

INVESTMENT PATTERNS IN CALIFORNIA HIGHER EDUCATION AND POLICY OPTIONS FOR A POSSIBLE FUTURE *

May 2002

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ABSTRACT

What has been the level of public investment in the California higher education system, and how has it performed over the past century? What are the challenges that this system faces in the future and what level of investment is necessary? This paper attempts to provide an historical context to these questions in order to assist Californians as they once again consider how to expand educational opportunity. California now faces a dramatic new period of potential enrollment and program growth that will have a significant impact on socio-economic mobility, and on the state's economic competitiveness. How might the state rise to the occasion?

The rapid rise of American higher education represents one of the most significant socio-economic phenomena of the 20th century. California was and remains a leader in what was a revolutionary idea. Beginning in 1920, California was the first state to develop a coherent public higher education system, establishing a tripartite structure consisting of the nation's first network of public community colleges, a set of regional state colleges (what became California State University, CSU), and the nation's first multicampus state university, the University of California (UC). All three systems were linked by matriculation agreements and by a process of accreditation.

What has been the level of public investment in this higher education system, and how has it performed over the past century? What are the challenges that California higher education faces in the future and what level of investment is necessary? This summary of a larger report attempts to provide an historical context to these questions to assist Californians as they once again consider how to expand educational opportunity. California now faces a dramatic new

* *This is a summary version of a larger paper on past investment patterns and future challenges facing California higher education that will be published as part of a larger monograph on California's infrastructure needs by the Institute of Governmental Studies at UC Berkeley and the Brown Institute for Public Affairs at California State University, Los Angeles. A similar paper was also presented at an associated conference, California's Future in the Balance, Wilshire Grand Hotel, Los Angeles, November 15, 2001.*

period of potential enrollment and program growth that will have a significant impact on socio-economic mobility, and on the state's economic competitiveness. How might the state rise to the occasion?

More Bang for the Taxpayer Buck

By most measures, California's system of higher education has been a dramatic success. Over much of the past century, California led the nation in the number of students who graduated from high school and then enrolled in post-secondary education. The tripartite structure has also proven to be tremendously cost efficient. The cost to taxpayers on a per student basis has historically been around the national average, even as the system has undergone a series of major expansions in enrollment, new campuses, and program growth.

Equally important, the tripartite system consists of some of the highest quality public institutions in the nation, indeed the world. No other state has been so successful in creating new campuses with a major impact on socio-economic mobility and economic growth. Relative to other states, California has gotten more bang for each taxpayer dollar. This past track record has drawn the international attention of other nations as they attempt to build new colleges and research universities, in part to enhance their economic competitiveness.

Another important gauge of success is how Californians view the system. Californians have long envisioned access to higher education as a basic right. It has shaped their aspirations and their view of what it means to be a Californian. Every major economic sector in California has also been tied directly to the emergence of California's public higher education system. Its pervasiveness and productivity is a key source of skilled and professional labor, and a vital producer of applied and basic research important for bolstering industry, public health, the state's growing service sector, and enriching local communities.

Past Investment and Containing Costs

How has California accomplished a massive expansion in enrollment at a manageable cost to taxpayers and students? There are a number of features of California's system discussed in the this study that help answer this question:

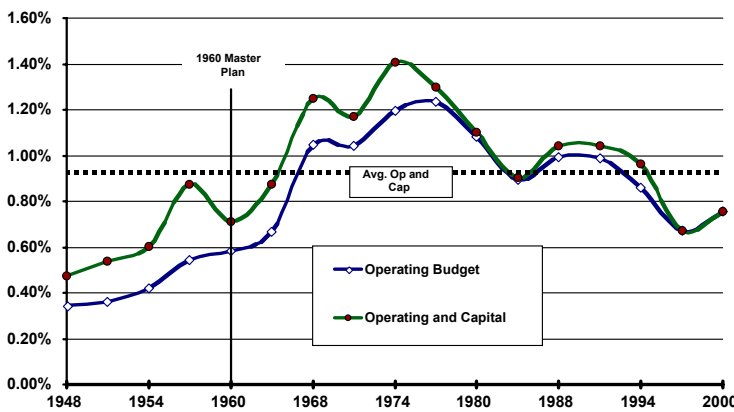
- The general consistency over time in the mission and structure of the tripartite structure has created a relatively stable policy environment – a sharp contrast to many state systems that have and are undergoing successive waves of reorganization;
- A governance structure that has focused each governing board and its set of campuses on their distinct mission and role in the state, often with a relatively high degree of autonomy. This has helped reduce the politicization of program development and resource allocation;
- A resulting constraint on the “mission creep” of institutions, and in turn on costs;
- An early devotion to statewide planning of higher education in anticipation of long-term growth;
- The significant level and general consistency of public investment over time in both operating and capital budgets.¹

An Alarming and Sustained Decline in Investment

Particularly in the period 1958 to 1974, California made a major investment in both operating and capital budgets to both increase enrollment expansion and encourage quality academic programs and services. Yet this investment pattern declined significantly from approximately 1975 until the recent but apparently brief economic boom in the late 1990s (see Figure 1).

Figure 1.

State and Local Public Higher Education Funding as a Percentage of California Personal Income, 1948 - 2000



Source: John A. Douglass, *California Idea and American Higher Education* (Stanford Press, 2000); CPEC *Fiscal Profiles 2000*; William Pickins, "Financing the Plan," California Higher Education Policy Center, May 1995; California Statistical Abstract, 1970.

The political will and the general sense of optimism that characterized earlier eras of policy development has waned considerably over the last several decades. In real dollars, funding on a per student basis today is less than it was in the late 1980s. But the decline in capital outlay provides perhaps the most illustrative example of this shift. Capital investment as a proportion of state investment has been negligible, creating a serious problem for future enrollment growth. The current recession will lead to a further decline in investment.

As shown in Figure 2, the bulk of California's post-World War II construction investment occurred between 1948 and 1974, peaking during the late 1950s and into the 1960s. From 1965 onward, no new UC or CSU campus was established until CSU San Marcos in 1989. UC Merced, the first new UC campus since 1965, is not scheduled to open until 2004. Similarly, the pace of local initiatives to open new Community Colleges continued until 1975, and then dissipated.

Figure 2.

Establishment of New Public Higher Education Campuses in California: 1945 - 2000

	CCC	CSU	UC
1945 – 1955	18	3	2
1956 – 1965	18	8	3
1966 – 1975	25	0	0
1976 – 1985	3	0	0
1986 – 1995	2	2	0
1996 – 2000	1	1	0

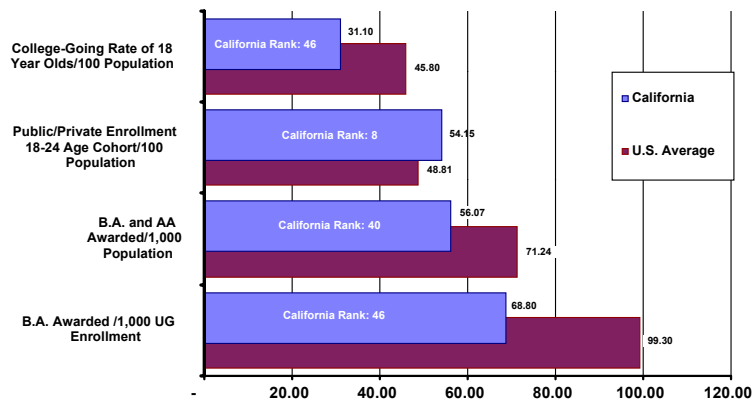
Source: Douglass, *The California Idea*; CPEC Data Base.

There are a number of indicators of a decline in the vitality of California's public and private higher education system that correlate with this long-term period of dis-investment. While the state still has a relatively high participation rate for 18-24 year olds—ranking it eighth in the country—and large numbers of adult learners, the number of students who complete an

Associate of Arts or a Bachelors of Arts degree is extremely low. For example, B.A. degrees awarded per 1,000 students enrolled in undergraduate programs in the state is a dismal 68.8, placing the state nearly dead last among the fifty states (see Figure 3.).

Figure 3.

**Recent California and National Participation Indicators:
Enrollment Rates and B.A. Awarded: 1990 and 1995**



Source: Sources: Latest data available. *Education and the States: 1991*, and *Education in the States and Nations: 1991*, National Center for Educational Statistics, State Department of Education; *Statistical Almanac that the Chronicle of Higher Education, 1995*.

There is a similar low rate of production of Bachelors of Science degrees. California's dramatic demographic shifts, including the largest immigrant population in the United States, partly accounts for the relatively low participation rates and degree production. Low investment rates in public schools and public higher education is another factor and documented in the larger report.

A baccalaureate degree is a growing determinant of future income and socio-economic mobility. A failure to improve in this performance area will leave large numbers of students behind, and place a downward pressure on future economic growth. Projections offered in this report estimate that California is now entering its greatest period of enrollment growth for both public and private higher education (see Figure 4.). If California fails to adequately plan and invest in serving the state's higher education needs, either through the existing higher education framework or under a modified model, the consequences could be tragic.

California is now among the fifth largest economies in the world. As in previous periods in California's history, the current economic downturn, while significant, should not distract from a bold attempt to both build on past successes and search for innovation.

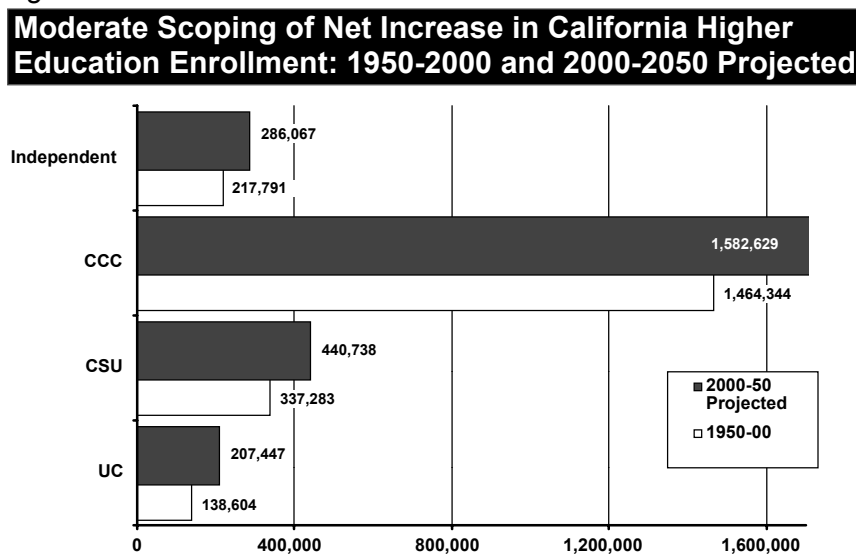
Projecting a Possible Future: Enrollment Growth

A central theme of this essay is the overall success of California in meeting growing enrollment demand, in providing alternative paths for students to matriculate, and in creating quality academic programs and services. As noted, past patterns of public investment in this effort have been significant, but not exorbitant compared with other large states. This is because of the efficiencies of the division of labor. What will be the scale of future growth and how well suited is the existing system to meet California's future demand for higher education? The following attempts to provide a cursory look into both issues, beginning with a projection of future enrollment demand.

If there is any one theme that runs through the policy issue of higher education in California, and throughout the world, it is the increasing saliency of higher education to both socio-economic mobility and nation-state development. This includes not only expanding educational opportunities and developing the labor skills of citizens, but also the modern dependence on new knowledge production. An equally important goal, and one that was a central reason for developing the tripartite system in California, is to broaden the culture and knowledge of society—to create good citizens and expand our understanding of the world. The relevancy of this argument remains, even though it is much less a factor in current political discourse. Beyond the altruistic purposes this objective serves, a concerted effort to expand the analytical reasoning and cosmopolitan sense of Californians appears critical for participating in a global economy.

A basic building block of most efforts to understand the future of higher education is the rather myopic concentration on future enrollment. This tends to relegate the equally important areas of research productivity and public service to an afterthought. With some reluctance, and for simplicity, this section focuses purely on enrollment growth to help provide a general gauge of the Herculean task that confronts the state.

Figure 4.



Source: *The California Idea*; CPEC Data Base; Authors projections.

Current enrollment projections by the Department of Finance, CPEC, and the public segments provide a 10- to 15-year glimpse into a likely future. CPEC projected that 714,000 additional students would seek enrollment within the tripartite system between 1998 and 2010, including 530,000 in the state’s community colleges; 130,000 in CSU; and some 56,000 at UC. These are staggering numbers and thus far have been reasonably accurate.² They are based on a relatively safe model: students currently in the K-12 pipeline will enroll in higher education at roughly the rate they do today. Indeed, one might anticipate (and hope) that more students would both graduate from high school and participate in postsecondary education, particularly disadvantaged groups. An improvement in California’s high school graduation rates to equal the national average would significantly change the average participation rates of the traditional college age cohort. For this exercise, however, I have incorporated these official projections.

Yet peering out a mere 10 or so years does not provide a broad enough understanding of the potential future of California higher education. Policy analysts and academics shun longer-range estimates of enrollment because of their unpredictability. It is not clear that California’s

population will continue to grow at historic rates. A Malthusian limit might set in that restricts immigration and levels birth rates. Certainly, any continued growth in California’s population would have severe impacts on the environment, on water and energy demands, on the state’s infrastructure of roads and the array of public services, and on a multitude of other quality of life factors.

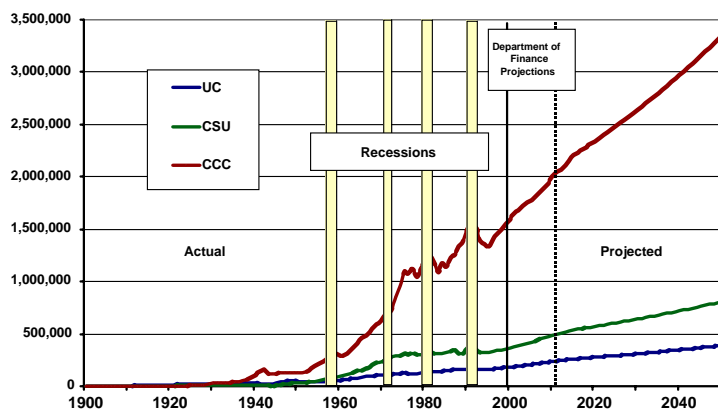
There are other variables to consider. Education and training needs of California’s population will be much larger in, say, 2025 than today—this seems a reasonable assumption. This might have a particularly large impact on potential enrollment demand for the largest segment, the community colleges. On the one hand, a proliferation of other providers and perhaps a refocusing of the mission of these public colleges might reduce future demand; on the other hand, community colleges are well positioned to increase their market share over the long term. Another potential scenario is that a failure to adequately fund and expand public higher education might result in a failure by the segments to expand academic programs, to aggressively pursue innovations in areas such as instructional technologies, and thereby to expand dramatically enrollment capacity.

This incomplete list of caveats and variables noted, it is important to observe that in the area of California higher education, long-range planning has been extremely important in creating the current public tripartite system, and has proven reasonably accurate. Indeed if there is any one lesson, it is that past projections have tended to *underestimate* enrollment demand, including the 1960 Master Plan that looked ahead more than 15 years.

So what is the potential scale of enrollment growth over, say, the next 50 years? Figure 5 provides a gauge of potential enrollment demand within each of the public higher education segments. As noted, this incorporates projections by the California Department of Finance that end in 2010. It then employs a yearly percentage increase based on past patterns of growth and official projections of total population growth in the state.³ To create a moderate-to-conservative projection, growth rates used are below estimates of total California population growth over the next three or more decades of 1.6 percent. Barring a paradigm shift in demand and higher education providers, this projection provides what I hope is a reasonable picture of a possible future.

Figure 5.

Moderate Scoping of California Higher Education Enrollment: 1900-2000 Actual and 2001-2050 Projected



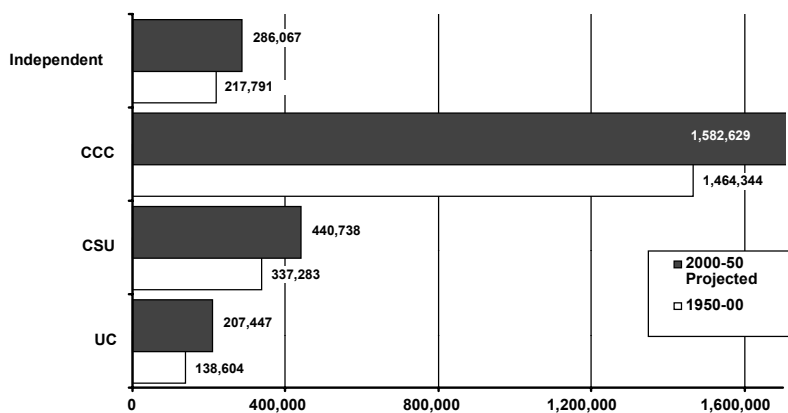
Source: Douglass, *The California Idea* (2000), p. 358; California Statistical Abstract (1970); CPEC, *Student Profiles, 2000*; author’s projection.

Because of the pivotal role of the community colleges in past enrollment growth, the scale of projected increases for CSU and UC is not adequately portrayed on this chart. Growth in CSU and UC will be significant, and will likely exceed the historical levels achieved from 1950 to 2000—what was at the time an unprecedented and ambitious campaign to expand enrollment capacity. In this scenario, the public higher education system in California could grow by a staggering 2.4 million students. Even if this projection is inaccurate by 10 to 20 percent, the scale is still tremendous.

Based on this analysis, Figure 6 provides a portrait of the net increase, actual and projected, for each of the public segments. It also includes past and anticipated increases in private/independent colleges and universities. Potential growth in existing traditional campuses, such as Stanford and USC, is probably very limited. However, proprietary colleges and graduate programs also constitute a participant in this segment, and they will undoubtedly dramatically increase their role in higher education. It is essential that the private/independent sector in all its diversity increase programs and enrollment. This projection assumes that such institutions at least retain their current market share.⁴ Growth could be greater, although perhaps not as a producer of the liberal arts B.A. If the private sector does not retain its market share in serving the traditional 18- to 24-year-old cohort, additional demand for enrollment in public institutions will result.

Figure 6.

Moderate Scoping of Net Increase in California Higher Education Enrollment: 1950-2000 and 2000-2050 Projected



Source: Douglass, *The California Idea* (2000), p. 358; California Statistical Abstract, 1970; CPEC, *Student Profiles, 2000*; author's projection.

As in previous periods, recruiting talented faculty and staff, as well as building a corresponding infrastructure of facilities, poses significant challenges. The process of expanding existing and developing new campuses has become much more complicated and costly. Environmental laws, local community concerns, and, just as important, the difficulties of recruiting faculty and staff for relatively low salaries within population centers with high living costs, add to the burden of expanding higher education.

The lack of capital investment also creates a serious problem for expanding enrollment capacity. Even with the new UC Merced campus and attempts to expand the existing enrollment caps at the existing UC campuses, enrollment capacity will be exceeded by demand in approximately 10 years.⁵ This takes into account attempts to increase facility usage (e.g., summer sessions, off-campus centers, and optimistic projections of the use of on-line and distance education). CSU and the community colleges face a similar scenario. A recent study completed by CPEC anticipates dramatic disparities in capacity versus regional enrollment

demand within the state if there is not a large-scale building program—again assuming near-term improvements in utilization of existing classrooms and other facilities.⁶

Projecting a Possible Future: Planning and Policy Issues

Much of the analysis on California higher education in recent decades has focused heavily on cutting costs and creating accountability measures. The horizon for planning has been almost always short-term. This has been a national trend as states have grappled with expanding services and limited revenues. Still, it is remarkable that California concluded the last three or so decades of the twentieth century with an extremely limited vision of its future and the role of civic institutions such as higher education. This came at a time of generally great prosperity, and corresponded with the arrival of new economic sectors intimately tied to the state's collection of colleges and universities. In no small part, California's rise to the status of the fifth single largest economy in the world has been built on the foundations of public investment made some 50 or more years ago. It seems imprudent, however, for California to continue to live off of the past, or to simply muddle along in its investment patterns in higher education.

If California fails to adequately plan and invest in higher education, either through the existing higher education framework or under a modified model, the consequences could be tragic. It could mean, for example:

- a. A drastic break from its historic effort to build one of the best higher education systems in the world;
- b. A significant erosion in educational opportunity and socio-economic mobility—in short, the most important issue for expanding accessibility of minority and lower-income students is to expand enrollment capacity and to create quality educational programs;
- c. A severe reduction the state's economic competitiveness.

The following provides a preliminary and incomplete collection of thoughts on what policymakers, the higher education community, and concerned citizens might consider as they, like previous Californians, ponder policy options for the future. Many of these points reflect the ideas and findings of others over time.

Managing the Public Tripartite System

As noted, the tripartite structure with its general division of labor remains salient. This includes the promise of broad access and choices for matriculation, relatively low costs for attendance, a wide geographic distribution of postsecondary institutions, and the idea of a variety of mission-specific institutions intended to help meet regional and statewide training and economic needs. It also includes the promise to adequately fund the enterprise and plan for its future. However, a number of general goals and possible modifications should also be considered.

- *Sustaining the Tripartite System:* Paramount is a general understanding by policymakers and Californians that the past and future success of the tripartite systems relates to the general vitality of each of the public segments. The same can be said about the vitality of the state's public schools. Collectively, their whole is greater than the sum of their individual parts, but only if they are adequately funded and functional. As this analysis has attempted to portray, the long-term environment of a decline in operating budgets relative to enrollment has taken a toll on the overall health of this system.
- *Creating an Expanded Analytical Framework:* There is a need for an expanded analytical framework that can inform policy makers on major strategic issues facing California higher education. This should include systematic attempts to study the quality and condition of

teaching, research, and public service programs: for example, an on-going and systematic assessment of factors such as student-to-faculty ratios, along with qualitative measures such as the perceptions of student and faculty as indicators of institutional morale and performance. Further, California should consider integrating a comparative (international and U.S.) perspective on investment rates in higher education, and a more regularized assessment of the changing degree and research needs of the state and beyond.⁷ California has long operated as if it were an island with little regard to either the importation or exportation of students and educational services. A comparative framework will assist the state in planning its higher education system.

- *Establishing a Number of Broad Performance Goals:* California should set a number of broad policy goals for the next decade to help place it once again in the vanguard in terms of both access and productivity. For example, in ten years the state should rank among the top ten states in the nation for A.A. and B.A. degree attainment among its general population, or perhaps among its student population.

Similarly, B.S. degree attainment relative to population should be among the top ten by 2010 or before. Currently, 9.3 percent of California's job market is in high-technology industries and R&D institutions—substantially above the national average of 5.6 percent.⁸ Science and technology fields will grow in importance. Expanding education in this area will help further bolster California's existing technology-related businesses and help to invent new ones. Within this important economic sector, over 50 percent of the workers have college or advanced degrees, and only 20 percent or less have no more than a high school degree.

Over the past decade, degree production in many science and engineering fields has declined. For example, the total number of undergraduate engineering degrees produced in both private and public higher education has dropped 13 percent over the last decade. Only about 2 out of every ten community college transfers seek further study in a science and engineering field. And within the CSU system, only one of four students who start a science and engineering program actually complete a degree in that field. This and other disjunctures in science- and technology-related degree production relative to California's labor needs has proven a significant problem for the state's economy. The result has been a significant yet insufficient importation of talent. Without a concerted effort, this imbalance may worsen considerably.⁹

In a related issue, California should also evaluate the overall productivity of graduate degree programs within both public and private segments, and assess how they might be expanded. Within the public segments, only 5 out of 100 students are enrolled in graduate programs. Within UC, the main public producer of graduate degrees beyond teacher credentials, graduate enrollment represents only 17.5 percent of the entire student body—significantly lower than in many other major research universities.

The focus of many lawmakers and the public has been on the substantial task of expanding undergraduate enrollment. The result has been a troublesome and myopic lack of focus on promoting graduate education. Only recently has this issue regained greater attention for its key role in promoting socio-economic mobility and economic growth in the state. With shortages in key labor areas (e.g., high tech, teaching, nursing), a concerted effort should be made both to analyze market needs and to promote graduate programs in these areas. But there is also a serendipitous aspect regarding the mesh of graduate programs and jobs in the economy: for example, a student with a doctorate in, say, English can become head of a major web-based business. For this reason, beyond field-specific analysis of need, California might set general goals to expand graduate enrollment and degree productivity.

Similarly, the state should set general goals for investment and productivity of basic and applied research. The state conducts some 20 percent of the nation's R&D, compared with a national average of 13 percent. Will California maintain or expand its market share? Funded primarily by both federal grants and by a growing pool of private investment, California has begun to reassess how it might bolster state investment in this area. A report by the California Council on Science and Technology urges a broad review by California's state government to sustain and expanding the state's science and technology infrastructure, with higher education a key player in this endeavor.¹⁰

- *Investigating the Polytechnic Model and Revisiting CSU's Mission:* As noted, there is a major need to expand education in technology and applied skilled fields such as engineering, biotechnology, and communications. How might California systematically approach this need? Within the state's public higher education system, both the community colleges and CSU have low degree production trends in these fields. Broadening student options and created academic communities focused on bolstering science and engineering education is vital. Current liberal arts institutions can improve in this regard and grow in enrollment. Nevertheless, California might also consider creating a new type of public segment, based on an extremely successful model: a set of polytechnic colleges awarding degrees up to the M.A. level.

Under this scenario, CSU could simply add more of these types of institutions (in addition to San Luis Obispo and Pomona and with perhaps more science and technology-driven charters), or establish distinct colleges within existing or future CSU campuses. However, there may be advantages to establishing a new and distinct segment within California's higher education system with its own governing board power. Creating a new segment would focus the institutional mission on this specific need. It could also divert enrollment demand (perhaps marginally) to the other 4-year segment—an objective if one is concerned with how to manage such large-scale enterprises as CSU.

The polytechnic model has been the source of vigorous debates regarding its potential role within the modern economy of OECD nations. California could benefit by investigating these debates and the approaches of other nations. Ultimately, the state would need to study the potential role of a system of polytechnics within a larger strategic approach to developing science and engineering education and research in the state.

Beyond this potentially major change in the CSU system, there undoubtedly is room for other modifications. As part of a general review of the degree functions and productivity of each of the segments, this should including a continued reevaluation of CSU's potential role in specific fields, such as the doctorate in education.

- *Revisiting the Multiple Missions of the Community Colleges:* Of the three public segments, the community colleges are the least prepared to strategically grow in enrollment and programs. Further, these colleges have the greatest need for a broad reevaluation of their current governance structure, funding levels and resources, enrollment growth patterns, and program and degree productivity.

Community colleges have undergone a transition, largely since the 1970s. Many colleges have rapidly expanded programs and enrollment to meet a great variety of local and statewide needs, creating "comprehensive" colleges. This includes a tremendously varied curriculum of vocational programs, career guidance, adult education, and remedial courses, along with more traditional programs in the liberal arts. In many cases, this path has caused perhaps too great a diffusion of efforts within a college, often within an environment of

shrinking resources (e.g., expanding adult and vocational education programs at the expense of the important transfer function).

Past budgeting practices and the need for local colleges to react to local community needs and desires make this a complex question. There are dramatic differences in the general funding levels and the array and quality of programs within the 107 campuses that currently operate. As noted, within many colleges, the attrition rate of students is extremely high, which, like the state's high drop-out rates for high school students, has a major impact on degree attainment in the state.

This set of maladies does not lend itself to easy answers. Because community colleges are the main point of entry for a large portion of the state's low-income and minority students, plus the main ladder for degree attainment, great attention and resources are needed to help such institutions strategically grow and develop. For example, certain colleges might be designated for a set of more limited programs—essentially, an effort at a more systematic differentiation of their mission.¹¹ For some, this could include potential partnerships with other colleges, CSU, UC, and private institutions to encourage matriculation and 4-year-degree attainment in specific fields. And indeed, these types of cooperative relationships are already developing.

Managing the system to meet statewide as well as local needs also requires further reevaluation—a subject of long and often rancorous debate. A 1998 report by the California Postsecondary Education Commission argued that the contemporary governance structure inhibits the ability of the community colleges to function in “optimal fashion or operate as a unified state system.” And a 1999 report by the California Citizens Commission on Higher Education, a blue-ribbon committee, had a similar assessment. It recommended major changes in the governance structure of the colleges: essentially, to remove local district governance in favor of empowering the statewide California Community College Governing Board and the segment-wide Chancellor's office.¹² Disenfranchisement of local authority, however, is a politically difficult challenge.

Beyond central questions of governance, any solution will require greater resources. At a minimum, California should consider modest but steady increases in student fees as both a mechanism for generating revenue and for increasing students' investment in coursework. There are many social benefits to the extremely low cost of enrollment in a California community college. But it also contributes to extremely high attrition rates. Large numbers of students drop out of courses without any major consequence. To some degree, there are too many casual students. An increase in personal investment in a course will likely result in better retention rates and course completion—and greater efficiency in state and local funding of community colleges.

- *Faculty Recruitment:* As the higher education system expands, California needs to both replace retiring faculty members and hire new ones. This will likely have a dramatic impact on both the national and international market for faculty. A study by the University of California estimates that some 8,000 additional faculty will need to be recruited to the segment between 2000 and 2010. Depending on the future mix of full- and part-time faculty (an assessment that needs to be carefully considered) at CSU and the community colleges, these segments will need to recruit even larger numbers of faculty. An analysis of this potential phenomenon is needed (i.e., a statewide and national supply-and-demand study similar to those conducted in the late 1950s).

Recruiting high-quality faculty and then retaining them will be a great challenge. While the work of attracting a new generation of faculty at UC, CSU, and CCC will take place at the

campus and department levels, state government needs to quickly bring faculty salaries up to competitive norms, and to investigate creative incentives such as tax breaks and home loan programs. Many public and private institutions in other states, for instance, have long provided reduced tuition/fees for faculty family members as compensation and as an inducement for retention.

Funding Enrollment and Program Expansion

California must create an improved framework for sustained funding of higher education at an adequate level. What might that be? Again, there must continue to be a strong emphasis on and expanded notion of accountability, cost-containment, and performance measures. Assessing overall budget needs also should be largely based, as it has been, on defined workload and program responsibilities. Yet there should also be an assessment of required funding levels over the long-term—in essence, an accountability measure for state and local government.¹³

- *Creating a New “Core Funding Source”*: California should recognize that it must move to a sufficiently robust mix of state and local funding as well as tuition to fund current operations and capital outlay of public institutions. In combination, state/local funding and tuition/fees should create a “Core Funding Source.”

The establishment of tuition came reluctantly in the early 1990s and without a strong strategic framework. As a result, the issue of fees and tuition tends to be a policy issue heavily conditioned by the political needs of lawmakers. Particularly in light of the new budget environment, California must quickly move to a moderate fee and high financial aid model to both generate adequate revenue and maintain access. There is a need to revisit California’s financial aid structure, including its relationship with federal programs.¹⁴ At the moment, state programs, such as Cal Grant, help low-income students. Changes in the tuition structure will require broadening the number of target groups and could include a more integrated model, both in terms of federal and state programs, and providing high school students with a better understanding and access to financial aid.

In setting tuition levels, a number of models have been discussed. Like salary levels for UC and CSU faculty, tuition might be set in relationship to comparable institutions. Another model might create a progressive tuition system, based on the means for Californians to pay—although the administrative complications of such a system would be considerable.

- *A Policy Goal and Accountability Measure for Adequate Public Funding*: California should set a goal or a floor for its new “Core Funding Source” over the next decade for public higher education that matches historical levels. This should be approximately 1.2 percent of personal income in the state—matching the investment rates of the 1960s, which would provide one gauge of investment that is tied, in part, to economic performance.

Capital Outlay and New Campuses

In large part because of the investment patterns in the capital and operating budgets initiated over the last century, California has a large infrastructure of campuses capable of significant enrollment growth. Yet there are also a number of constraints, including enrollment caps negotiated with local communities.

Thus far, there has not been a broad analysis of the long-term capacity of the existing campuses. One reason is that the anemic capital budget situations suffered over the past decades have made more expansive thinking difficult. Another reason is that currently any discussion of increases in campus enrollment targets is encountering local community opposition and a lack of statewide political support. There is a need to broaden the policy framework for studying and promoting the expansion of enrollment capacities targets of UC and

CSU campuses—usually set not by the institution, but under a lengthy negotiation process with local communities and tied to state and sometimes federal environmental laws. Yet, even with large increases in the enrollment capacity of existing campuses, new campuses are needed. Combined, the state will likely require a building program that will exceed the tremendous rush of expansion pursued in the two decades after World War II.

- *Initiate Planning for New UC and CSU Campuses:* Planning should begin immediately for *up to* three new UC campuses and *up to* four CSU campuses. The segments should continue to develop proposed alternatives for meeting dramatic enrollment increases, for example summer sessions, instructional technologies (IT), and distance learning. But this will not abrogate the requirement for new campuses, which now require approximately 8 or more years to develop following site location.

Particularly for UC and CSU, developing a new campus is a lengthy and difficult process. Recent examples, such as UC Merced and CSU Channel Islands, provide a general guide: 6 to 12 years or more from initiation to enrollment of the first class as a distinct campus, not simply as a branch campus. When a new campus does open, its ability to grow is limited. A growth limit of around 800 students a year, as planned for UC Merced, is a substantial rate and administratively difficult. In light of future enrollment demand, there is an urgent need to once again begin the lengthy process of planning and siting a number of new potential campuses—essentially a process of investigating, say, six possible campus sites in order to get three.

In the late 1950s, California developed just such an analysis of regional enrollment demand for all public and private higher education and established a listing of potential areas for new UC and CSU campuses.¹⁵ This listing provided a framework for investigating sites and preparing for a series of new campuses and off-campus centers—many of which were never built. This included land acquisition. A similar scheme is needed today, in part to create an analytical approach to new campus development that coordinates the different segments and in part to initiate the long political process of new campus development.

- *Develop a Strategy for Promoting “Smart Growth” Within Community Colleges:* California should also develop new strategies for promoting the growth of new community colleges and off-campus centers—the segment in the tripartite system that will accommodate the largest number of Californians. These colleges currently serve a staggering 70 percent or so of all undergraduate students in the state. How can the largest single network of community colleges grow by another 400,000 or so students over the next decade, and perhaps 1.5 million students over the coming five decades? Should it grow to this size, and might there emerge alternative models for servicing some portion of this demand?

Both UC and CSU have centralized governance structures that are experienced in expanding academic programs and new facilities. The community colleges are decentralized, less cohesive, and thus far without any apparent strategic plan to promote what might be termed “smart growth” (i.e., an assessment of how this system might grow to meet both local and statewide needs). At the moment, local districts are essentially and to varying degrees taking on the burden of a massive expansion of this segment. What inducements can be provided to make sure local communities and CCC districts and multi-districts are appropriately developing new local facilities and campuses?

- *Strategically Consider the Practical Role of Instructional Technologies and Other Alternative Methods for Enrollment Growth:* As noted, an important consideration is the potential of improving efficiencies through instructional technologies (IT). The promise is that IT can enhance traditional teaching modes and improve pedagogical models (particularly for large

courses), while also offering the opportunity to rethink and positively restructure the curriculum.¹⁶ Yet the likely scenario is not a wholesale development of off-campus, on-line courses and degree programs. Contemporary costs are high for developing good quality on-line courses, and studies show that primarily adult learners in professional development programs such as business prefer and do well in such a learning environment. Each of the public segments should aggressively evaluate the use and costs of IT, and how to appropriately promote it.¹⁷

However, one might assume that some proportion of California's future public higher education enrollment demand could be absorbed in on-line courses. There are other options now being investigated for expanding enrollment capacity. These include the expansion of summer sessions; improving classroom utilization; increasing students' enrollment in off-campus programs, such as education abroad and off-campus centers; increasing the instructional day or week; improving time-to-degree rates (thereby moving students more quickly through their degree programs and providing room for additional students).

But how might we gauge the potential efficiencies gained by all of these options? For the purposes of conjecture, perhaps 15 percent of all student enrollment (and not simply the additional student cohort) could be absorbed under these "alternative" modes by, say, 2010. This is probably a generous estimate and presumes a major effort to create new on-line courses and degree programs. For CSU, this would equate to approximately 73,000 students. For UC, this would equate to approximately 35,000 students in 2010—a number that equals the combined current enrollment of UC San Diego and UC Santa Barbara.

Even with such efficiencies and advents, California would face a significant disparity between enrollment demand versus enrollment capacity—presuming that no new campuses are built in that time period. For example, and under the projections of enrollment increases provided previously, the disparity between demand and capacity of the UC system (including the new campus in Merced) would occur around 2013-14. By 2015, enrollment demand would be at approximately 260,000 students, and capacity (with alternative modes accounted for) at 252,000—a disparity of 6,000 students. If "alternative" modes of increasing capacity equated to only 10 percent of all enrollment, then the disjuncture would be much larger: a total of 19,000 UC eligible students could not be accommodated.¹⁸

As noted, on-line curriculum resources, courses, and degree programs hold great promise in expanding educational opportunity and fostering innovation. But in considering this new world, a number of issues are important. For one, much of the discussion regarding the use of IT focuses on the objective of lower costs and improving efficiencies—the major goal of many policymakers. Under certain circumstances (e.g., generic curriculum, minimal usage of on-line sections, and perhaps a further reduction in student interaction with faculty and teaching assistants), IT could indeed provide a substantial method to increase enrollment without building campuses and centers and, presumably, lower costs.

Yet, this might result in dramatic inequities and a revision of what it means to enroll at a campus of, for example, the University of California. A bifurcated world could emerge of residential students (in-residence and commuters who physically use the campus) and a distinct group of "virtual-students." This bifurcation is necessary, to some degree, in order to reduce the physical use of a campus in the quest to lower costs, or to reduce the impact on local communities. Access to the university's resources and the educational experience would be fundamentally different, however. If this is a personal choice of a student, then the policy implications are less important. If instead it becomes a status forced on a student—an institutional directive for the purpose of enrollment management—then California will essentially create a new and distinct class of undergraduate students.

Thus far, the preference among younger students is for a mixed environment of traditional courses with on-line curriculum materials. There remains a high premium on interaction with mentors and teaching staff that, at a minimum, includes both personal and electronic contact. Presuming that questions of pedagogy, preference, and equity shape the use of on-line courses—not to mention social norms of students leaving home to transition to work—there will remain a need to create campus environments.

Indeed, one can imagine a growing demand for residential college experiences, among middle- and upper-income students, and among lower-income students if appropriate student aid packages were available to support more full-time study. As the cyberworld becomes more dominant, the value of human interaction and mentorship will grow. To provide alternatives for students, California needs to aggressively invest in bricks and mortar campuses and off-campus centers—albeit facilities that integrate IT as a major component in curriculum and enrollment planning.

Private/Independent Higher Education

There are three general sectors within California's private/independent higher education segment. The first includes traditional colleges in the mold of USC, Stanford, and so forth, some of which draw nationally. The second includes accredited technical and largely professional proprietary institutions, such as the University of Phoenix, some with growing on-line programs. And the third includes a large number of nonaccredited, skill-related proprietary businesses, often not leading to a degree or a certificate. In each of these sectors, the state needs to encourage their growth. Here are a few considerations.

- *The Need for More Private Liberal Arts Colleges:* California desperately needs to expand the number of good quality and residential liberal arts colleges. There are very few colleges in relation to the state's population—and indeed there are few among the Western states, with most of these established well before 1960. This is partly the result of the dominance of public higher education; their paucity also reflects the cost and difficulties of establishing new campuses. The prospect is that this segment will not increase significantly in enrollment capacity unless there are new incentives. Beyond continued expansion of the Cal Grant program, this might include new tax incentives and similar financial inducements.
- *The Important and Expanding Role of Proprietary Institutions:* Accredited proprietary colleges and graduate programs will play an increasingly important role in California. The globalization of education means a greater variety of programs and providers, some created by corporations, some by brand-name universities and colleges. But there are also a number of nonaccredited providers, some of which are of very low quality that are in or attempting to enter California's market—the proverbial “diploma mills.”

California should reconsider of the role of state government in both regulating this sector and promoting the growth of good quality in-state and out-of-state providers. State government should also be aware of proposals within the World Trade Organization that may impact California's ability to manage higher education in the state, and the ability of public and private institutions in the state to export courses and degree programs.

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California should not be timid in attempting to plan and invest in its future. Simply searching for how to proceed at the lowest possible cost is not bold enough. In 1967, Earl Warren, then Chief Justice of the U.S. Supreme Court, returned to California to speak at the University of California's “Charter Day,” which each year commemorates its founding in 1868. Warren

warned that if the university “ever fails to keep up with the growth of the state, it will lose its greatness. . . . [R]elaxation or retrenchment for even one year could throw it so far out of adjustment that it might take a generation to recoup.”¹⁹

This assessment seems applicable today, and not simply for the University of California. It applies to the state’s entire public higher education system. California should not simply worry about the lowest common denominator, i.e., meeting enrollment demand. A heightened discussion must consider how to further harness this pioneering system to promote economic innovation and enhance the lives of Californians. If policymaking flows from this effort, higher education will remain the state’s market edge in the global economy.

ENDNOTES

¹ For an historical analysis of how and why California developed its public higher education system, see John Aubrey Douglass (2000), *The California Idea and American Higher Education, 1850 to the 1960 Master Plan* (Stanford University Press).

² See State Department of Finance (November 2001), “California Public Postsecondary Education Enrollment Projections, 2001 Series.”

³ *Ibid.*

⁴ The idea of the current Cal Grant program, providing grants for lower-income students who then choose which college to attend, was specifically devised to help encourage students to enroll in private/independent institutions. Established in 1955 with the specter of another wave of additional students, this grant program was developed, in part, to assist private institutions that were disadvantaged by the low cost of attending historically high-quality public colleges and universities. A long-term decline in the real value of these grants (because of a lack of funding since the late 1970s) made private higher education for middle- and lower-income students less attractive. This decline was only recently reversed with the seeming return of a strong economy in the late 1990s and a significant boost in funds for the Cal Grant program.

⁵ For a discussion on past and projected future enrollment growth and the physical capacity of UC, see John Aubrey Douglass (Fall 2000), “A Tale of Two Universities of California: A Tour of Strategic Issues Past and Prospective,” *Chronicle of the University of California*, pp. 93-119; University of California Office of the President (February 1999), *Education the Next Generation of Californians in a Research University Context; University of California Graduate and Undergraduate Enrollment Planning Through 2010*.

⁶ California Postsecondary Education Commission (December 2001), *Regional Higher Education Enrollment Demand Study*, Sacramento.

⁷ A 1999 report completed at the University of California offers a model for such an analysis, although it largely focuses on needs and not on productivity of the entire higher education system in California. See “Workforce Projections and Job Market Trends for Graduate and Professional Degree Recipients,” in *Education the Next Generation of Californians in a Research University Context*.

⁸ A recent study by the California Council on Science and Technology (CCST) points to large-scale structural and quality problems with science- and technology-related education in the state. See California Council on Science and Technology (November 1999), *California Report on the Environment for Science and Technology*; California Council on Science and Engineering (February 2002), *Critical Path Analysis of California’s Science and Technology Education System*; Michael Darby and Lynne Zucker (January 2000), “The Role of Universities and Colleges in California,” Science and Technology Education Study (CCST).

⁹ See CCST, *Critical Path Analysis*; Steve Raphael, Claire Brown, and Ben Campbell (2001), “High-Tech Industries in California: Panacea or Problem,” in Paul Ong and James Lincoln (Eds.), *The State of California Labor* (Berkeley and UCLA: Institute for Industrial Relations), 149-168.

¹⁰ CCST, California Report.

¹¹ For a discussion of how a case example of three community colleges have approached their transfer function, and hence a major component of their mission, see Kathleen M. Shaw and Howard B. London (Fall 2001), "Culture and Ideology in Keeping Transfer Commitment: Three Community Colleges," *The Review of Higher Education*, 25(1), 91-114.

¹² California Citizens Commission on Higher Education (March 1999), *Toward a State of Learning: California Higher Education for the Twenty-first Century* (Los Angeles: Center for Government Studies); California Postsecondary Education Commission (December 1998), *Toward a Unified State System: A Report and Recommendations on the Governance of the California Community Colleges*, No. 98-9; Little Hoover Commission (March 2000), *Open Doors and Open Minds: Improving Access and Quality in California's Community Colleges*.

¹³ *Ibid.* For example, the 1999 report of the California Citizens Commission on Higher Education recommended creating both a base commitment of funding for public higher education and essentially a rainy-day fund accumulated during periods of healthy economic growth and state revenues to maintain the base. The recommendations in this essay follow some of the ideas presented by this commission.

¹⁴ For a discussion on setting new fee and tuition structures, see Thomas J. Kane (1999), *The Price of Admission: Rethinking How Americans Pay for College* (Washington, D.C.: Brookings Institution).

¹⁵ See Semans and Holy, *A Study of the Need for Additional Centers of Public Higher Education in California*.

¹⁶ See Kenneth C. Green (2002), "Digital Dilemmas: Cosmopolitans, Content, and Productivity," Ford Policy Forum: Exploring the Economics of Higher Education (New York: Ford Foundation), 35-44.

¹⁷ The research on this subject is extensive but largely exploratory. See Diane Harley (December 2001), "Planning for an Uncertain Future: A U.S. Perspective on Why Accurate Predictions May be Difficult," Center for Studies in Higher Education, Research and Occasional Papers Series.

¹⁸ See Douglass, "Tale of Two Universities."

¹⁹ "Warren Joins Others in Urging Understanding of UC, Academic Freedom" (May 8, 1957), *University Bulletin*, 15, p. 36.