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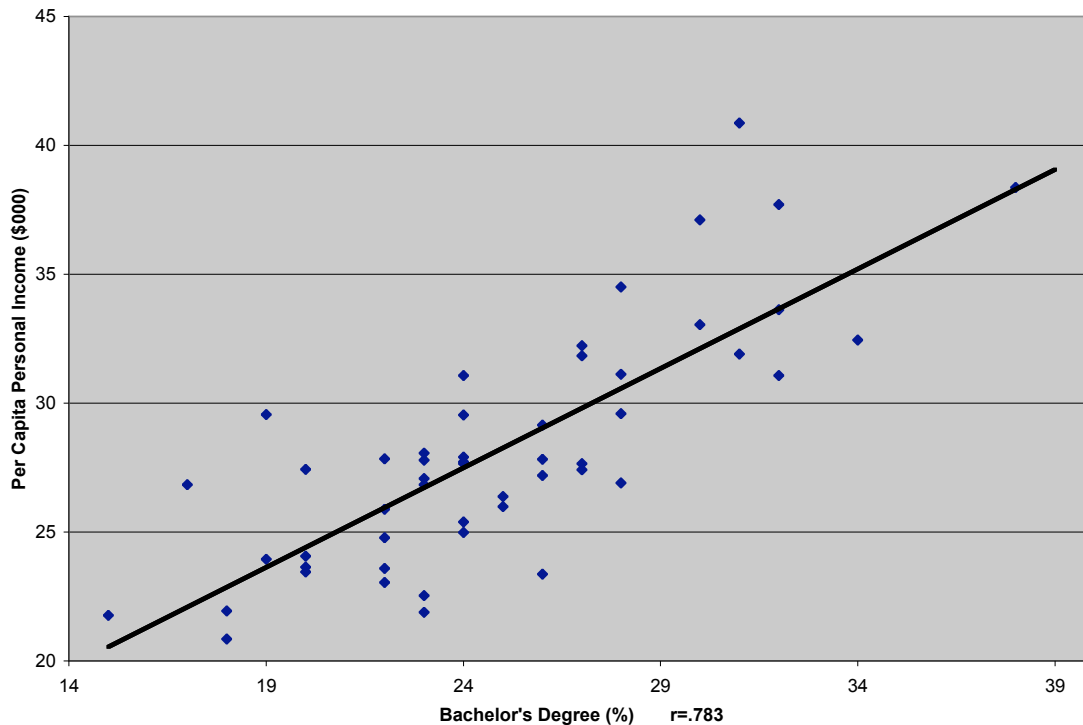
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Higher education in 2003 faces a variety of opportunities as well as major challenges. Most of the key trends, ranging from a tighter linkage than ever before between advanced education and individual and societal economic prospects, to an increase in numbers of underprepared high school graduates, present both. In brief, higher education faces the odd paradox of being simultaneously highly sought after by key societal elements, and sharply constrained in its ability to gain effective political support and thereby adequate financial sustenance--at least from its traditional sources--to realize its own aspirations and those society holds for it. This chapter will explore this conundrum in some depth and consider the merits and problems inherent in various routes out of it.

Perhaps the most important pertinent development in recent years is the economic shift that has forged a new nexus between higher education and economic outcomes. Although the relationship between a society's level of education and its pace of economic development and growth has long been recognized (Denison 1962; Schultz 1960), with the advent of the "post-industrial" fast-moving, globalized, and technologically driven--in short, knowledge-based--economy in the last quarter century or so, the linkage has tightened considerably (Marshall and Tucker 1992). From the perspective of state policymakers, the strong correlation between the proportion of a state's population enrolled in college and its rate of economic growth, depicted in

Figure 1, is powerful. Equally important is the evidence of a stronger-than-ever connection between an individual's level of education and his or her economic success in the labor market. According to the National Center for Education Statistics (1997, cited in Kane 1999, p. 1), the "college wage premium" in terms of earnings of college graduates compared to high school graduates (here male workers aged 25-34) jumped from 19 percent in 1980 to 52 percent in 1995.¹ This is a far cry from the mid-1970s, when economists were questioning whether the American populace might be "overeducated" (Freeman 1976).

Figure 1: State Per Capita Personal Income by Proportion of Population Age 25 and Over with Bachelor's Degree, 2000



These economic forces, together with outreach efforts made by colleges and universities during the recent demographic dip in numbers of high school graduates, have increased the appetite for higher education among individuals beyond the traditional college age and their employers. Such "nontraditional" students, who often enroll part-time, have sought a variety of

new accommodations and services that make the higher education enterprise more complex and, at least on a per-full-time-student basis, arguably more expensive. At the same time, the tighter connections between higher education and employment-related needs and aspirations have fueled a debate that increasingly questions the social need or desirability of the traditional large public subsidies for the enterprise (Johnstone 1999). On the other hand, many argue that the increased essentiality of higher education to individuals' life chances in modern society makes it all the more necessary that public policy ensure equity of access across an increasingly diverse population.

Another key challenge facing higher education is demographic. The long-awaited students of the "baby boom echo" are now appearing on the doorsteps of colleges and universities, ending the long period in the 1980s and 1990s when all but the most wealthy and attractive schools had to scramble to fill seats. Now schools must find ways to convince their supporters--whether legislators, students, parents, or donors--to provide resources to fuel the necessary expansion of capacity. As will be made clear in this chapter, this presents a major challenge. An increased proportion of high school graduates in the near future will be minorities and students of modest means (Callan 2002), which means higher education has the chance to better serve one of its key missions: to broaden the social distribution of opportunities. Yet serving these groups of students is likely to be more costly per student than was the traditional clientele since they tend to be less well prepared academically and more likely to need financial aid.

In addition, technological change, in particular information technology (IT), creates the opportunity for exciting improvements in students' access to educational materials and in the variety of vehicles for teaching and learning, and this makes it possible to reach people whose

access to higher education was formerly restricted by distance and life commitments that keep them at work or home most of the time. Moreover, given the pervasiveness of IT in students' lives and in the modern workplace, colleges and universities have little choice but to infuse their teaching with it. The emerging competition that traditional colleges and universities face from the for-profit education sector is already requiring it. Yet the capital infrastructure, equipment, staffing, and faculty training costs of this change are very significant, although still imperfectly understood (Green 1997; Rumble 1997).

Another "challenging opportunity" for higher education is posed by the demand for academe to provide more direct and visible service to society. Beyond educating students and advancing knowledge, colleges and universities are increasingly called upon to harness their expertise to attack social problems like inadequate elementary and secondary education, urban decay, environmental degradation, and the like. Many institutions have responded with more applied research, consulting services and, increasingly, "service learning" programs that seek to integrate student service to the surrounding communities with academic learning. To the extent that these programs are explicitly funded, this is no doubt a largely positive development that can both enhance academe's social contributions and increase its public support.² Yet adequate funding does not always follow the greater demands. Also, at some point we might begin to worry about excessive redirection of attention from institutions' primary missions of knowledge creation and transmission.

A challenge linked to all of the above comes in the realm of fiscal accountability. If taxpayers and their elected agents, students and parents, and donors are to be willing to provide substantial additional resources to higher education, it is quite clear that such largess will be accompanied by similar demands for accountability for demonstrable results as are being visited

upon other sectors of society (Zumeta 1998). These demands present some special problems for higher education and may create costs of their own, but in some form or another they will have to be met (Zumeta 2001).

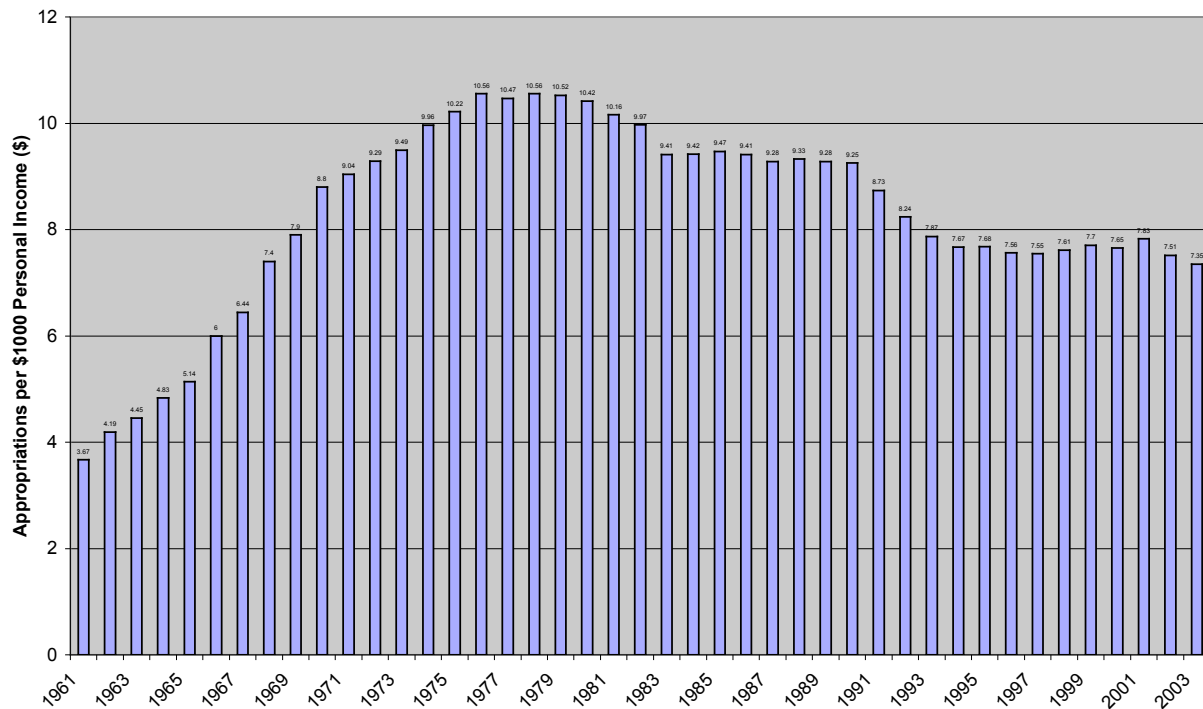
Finally, there is the challenge to maintain quality. This is nothing new, but it seems harder than ever now as the world and the knowledge and skills needed to prepare students for it change at a breathtaking pace. Faculties clearly need continued training and renewal by a steady inflow of new blood in the face of such rapid change. Equipment needs associated with sustaining quality, notably in the realm of IT but also in many scientific and technical fields, are greater and more expensive than in the past. Accountability demands related to quality impose their own costs. Thus, simply maintaining, much less improving, academic quality is more costly than ever.

This chapter provides an analysis of the juxtaposition of these challenges and exciting opportunities for service to society with the increasingly clear reality of basic constraints in the traditional sources of funding for higher education. After laying out this conundrum, I will outline its unfortunate consequences and some policy alternatives for both institutions and states to escape from the box it presents, along with the associated claims and rationales. Get out of this box we must, for advanced education is clearly crucial to the economic and thus to the social and political fortunes of states and the nation in the emerging age of knowledge and global technological competition.

Embedded Fiscal Constraints Facing Higher Education

Some of the fiscal challenges facing higher education are suggested above. It is crucially important to understand that these confront a fundamentally weak fiscal support structure,

Figure 2: Appropriations of State Tax Funds for Operating Expenses of Higher Education per \$1000 of Personal Income, FY1961 to FY 2003



particularly for the public academic sector (Duderstadt and Womack 2003). State support for higher education--which includes core operating support for public institutions, a total of some \$5 billion annually in state funding for student scholarships and grants, direct aid to private colleges and universities in some states, and funding for state governance operations--has fallen steadily as a percentage of personal income across all fifty states for more than twenty years (see Figure 2). Even counting tuition revenue, which has been growing rapidly, total funding for higher education per student has increased only sluggishly since the mid-1980s (Callan 2002, p. 9).³

While some have attributed much of this decline in support to the rise of political and cultural elements critical of higher education, a more compelling explanation lies in the structure of state budgets and the growth of powerful claims by elements with stronger positions in this

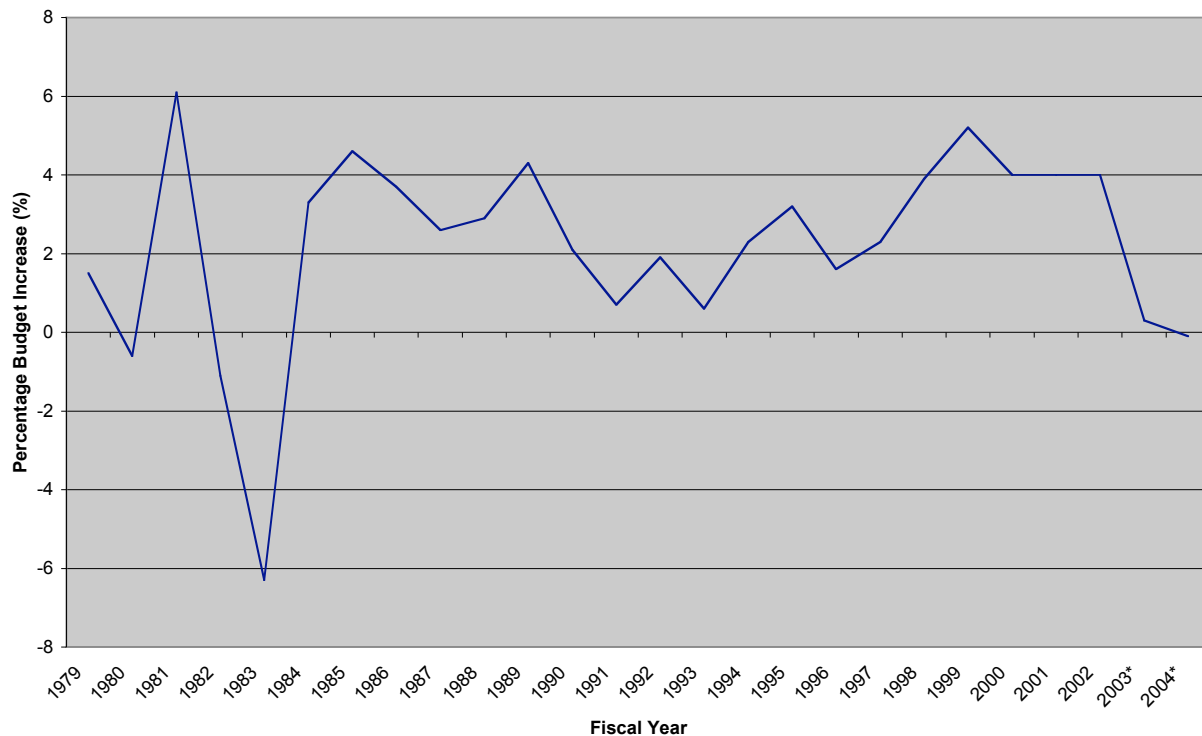
structure. Within state general fund budgets, support for higher education competes with other major claimants, including elementary and secondary education, corrections, Medicaid and other health care expenditures, public welfare, and social services.⁴ Most of these functions are strictly caseload-driven in that when pupils arrive at the schoolhouse door, or prisoners have been sentenced, or clients qualify under federal rules for Medicaid, states have to provide the necessary funds. In these cases, the state contribution is often mandated by federal law (Medicaid), court rulings (prisons), or longstanding practice often enshrined in state constitution or statute (K-12 education). And indeed, in recent years the numbers of school-age children, prisoners, and Medicaid clients have been growing. In the health care field costs per client have also escalated rapidly, so that this component has overtaken higher education as the second-largest piece (after K-12 education) of state general fund spending (National Governors Association 2001, p. 4).

In short, most of the major state budgetary claimants have a mandatory or near-mandatory character. Higher education, on the other hand, is seen as discretionary in that its "caseloads" (enrollments) can be reduced or its planned growth postponed--or students can be asked to pay more--to help balance the state's budget in times of need or when other fields have higher policy priority. For example, the 1990s saw states place a high priority on K-12 education reform, and this effort attracted considerable discretionary investment in many states (Liebschutz, Schneider, and Boyd 1997).

To fully understand the depth of the structural fiscal problems facing higher education, it is necessary to trace how higher education has fared in different stages of the economic cycle. State revenues and thus budget expenditures are powerfully driven by economic conditions. As Figure 3 shows, during periods of economic slowdown such as those in the early years of the

1980s, 1990s, and 2000s, state budgets grew little if at all. Once reserve funds are exhausted--which happens quickly, since large reserves are targets for tax cutters--states have to find places to cut substantial sums in order to meet norms of budget balance as demands from recession-sensitive budget components such as welfare, low-income health care, and criminal justice burgeon.⁵

Figure 3: Annual Percentage Budget Increases, Fiscal 1979 to Fiscal 2004



Higher education, as explained above, is the largest broadly discretionary item in state general fund budgets, so it is the most vulnerable target for budget cutting. Moreover, unlike most of the other major state budget components, higher education has other substantial sources of funds that policymakers feel can be tapped if institutions need to cope with deep budget cuts. These include tuition increases,⁶ private donations, and grants and contracts. Figure 5 shows that higher education suffered the most among major state general fund budget components during

the recession of the early 1990s and its aftermath of state fiscal stress (see also Gold 1995). The result of the interplay of these forces has been sharp increases in tuition and fee rates during recessionary periods⁷ (Figure 4). These tuition increases have contributed to a substantial shift in the burden of paying for higher education from states to students and their parents. Figure 6 shows the substantial increase in the student/parent share of higher education funding over the past two decades, a trend that began during the recession of the early 1980s. (This graph does not capture the sharp upturn in the student and parent share during the most recent years of state funding stagnation.)

Figure 4: Annual Percentage Increases in State Flagship University Tuition and Consumer Price Index, 1966 to 2001



Figure 5: Annual Changes in Major Expenditure Categories from State General Funds, FY1990 to FY 1994

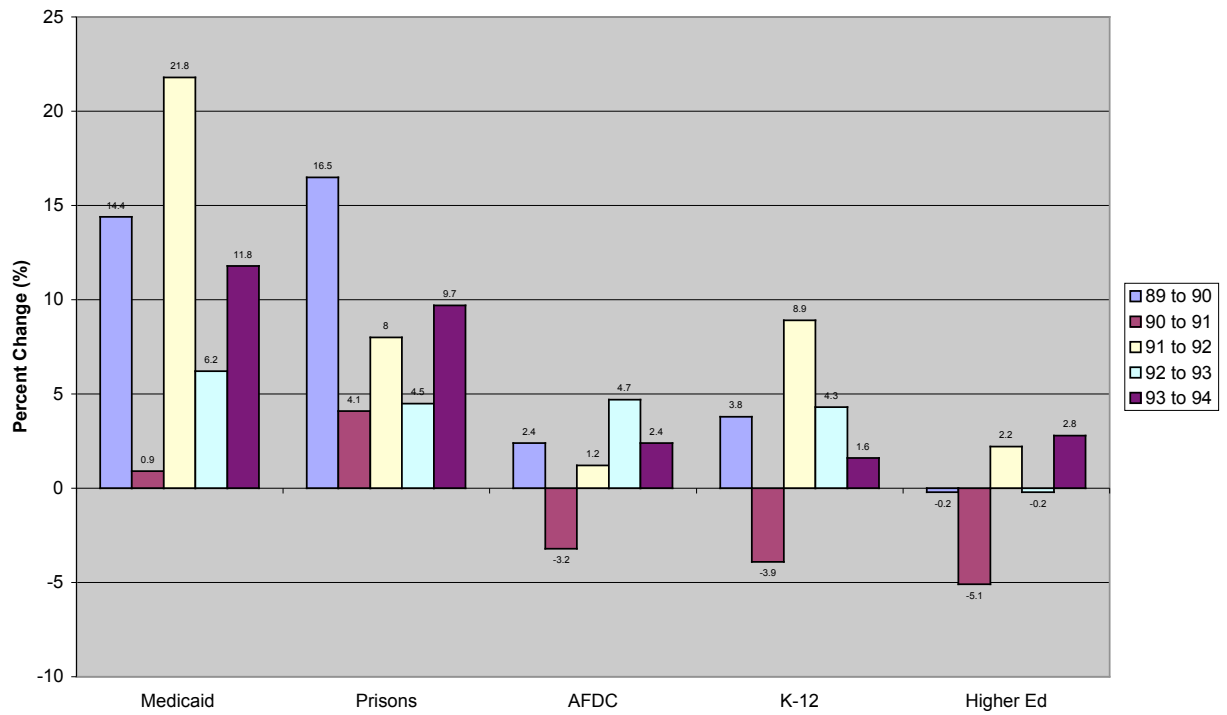
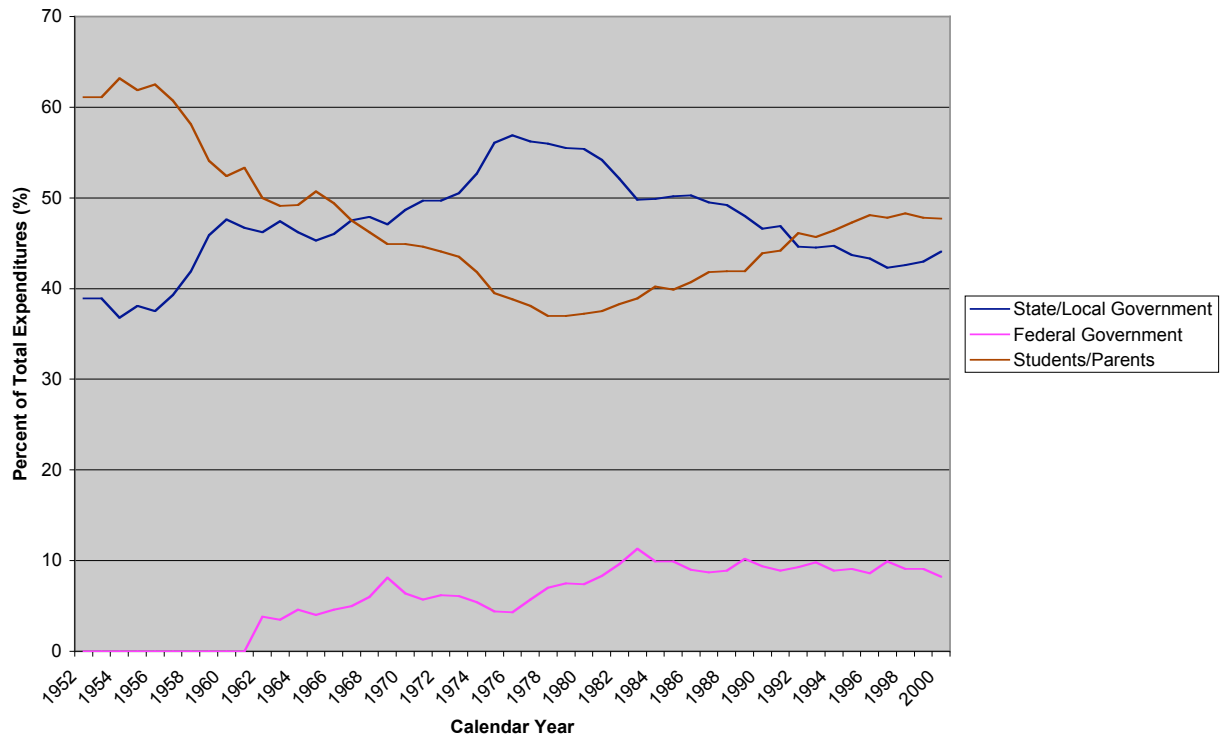


Figure 6: Distribution of Responsibilities for Financing Higher Education, 1952 to 2000



Generally in the past, higher education has been able to recoup the financial losses it suffers during downturns with disproportionate gains in state support relative to other budget claimants during periods of prosperity. During the most recent "boom" period following the early 1990s recession, however, it took a number of years for state policymakers to feel comfortable enough with the stability of revenue growth and to recognize that other needs had been met sufficiently⁸ to begin reinvesting in higher education. Only in fiscal years 1999, 2000, and 2001 did gains in state appropriations for higher education exceed the aggregate growth rate in general fund appropriations--and then only barely.⁹ Thus, even in the longest unbroken period of prosperity in the nation's history, higher education did not catch up very much in relation to its long stagnation in real funding per student. This is one powerful sign that a new era is upon higher education that will require much more fundamental rethinking than simply planning to

wait out the latest economic slowdown.

Emerging Consequences of Fiscal Constraints

As the young college-eligible population swells with the coming of age of the baby boom echo cohort and as employers and workers increasingly seek higher education access, it is clear that in many states the capacity to provide desired educational opportunities will be stretched. In the next section some policy options for dealing with the capacity crunch are surveyed, but in any case there remains concern that capacity may not be able to keep pace with demand so that participation rates in higher education may begin to fall. Such a shortfall would tend to slow economic growth and could easily work to disproportionately dampen the aspirations of newly emerging groups of would-be students. These are serious consequences indeed in a world where knowledge and the ability to use it are essential to both individual success and the economic prospects of states and the nation.

As shown above, higher education's state funding has been constrained for at least two decades. Federal funding--mainly in the form of student aid, since public colleges and universities in the U.S. are creatures of the states--has been erratic in its growth patterns and has, since around 1980, come increasingly in the form of loans and loan guarantees rather than grants. Thus, the substantial shift in responsibilities for financing higher education away from government and toward students and their families has been a real one: students have not been able to shift most of the increased cost burdens they have faced onto federal grant programs; loans must be repaid by the borrower. One consequence of the shift in financing responsibilities has been increased student debt (Fossey and Bateman 1998). Thus far, the evidence that students' debt burdens have had a strong effect on their choices about graduate study and careers is

mixed.¹⁰ At some point, however, it seems that the specter of large debts must further erode the competitiveness of lower-paying but socially vital service-oriented careers such as teaching, public service, and even scientific research.¹¹ It is known that first-generation college students and those from under-represented groups are more reluctant than others to take on debt, which may well play a role in dampening their participation and graduation rates.

These rates need all the help they can get. Trends in college participation and graduation rates by socioeconomic status (family income) and ethnicity show large and persistent gaps favoring more affluent students and whites and Asians, with African Americans, Hispanics, and Native Americans trailing far behind.¹² For example, in the 1996-2000 period, the proportion of dependent 18- to 24-year-olds enrolled in college ranged from around 80 percent for those from families with incomes above \$75,000 per year to less than 35 percent for those with incomes below \$25,000 (Mortenson 2001a, p. 1). In terms of chances of baccalaureate attainment by age 24, the gap was even larger, with the rates ranging from 52 percent for the top income quartile down to 7 percent for the lowest income group. The second-lowest income quartile had a B.A. attainment rate of 14 percent in 1997 (Mortenson 2001b, p. 8). The main change in these rates over the past several decades has been that while the highest income youths have made large gains since 1980, those in the lower groups have gained very little ground.

These largely flat trend lines in low-income access and achievement in the face of considerable variations in federal and state aid to students over the years do not provide strong evidence that financial aid has had a large impact. Kane (1999) and Ellwood and Kane (2000) argue convincingly that much of the persistent socioeconomic and ethnic gaps are results of differential precollegiate opportunities in schools, homes, and communities. Financial aid for college thus comes too late to address the roots of the inequalities for many. Yet it is also clear

that low-income and minority students react strongly to tuition prices and financial aid (Kane 1999, pp. 101-14; Thompson and Zumeta 2001).

State aid to students has grown considerably in recent years and now approaches \$5 billion annually, but this aid is quite concentrated in a small number of states and is negligible in many (De Salvatore and Hughes 2002). In addition, the most rapid growth sectors in state aid recently have not been need-based aid, which can materially affect participation rates of students of modest means, but rather "merit-based" aid and aid to students pursuing particular high-demand professions (Heller and Marin 2002). These forms of assistance are much less likely to help low-income students to attend college.

While higher education price and aid policies are not the whole answer to inequalities in educational attainment in U.S. society, progress of the underserved will surely be stymied if these policies are not conducive to the enrollment of students of modest means once they are qualified. Thus, developments like those described here that tend to push prices up and threaten funding for student aid will surely be detrimental to the key policy goal of broadening access to higher education.

Finally, a major concern with the slow growth in funding per student is that it must eventually affect quality. Absent major shifts in the technology of production of high quality educational services--that is, given the apparently inevitable labor-intensive nature of the enterprise,¹³ underfunding eventually has to result in fewer faculty (and other) resources per student and further deterioration in academe's ability to compete for top professional talent. This must surely impact the quality of education available to students.

Given the clear importance of higher education in the modern economy and the profound forces of change at work in their environments, institutions and states cannot afford to sit still and allow the types of negative consequences just described to wash over them. Most will seek to respond in some way. I will survey the most likely types of responses by institutions first and then turn to the choices facing state policymakers, pointing out some of the advantages and problems with each strategy.

-What Colleges and Universities Can Do

Once an organization recognizes that decreased revenue flows from traditional sources are not temporary and once initial efficiency steps have been exhausted, we may expect two types of behavior in response to the changed context. One class of responses seeks to address the organization's cost structure; the other, its flows of revenues. In higher education, the primary approach taken in recent years to cut costs has been to reduce the share of full-time, tenure-track faculty in the ranks by using more graduate student, part-time, and temporary faculty who are generally available at much lower cost per course. These faculty are normally hired strictly to teach. Up to a point, such faculty may provide valuable flexibility and even important perspectives from the field that are not as readily provided by full-time scholars. But problems arise when such limited-commitment faculty make up a substantial proportion of a department's teaching force. Their limited stability and their commitment primarily to course teaching makes it difficult for departments to maintain curricular coherence and to get necessary tasks done like curriculum planning, student advising, and interfacing with other institutional units and outside constituents (not to mention doing scholarly research). Evidence that the limits of the strategy of heavier dependence on part-time and limited-term faculty may have been reached is suggested

by the fact that the use of such faculty appears to have leveled off in the past few years, following many years of growth (U.S. Department of Education 2002, p. 271). Prospects for further cost savings from this source thus seem likely to be limited.

During the 1980s and early nineties, when numbers of students of traditional college age were decreasing in much of the country, colleges and universities showed considerable enterprise in making their offerings more attractive and accessible to new groups of students. Key to their strategy was offering courses in the evening and generally at times more convenient for nontraditional students (Zumeta 1999a). Now that the main impetus is for cost savings in the face of burgeoning demand, institutions can go further down this path by seeking to accommodate some of the new demand within existing facilities by using them more intensively on weekends and in summers. There are now examples of institutions that are moving in these directions, but the pace of movement is surprisingly staid. One impediment may be faculty resistance to working at personally inconvenient times, so outside incentives may be necessary to accelerate this process.

Emerging instructional technologies, especially those involving the Internet and other modes for reaching students at a distance and asynchronously, create the opportunity for potentially revolutionary innovations in teaching and learning and the associated economics. If these technologies can be used in ways that educate students satisfactorily at lower faculty cost per student--that is, by substituting low-cost capital for higher-cost labor--then savings in per-student spending are possible. Thus far, though, it is not clear that instructional IT has worked this way at all. Not only is the equipment and associated staffing and faculty training (and continuous updating) expensive,¹⁴ but faculty are still needed to design courses and to interact with students and their academic work. Indeed, so far the evidence generally suggests that

distance-learning courses require more, not less, faculty time per student.¹⁵ The availability of distance-learning opportunities may well provide access to more students, an important policy goal; but if true, this necessarily expands the size and cost of the instructional enterprise as well. It is possible that private, for-profit purveyors of postsecondary education will devise cheaper models of technology-based instruction that produce quality results and that their innovations will diffuse in some measure to the "traditional" higher education sector.¹⁶ Yet it is likely that issues of how quality is defined and of the nature of faculty jobs in such a brave new world would be highly contested, with unpredictable outcomes in terms of public policies.

In sum, the most likely approaches to additional cost cutting in higher education are fraught with problems and uncertainties. Experimentation in this arena is surely to be encouraged though. Indeed, institutions that are not working to stay abreast of the emerging technologies and competitive forces in the new higher education marketplace could quickly find themselves in danger of obsolescence even in their traditional market niches.

On the revenue side, colleges and universities are increasingly looking to a range of steps that are sometimes collected under the umbrella heading of privatization strategies. The general argument is that if public authorities will not provide adequate funds to sustain quality institutions and their growth to meet new student demands, then colleges and universities should seek more private resources--including increased revenues from tuition--to pursue these noble ends. Plainly, various types of institutions have differential prospects for successful privatization, and there are basic differences between the public and independent higher education sectors. Many schools that are highly dependent on annual student revenues--under-endowed private colleges and public colleges where even state appropriations may be closely tied to enrollments--often do not have the market power (surplus applicants) to raise tuition prices substantially

without defeating their purpose by decreasing enrollments. Others with some market power may not wish to pay the price in terms of harmful impacts on financially needy or underrepresented students or on their competitiveness for students with strong academic backgrounds whom they wish to attract.

Elite colleges and research universities with ample supplies of surplus qualified applicants, on the other hand, may have room for further substantial increases in tuition and other student charges, although this sector has generally increased charges most rapidly over the last two decades. Public research universities are more constrained in these calculations by considerations of maintaining political support, but even private institutions have to pay heed to public and congressional concerns about excessive price increases.¹⁷ As of mid-2003, there were clear signals from both the Bush administration and Congress that the federal government would place increasing pressure on higher education to restrain tuition increases (Burd 2003).

Higher education might seek to blunt the effects of this price control pressure by turning to a more united and explicit advocacy of a high tuition-high aid approach to its financing. Under such a financing model, tuition in the more heavily subsidized public sector would move sharply upward toward a full average-cost-per-student level, while need-based aid would follow closely, thus theoretically not harming financially needy students. Meanwhile, more affluent students would be paying substantially more into institutions' coffers. There is evidence that enrollments of affluent students would be little affected by higher prices;¹⁸ in other words, the existing subsidies built into public college tuition rates are largely a windfall to them. This makes the approach potentially attractive in an era of constrained resources for higher education subsidies, especially if most institutions in a school's competitive set adopt it simultaneously. It is less attractive to institutions, of course, if they have to fund most of the higher aid demands from

their increased tuition revenue than if they are able to transfer some of the costs to state or federal student aid programs. Thus, we will return to these very issues in the next section on public policy options.

Institutions of higher education can also try to privatize more of their revenue streams by more aggressively seeking private funds from donations and quasi-commercial ventures such as technology licensing or equity investments in spin-off companies. No doubt some institutions can do more in the realm of private giving, but in the aggregate, higher education has vastly expanded its efforts in this direction in the past twenty years or so--in large measure to help offset the long stagnation in public funding--and it is questionable how much more rapidly private giving can be expected to grow in an increasingly competitive environment for the charitable dollar.¹⁹

Some research universities have succeeded, generally after years of investments, in producing significant revenue streams from technology transfer activities, but in all but a handful of cases, the net revenues are quite modest (Blumenstyk 2002). It is possible that some of the newer biotechnology and software-related spin-offs will be more lucrative, but excessive focus on technology transfer activities carries the risk of skewing faculty and institutional priorities and even compromising intellectual autonomy.²⁰ Moreover, the benefits of such activity are not likely to be much available to institutions outside the research university sector. Other types of institutions, including community colleges, can broaden their revenue streams somewhat by pursuing training and applied research contracts with private firms, and these may have some indirect benefits for students. But this type of activity mainly serves purposes other than the primary educational mission of these institutions. It does relatively little to increase capacity to educate more students.

Clearly, the list of attractive revenue-broadening options available to institutions acting on their own is not long or without significant problems. Public institutions in particular, but private colleges too in some ways, will need help from public policies if they are to respond effectively to reduced availability of public subsidies.

-What States Can Do

The high tuition-high aid financing approach sketched above has surfaced in state policy discussions off and on for more than two decades (Blaydon 1978; Griswold and Marine 1996). It has resurfaced with new impetus in the last few years, however, as the fundamental nature of higher education's funding crisis has become clearer. From the perspective of state policymakers, the approach has some attractions but also some serious problems. On the positive side, the promise of providing more of higher education's funding needs from sources other than state taxes is certainly attractive. Not only would the pocketbooks of more affluent students and families be tapped but, more attractive politically, in most cases higher tuition charges would count in the calculation of students' financial need for federal financial aid. Thus, the federal student aid programs could theoretically help to finance state colleges and universities, in effect replacing some state appropriations.²¹ Of course, if many states took this tack in a substantial way, the demands on the federal aid programs would escalate sharply, which might provoke a counter-reaction in Congress.²²

The difficulties with the high tuition-high aid approach are formidable, however. First, many states have deeply entrenched traditions of low or moderate tuition in their public institutions--a few have even enshrined low-tuition goals in the state constitution--and these will be vigorously and emotionally supported by advocates. They may be able to mobilize

considerable and potent political support from middle- and upper-income voters who have counted on modest tuition at their state's public institutions in making their financial plans over many years for children's or grandchildren's education. Low-tuition advocates will also point out that low-income and minority students are particularly sensitive to the "sticker price" of higher education, not fully comprehending the complexities and uncertainties of the financial aid system, a view that has considerable support (Kane 1999, esp. chap 2).

The financial advantages for states of more tuition-based financing of public higher education would no doubt be mitigated by demands for substantially greater state funding of student aid. Most states have student aid programs, and they generally use similar formulas for determining student need as do the federal programs: higher tuition charges generate more need. The demand to "hold harmless" low-income students and probably many in the moderate-income group would be great, and the debate over where to draw the lines as to how much increased need to meet via state funding could be highly charged. Finally, a great fear of access advocates is that, during times of revenue stagnation that states inevitably face periodically, student aid for the needy would have less political clout than sustaining appropriations for institutions. Thus, high tuition-high aid could well become high tuition-low aid with disastrous consequences for equitable access.

Since capital costs represent a very important part of the cost of expanding higher education capacity, states will be looking for ways to economize on these. Perhaps the most basic strategy available to states is to create incentives for colleges and universities to make more intensive use of existing facilities so that the need for new buildings and the like is minimized. State policymakers can use "carrots" or "sticks" in pursuing this goal. They could try to mandate use of classrooms more hours through the week, on weekends, and in summers and refuse to

fund new buildings (the "stick" approach). This approach will not go far though, if students are unwilling to attend classes at the targeted times without other policy changes. Thus, states might fund pilot projects and supportive investments, including marketing efforts, designed to demonstrate the feasibility of expanded weeks (e.g., for students who work full-time during the week) and a different approach to summer school classes that better integrates these into degree curricula (the "carrot" approach). The latter is likely to require a complex and carefully designed change process for faculty, who are accustomed to using summers for research (as well as for family vacations when children are out of school) and for students, who use them to work to provide savings to pay bills for the ensuing academic year. Institutions themselves often schedule revenue-producing conferences and special programs during the summer months as well as major maintenance activities. These are not easy matters to change, but given the long-term constraints on resources for higher education and the inertia that often persists at the institution level, it seems a useful role for state policymakers to try to catalyze structural changes that could reduce the capital costs of enrollment expansion.

Similarly, states may wish to provide resources and incentives for institutions to innovate in the delivery of higher education services to students via distance learning. Distance learning may not only make higher education accessible to students who would not otherwise participate but could also, if carefully designed, work to reduce capital needs by offering some instruction to many enrolled students with less use of classrooms. Some of the pioneers in this field have found that many students appreciate a mix of some intensive on-campus instruction²³ with the opportunity to take some courses or parts thereof without traveling to campus. Over time, this type of instructional mix might significantly reduce demand for new classrooms and other student facilities on campus, since fewer would be there at any given time. Use of technology to

reduce the need for faculty seems more problematic as was mentioned earlier, but it probably behooves states to support and monitor experiments in all these areas to see both how learning outcomes and completion rates compare and whether substantial savings in capital and other costs are achievable. It is important to note, however, that the investments in instructional technology and associated support, training, and upgrading costs have to be weighed against any savings in bricks and mortar.

Elsewhere I have written extensively about approaches to, and prospects for, states to respond to increased demand for higher education by inducing more students to enroll in private (independent) colleges and universities (Thompson and Zumeta 2001; Zumeta 1996; 1999b). Where demand is growing substantially and such private sector capacity exists and is willing to expand, states have several policy tools at their disposal for inducing such shifts. Most basically, states can, if they choose, use public institution tuition policy to serve two complementary purposes: increasing non-state revenue to public institutions by increasing their tuition prices, while at the same time enhancing the competitive position of private institutions so they attract a larger share of the growing enrollment load.²⁴ Also widely applicable is the manipulation of state student aid programs' appropriations and formulas to make attendance at private institutions more financially attractive.²⁵ In short, the state may come out ahead if it can induce a substantial number of students over the next ten years to attend private colleges for an additional \$2,000 or \$3,000 per year added to their state scholarships if the alternative is bearing the full cost of expansion of public sector facilities and faculties to teach them. Both program design and political issues are tricky, however.²⁶ How can the state avoid paying the enhanced scholarship dollars to thousands who would have attended private institutions in any case? And how can the powerful pressures from public higher education constituents to continue to claim the lion's share

of state-funded scholarship funds be resisted, particularly if their own tuition prices are increasing?

Another policy tool available to many states can avoid some of these difficulties. This is direct state aid to private colleges provided in return for enrollment of state-resident students. While in some states the constitution or basic political values (or private institution resistance) make direct state payments to private colleges in return for services delivered unthinkable, the author found in national surveys that about half the states had at least some form of direct appropriations or contract arrangements with private colleges and universities (Zumeta 1992; 1996). Some of these supported capital projects or research programs, but several provided per-student payments to private schools for enrollment of certain kinds of students (often medical or other health professions students)²⁷ or, in a few cases, for any state-resident undergraduate. Where private colleges and universities were available and willing, such payments could be calibrated so as to enroll sufficient numbers to preclude some of the need for costly public sector expansion to serve undergraduates. States lacking appropriate private sector capacity could even consider purchasing spaces in institutions (public or private) in other states, although policymakers may be reluctant to see state dollars "migrate" out of state.

Another part of the private postsecondary education sector also merits attention here. In the rapidly evolving new world of information technology, new forms of education providers have emerged and appear to be thriving and growing. Many of these providers are for-profits offering, via the Internet, employee training, or business or technical degree programs to people who will use them directly in their work or for changing careers. But also emerging are partnerships involving universities or groups of them and for-profit firms that offer a broader range of content. Over time, these offerings might come to include more of what colleges and

universities have traditionally offered on campus. Financing models vary, but the for-profits are plainly seeking eventually to cover their costs and make profits on these courses, implying that students will pay the full cost. States could conceivably sit back, watch this market develop, and conclude that expansion of public higher education was less necessary than in the past because much of the need was being met privately.

At a minimum, state policymakers will want to closely monitor market developments in the world of private postsecondary education. Perhaps eventually public system expansion can be thought of more in terms of filling gaps in the market's offerings than of seeking to be comprehensive, as in the past. Yet it seems unlikely that the private for-profit education industry will ever supply programs requiring high-cost laboratory facilities, high-quality Ph.D. programs, or the kinds of personalized educational experiences many students will likely continue to seek on residential campuses. And even if for-profits did come to supply an important segment of study programs in business, vocational fields, and some other subjects, states would still face claims for student subsidies to ensure access for the full range of citizens. Also, in an environment of greater private-public competition in postsecondary education, the state role in consumer protection and quality assurance will surely be more prominent and more complex. Certainly, it is too early to say how all this will play out for the states' role in higher education and on what timetable; but there may well be considerable fiscal implications, and policymakers will surely need to keep the proverbial ear close to the ground as educational technology and markets evolve.

Finally, to return to more familiar territory and a shorter time horizon, where states face large-scale growth in enrollment demand that for one reason or another they choose to respond to by expanding capacity in public institutions, many may want to look to two-year colleges to meet

more of this need than they have in the past. States vary widely in the extent of development of their two-year college systems, and several with relatively undeveloped systems have moved to expand them in recent years (e.g., Indiana, Kentucky and Louisiana). Community and technical colleges are well suited to meet many of the demands of the modern economy for workers with some postsecondary education but less than a four-year degree, while at the same time also providing opportunities for transfer to baccalaureate institutions for those who desire them.

These colleges have generally responded well to local needs and demands, especially in the realm of economic development. Their lower-cost capitalplants support their broad geographical distribution in many states, which facilitates student access. Access has also been promoted because states and localities, which often share the costs of two-year public colleges, have been willing to offer enrollment at much lower tuition rates than for four-year schools while still generally spending less in public funds per student. All these features make two-year colleges an attractive place to expand the public higher education system in a time of growing enrollment demand and limited public funds. Theoretically at least, room for more two-year college transfers to move on to baccalaureate colleges could be created by making the latter institutions more specialized in the "upper division" of college work (roughly the last two years of a traditional four-year degree program). Systemically, having a greater proportion of students begin at the lower-cost two-year schools should reduce the total cost of educating each student.²⁸

Of course, this type of macro-system planning is easier to talk about than to pull off. Many four-year colleges resist the idea of giving up all or most of their freshman and sophomore classes. (What will it do to the football team and traditional student campus life?) There is ample evidence that students who commence studies at two-year schools are less likely to complete four-year degrees, and take longer when they do succeed, because of the personal and

bureaucratic complexities of changing institutions and articulating curricula. These are not small problems. Inducing large institutions and systems to work together efficiently is a major challenge, but the pressures to do so are likely to be stronger than ever before.

The Federal Backdrop

Federal policies are relevant to state finance of higher education in limited but important ways. Most important are federal support for research and development and student aid. R & D funds not only support academic research projects and graduate students, but the substantial indirect cost allowances on federal grants are a major source of largely discretionary income to research universities.²⁹ If R & D funding were threatened with stagnation by federal budget problems, this would seriously affect research universities, many of which--especially those in the public sector--are already financially hard-pressed.

Federal funding for student aid totals some \$60 billion per year (excluding tax credits) and, unlike R & D funding, is very broadly distributed across the higher education system. If renewed federal budget problems and politics threaten the usual growth patterns in the student aid programs just at the time when more students seek to use them (Burd 2003), it will be that much more difficult for states to ensure student access to higher education. They will be under more pressure to increase their own aid programs³⁰ and will have much more difficulty using any strategy involving substantial public sector tuition increases to help pay for increases in enrollment capacity. Presumably, the federal government is no longer in any fiscal position or political disposition to finance boosts in its student aid to cover substantial increases in student need for aid that would result from implementation of high tuition-high aid policies. The brief window of opportunity that might have existed to facilitate such a state strategy seems now to

have closed.

Conclusion

In this chapter I have sought to sketch the challenging picture that is before higher education leaders and state policymakers as they face, simultaneously, an era of great social demand for higher education, and powerful constraints on traditional sources of finance. Decision makers will need to be creative and innovative in thinking about how to tap more effectively both old and new sources of support and, very likely, how to achieve more with fewer resources per student. They will also need to be closely attentive to rapid changes in technology, student needs, and market dynamics. State policymakers in particular will need to increase their efforts at "market intelligence," consumer protection, and quality oversight. The most urgent public policy imperatives for all, however, will continue to be access and equity: how can we ensure places in a quality postsecondary education enterprise for all who can benefit, regardless of their economic status? These are worthy challenges indeed for higher education leadership in the early morning of the twenty-first century.

Notes

1. Individuals with graduate degrees have seen their relative economic advantage increase the most in recent years, and of course, a college degree is normally a prerequisite for entrance into graduate school.

2. Campus-based community service projects can sometimes become controversial, however, when they get involved in issues where views and interests among the public are mixed.

3. Since higher education remains a labor-intensive "industry" where quality is defined largely by faculty-student interaction, there has been little or no productivity gain to help offset the effects of funding stagnation.

4. Transportation expenditures, dominated by highways, are another large expenditure category but are generally funded primarily from "special fund" revenue sources such as fuel taxes.

5. The fiscal threats posed by surging costs are particularly worrisome in the current period of economic sluggishness following the recession of 2001. Medicaid costs are skyrocketing again after a few years of more modest escalation (National Governors Association 2003), although some federal fiscal help has recently been enacted (Walters 2003). In welfare, since the federal Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) went into effect in 1997, states are formally relieved of their legal responsibility under federal law to provide part of the funding for new welfare cases because welfare is no longer a legal entitlement of destitute families. Under this welfare regime, federal aid to states for welfare is provided in the form of a block grants tied to federal subvention levels of the mid-1990s. While this aid was more than adequate during the economic boom years when the welfare rolls were falling, now states have no guarantee of federal help with caseload pressures that are building with the recent stagnation. Congress could provide additional help when it reauthorizes PRWORA later in 2003, but current political squabbles around the re-emerging federal budget deficit raise real questions.

6. Tuition increases are generally the largest, readiest, and most discretionary source of additional income that institutions and states can tap to help offset cutbacks in state appropriations. Yet they understandably produce mixed reactions in legislatures, which are also

responsive to outcries from students and parents and may be concerned about deterrent effects on access for low-income and underrepresented students. On balance, policymakers have generally permitted relatively large tuition hikes during recession periods (see Figure 4).

7. Independent (private nonprofit) colleges and universities also suffer during recessions because economic slowdowns generally reduce private donations and returns on endowment income (Van Der Werf 2002). Thus, these institutions also turn to larger-than-normal tuition increases during recessionary times just when students and families may be least able to pay more.

8. These included infrastructure funding, funding for K-12 education reforms, and tax cuts as well as new efforts to control criminal justice, health, and welfare spending.

9. State appropriations to higher education grew at a rate of about 7 percent per year nationwide during these three years (Schmidt 2000, pp. A34-35, citing figures compiled by the National Conference of State Legislatures).

10. For a thorough literature review see Millett (2003).

11. On the impact of economic considerations on the choices of the most talented young Americans with potential for careers in science, see Zumeta and Raveling (2001).

12. Recent data show some signs of modest positive trends in minority enrollments (Harvey 2001).

13. I will comment below on the prospects for changes in this premise given the emergence of new instructional technologies.

14. It should be noted that these costs should be compared with the costs of more buildings and the like in the traditional delivery model.

15. Delivery via distance learning also seems to be associated with higher dropout rates,

raising questions about the premise that the quality of educational services as perceived by the student is comparable.

16. This could occur either by the design of instructional materials requiring less faculty interaction with students or by the creation of a faculty "star" system, where a few outstanding faculty provided some content via taped lectures or the like, while the personal contact with students and their work was provided by much lower-priced individuals functioning as teaching assistants or tutors.

17. Congress supplies vital research dollars to both private and public universities, and private colleges are quite sensitive to the levels of federal and state aid made available to their students. In a few states legislatures provide state appropriations directly to private colleges and universities (Zumeta 1996), which gives policymakers additional potential leverage over pricing policies.

18. Such students might well move around among institutions as prices shifted (Hilmer 2001), but the evidence is clear that affluent students are not very price sensitive in terms of their propensity to enroll somewhere (McPherson and Schapiro 1991). This is one reason that public policy involvement is likely to be needed to make such a regime workable.

19. The stock market boom of the 1990s provided handsome payoffs indeed for those schools with substantial endowments, but the era of supercharged market returns seems likely to be over for a while. In any case, most colleges and universities have very modest endowments.

20. For example, in a few cases companies have essentially purchased, for large donations, special access to a department's research products prior to publication and some ability to delay publication. The department also guarantees that much of its research activity over a period of years will be devoted to topics of interest to the company. See Blumenstyk

(1998; 2001) for coverage of two prominent examples at Washington University and the University of California, Berkeley. University equity investments in companies spun off from faculty research raise potential questions of conflict of interest as do heavy faculty involvement therein. For extensive analysis of the benefits and problems of university "technology transfer" and related policies, see Bok (2003).

21. See McPherson and Schapiro (1991) for a discussion of how this would work.

22. The current recession-induced jumps in tuition rates seem to be producing just such a response in Washington.

23. Note that for working students, the on-campus modules might well be scheduled on weekends.

24. State policymakers do not always have direct control over public colleges and universities' tuition charges, but they can exert powerful influence through control of their state appropriations. Of course, any sharp increase in tuition should be accompanied by appropriate provision for increased need-based student aid.

25. Most of the states have such student aid programs for which state resident students who attend both private and public colleges are eligible (De Salvatore and Hughes 2001).

26. For a fuller analysis of these see Zumeta (1999b).

27. A few states have used this method to purchase spaces for students in private university medical schools to avoid the need for establishing an additional public medical school.

28. Many states are going one more step to streamline the public education system by encouraging students to begin taking college courses while still in high school.

29. These allowances are designed to reimburse universities for the portion of their costs for buildings, libraries, computing, administration, and myriad support services that are broadly

attributable to these institutions' heavy commitment to funded research but are not readily identifiable with individual projects.

30. These are large in some states but quite small in many (De Salvatore and Hughes 2001).

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