed for the Anderson School at UCLA, will have no state subsidy, and $t=AC$.

One difference in estimating the cost of educating Ph.D.s versus professional school students is that the benefits to the general campus, and to undergraduates in particular, from training professional school students are smaller than is the case with Ph.D. students. Professional schools tend to be largely self-sufficient in the delivery of instruction, and most professional school students on the general campuses do not play a major role in either research or the undergraduate mission. For this reason, the Task Force recommends that the AC figures be school-specific; they are easily and appropriately separated from the cost to maintain the general-campus undergraduate and graduate programs. The AC figure should therefore be an unblended one. The absence of spillover benefits does not mean there is no public interest in the professional schools, and no justification for a state subsidy. Especially for the highest-cost programs, the state is unlikely to train professionals in sufficient numbers to meet state needs, without some public subsidy. The public good is in having enough doctors, nurses, dentists, pharmacists, and other professionals to meet the state's workforce needs; it is for that reason that a state subsidy is appropriate, but not because of significant spillovers to other aspects of the University's mission.

Finally, it is necessary to consider non-residents. The state subsidy could be justified for any student who is willing to practice a profession in California, regardless of their residency when they apply. The Task Force considers the expectation that this will occur to be a reasonable criterion for providing state funding to professional schools, and does not oppose ending non-resident tuition for the professional schools. Especially for those that operate in a nearly or totally self-sufficient manner, the case for non-resident tuition is not at all clear.

If non-resident tuition is charged, however, and a state subsidy is paid only for resident students in the professional schools, then the level of non-resident tuition must be sufficient to replace the state subsidy, so that $AC \leq t + NRT$. We question the justification for charging a *higher* NRT than the difference between AC and t; UC remains a public institution, not a for-profit university. However, to the extent that the professional schools are able to charge non-resident tuition that exceeds the difference between AC and t, and do so, the use of the additional revenues should be allocated based on consultation with the Academic Senate, and for educational priorities of the University. Even if the professional school is given complete autonomy, it does not seem appropriate to simply charge non-residents what the market will bear.

¹⁵ The Task Force recognizes that, at least in some years, there are support funds transferred from the Medical Centers to the Medical Schools. While this source of funds has been important and should not be ignored, the Task Force also concludes that we cannot build a business model for the Health Sciences on an assumption that there will always be profits returned from operating medical centers. If the medical centers broke even or lost money, the state would still have needs for the training of professionals in the Health Sciences. Funds from the medical centers might therefore be used for strategic investments, when available, or to ease pressure on state funds, but we do not recommend relying on a steady inflow of funds from the Medical Centers, on an annual and permanent basis.

7. Can we satisfy the demand for teaching FTEs without more ladder rank faculty?

UC already has an insufficient number of ladder rank faculty to teach its student population. The steady increase in the student-faculty ratio over the last three decades can only continue in the near future, as campuses lack resources to increase the number of ladder rank faculty. Yet, campuses may choose to over-enroll students to capture fees. One of the central challenges facing UC, then, is how to cover the increased teaching load while giving its research faculty sufficient time to conduct quality scholarship.

As a short- to medium-term solution, as noted earlier, the Task Force recommends maintaining, and perhaps expanding, the use of lecturers. Currently, campuses address increased teaching loads more commonly with non-Senate Unit 18 Lecturers than with Senate faculty in the Lecturer PSOE/SOE series because an appointment in this latter Senate series uses an FTE that might otherwise support a faculty member in the Professor series, a decision that has long-range consequences for departments and schools. Moreover, some units are reluctant to use a FTE for a Lecturer PSOE/SOE, because of the prevalent (though generally false) perception that Lecturers do not carry out scholarship.

The Task Force has considered several suggestions to meet growing teaching demands, including renaming the Lecturer SOE titles to reflect the actual scholarly activities that many faculty members in this Senate series carry out, de-linking the Lecturer series from 19900 funds and supporting the position with tuition, and providing greater recognition of teaching excellence in the APM criteria for appointment and advancement in the Professor series.

One possible approach would effectively create two tracks in the Professor series. One track would maintain the current CAP practice of weighing research and scholarship more heavily than teaching and service in promotion and merit reviews. The second track would also call for significant contributions in research, teaching, and service, but would weigh teaching more heavily.

Another option would be to create an entirely new Senate FTE series between Professor and Lecturer, with a greater focus on teaching than would be true for the professorial series. This series would be loosely analogous to the “Clinical X” series (e.g., Professor of Clinical Medicine or Clinical Surgery), currently used in health sciences schools.

The Task Force strongly rejects the notion of creating two classes of faculty in the Professor series with a second, teaching-focused track within ladder-rank faculty. Even if these changes could be implemented without modifying the APM, this approach is unlikely to provide a net increase in teaching capacity without a substantial change in the culture among UC faculty about the professional role of a ladder-rank Professor. Moreover, it will do nothing to address the budget crisis or teaching demands, which relate to quantity rather than quality of instruction. An effort to reward teaching should be clear not to confuse the issues of teaching quality and teaching quantity.

The Task Force recommends maintaining UC research and teaching quality above all else. In the absence of restoration of the state budget, as noted earlier in this report, we are more tolerant of

increasing the proportion of Lecturers in the teaching ranks than increasing the teaching burden on ladder rank faculty. In the short term, the least harmful accommodation of the situation we find ourselves in is to increase the proportion of lecturers and to allow ladder rank faculty attrition, without immediate, one-for-one replacement through hiring. Implicit in this recommendation is the understanding that it would be much harder, in the long term, to recover from a loss of quality than from a change in the faculty mix.

Units should consider expanding the use of non-Senate faculty by increasing the proportion of Lecturer SOEs, Unit 18 Lecturers, Adjunct Professors, and post-doctoral fellows, as deemed appropriate, making more targeted and systematic use of all Lecturer series to accommodate the increase in undergraduate enrollment.

Departments can also use Post-doctoral fellows and researchers (“post-docs”) for teaching under contracts for 1-2 years. Funding of these positions could come from both research funds, for the research percent effort, and from state funds or tuition for the teaching percent effort. It is also conceivable that students graduating with Ph.D.s could occupy transitional non-FTE positions with a teaching emphasis for 2-3 years before seeking full-time faculty or other employment. These would be strictly “post-doctoral” positions, in the sense of traditional post-docs, but with a focus on teaching in addition to research. We recognize that there may be significant labor contract issues for this approach, since graduate students and post-docs are represented groups.

All campuses should consider expanding the use of the Adjunct Professor series (APM-280). This series is well established in the APM and is commonly used in schools of the health sciences and engineering, and to a lesser extent in the biological sciences and business. Individuals in this series are expected to carry out both research and teaching, but the mutually agreed-upon emphasis may be on one or the other. In this respect, the series occupies a flexible position between the Unit 18 Lecturer series and the Researcher series on the spectrum between teaching and research. Extending the use of this series to other schools would not require a change in the APM or a systemwide review. But there are funding considerations: according to the APM, no more than 50% of the funding for the position may come from state funds. We note that the Lecturer 18 collective bargaining agreement may prevent hiring in the non-represented Adjunct Professor series to replace Unit 18 Lecturers. Further consideration of the Adjunct Professor option must be done with cognizance of the interests and risks of abuse of faculty members in this series, since they are neither a represented group nor tenure-track. We also point out that for this strategy to be effective for the stated purpose of meeting increased teaching demands, there needs to be enforcement of the teaching requirement.

A final point concerns the treatment of all lecturers. The Task Force strongly supports the recommendations of UCAP, UCEP, and the Academic Council¹⁶ in favor of seeking to employ non-Senate teaching faculty on a full-time and long-term basis. The greater engagement with students, departments, and the curriculum that will result is a way to improve quality for all concerned.

¹⁶ http://www.universityofcalifornia.edu/senate/reports/DS_JtTFFacSalreUCEP_UCAPltrs_FINAL.pdf

8. Further Recommendations and Conclusions

This Task Force is completing its work at a time when the state has adopted a \$650M cut, which is scheduled to rise to \$750M if optimistic state revenue targets are not met. Such a cut threatens not only the excellence of the University, but also its very existence as a system of ten research campuses. The forces that could undermine a common budget model and a common standard for excellence are considerable, but the Task Force believes that the Academic Senate should continue to advocate for the entire system of ten campuses. The adverse consequences to the system as a whole from a weakening of our shared systemwide approach to governance and policy are likely to dwarf short-run advantages that might result from increased autonomy and independence of any campus or unit.

A key balancing act for the Task Force in maintaining this systemwide perspective has been to accommodate the common interest among the undergraduate campuses in increasing the number of non-resident students, while acknowledging the current patterns of different abilities to enroll such students. Our proposal for allocating state funding to undergraduate enrollments adheres to the Funding Streams model, in keeping revenues from non-resident enrollments on the campus generating them, while proposing a model for reallocating state funding in which state funding effectively follows a funded student to another campus. In this way, every campus gains from rebenching. Rebenching, budget reform more broadly, and any policies aimed at preserving UC's quality are doomed to failure without substantially greater revenues. Hence, our Task Force reiterates that rebenching and other policy reforms should not be conceived as zero-sum games; our efforts need to be spent on enhancing revenues on every campus.

It is hoped that the framework described in this report is easily understood and transparent. In particular, we hope that it can reinvigorate UC's advocacy efforts with the state of California. If nothing else, it will confirm the need for tuition increases, if increases in state funding do not materialize. By demonstrating that funding levels fall drastically short of the levels needed to provide a UC-quality education to all resident students eligible for admission the California Master Plan, we provide evidence for the need for additional state funding. To do otherwise is to shortchange California's students and their families, and to undermine the decades-old promise of access to the University under the Master Plan.

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Glossary of Terms

AC = Average Cost of education. This could be a “Blended” measure, combining the average cost for educating undergraduates and the average cost for educating graduate (Ph.D.) students, as a weighted (by targeted enrollments) average of (unobservable) unblended cost figures. Or it could refer to unblended costs, e.g., AC_{PhD} for average costs to educate a PhD student. Blended figures are recommended for the general campuses mainly because separate, unblended measures are unavailable.

AC is used for various types of student, but it should be understood that covering the full cost of educating different types of student would involve different figures for AC. The Task Force notes that even though they are not explicitly available, the figure for Ph.D. students on the general campuses is likely to be considerably higher than for undergraduates. Given the difficulty in separating all costs, notably faculty time, by student type, we anticipate that only a blended figure will be available. In principle, this figure could be thought of as a weighted average of the unblended, separate figures for Ph.D. students and undergraduates, even if those unblended figures are unobserved. (Master’s students can probably be combined with one group or the other, but this report recommends that CCGA and UCPB consider that choice.)

f = Funding Ratio, defined as $TE2/TE1$.

NRT = non-resident tuition

SS = (Required) State Subsidy. Defined as the difference between Average Cost and net tuition:

$$SS = AC - t.$$

This is the difference between the average cost, for a particular group of students, and their net tuition; it is the amount per student in state funding that would represent “full funding” for the group of students.

t = Tuition net of return to aid. (Tuition is always net of return to aid, everywhere it is used in this report.)

TE1 = Systemwide total enrollment target, resident undergraduates. Campus-specific targets are denoted by $te1(i)$ for campus i .

TE2 = Number of resident undergraduates considered “funded”, according to UC’s definition of the average cost of educating undergraduates