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ABSTRACT

The "funding gap" in public higher education in California represents the difference between state appropriations and the amount needed to fully support each segment's educational mission. This report identifies and defines the funding gap for the California Community Colleges (CCC); measures the consequences of this gap on program quality and access; reports on how the colleges are to maintain their mission in light of current funding; and recommends future state policies for financing the CCC. Major report highlights include the following: (1) the current funding gap for the CCC is estimated to be at $2.3 billion, 82% more than is available; (2) as a consequence of the funding gap, the student to faculty ratio stands at 27:1 (compared to 18:1 at comparable colleges in other states); (3) the CCC's offer only about half of the basic skills instruction needed; (4) library holdings and services are substantially below national standards; (5) the CCC turned away an estimated 120,000 students in fall 1991; and (6) the CCC is unable to maintain its mission in light of the current gap, although certain legislative mechanisms and pending initiatives, as well as increased staff productivity and new instructional resources (e.g., interactive television and computer-aided instruction) may alleviate a small part of the gap. Policy recommendations outlined in the report include allowing local colleges to determine priorities for class enrollment; pursuing federal vocational education funds more actively; enhancing school business partnerships; increasing fees selectively; and providing incentives for colleges that adopt cost-effective delivery techniques. Appendixes review relevant legislation, and provide detailed data tables. (PAA)

Board of Governors
California Community Colleges
March 12-13, 1992

FUNDING GAP STUDY 15

Second Reading, Action Scheduled

Staff Presentation: *Joe Newmyer, Vice Chancellor*
Fiscal Policy

Chuck McIntyre, Director
Research and Analysis

Discussed as agenda item 15 at a meeting of the Board of Governors of the California Community Colleges (Sacramento, CA, March 12-13, 1992).

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FUNDING GAP STUDY 15

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Background

Supplemental language in the *1991 Budget Act* requires the three segments of public higher education to study and report on the impact of what is referred to as the "funding gap," i.e., the gap between State appropriations and what is needed to fully support each segment's mission under the State *Master Plan for Higher Education.*

The charge for the Community College Board of Governors in this supplemental language (see text in Appendix A) is to:

- Identify the gap (if any) between state appropriations and funding needed to fully support the Community College mission under the State's *Master Plan.*
- Measure the consequences of this funding gap on program quality and access.
- Report on how the Community Colleges plan to maintain their mission, given the "current state funding scenario."
- Recommend future State policies for financing the Community Colleges.

A final report on the funding gap from the Board is due to the Governor, the Legislature, and the California Postsecondary Education Commission (CPEC) by April 1, 1992. CPEC is then to review the report and comment by May 1, 1992. Work on the report has been coordinated closely with CPEC.

Analysis

This item contains an analysis of present and future conditions, conclusions about the funding gap, and possible policy options for Community College financing, which the Board may wish to consider as the report is transmitted to the Governor, the Legislature, and CPEC.

About the "funding gap":

- While State formulas and other revenue sources supporting the educational program at Community Colleges will provide an estimated $2.8 billion this year, standards advocated by the Board of Governors of the California Community Colleges to carry out their mission, as set forth in the *Master Plan for Higher Education* would require $5.1 billion. Thus, there is a "funding gap" of $2.3 billion, 82% more than is available.

- This funding gap is calculated using standards contained in a number of policies, including, among others, those for Program-Based Funding, the Long-Range Capital Outlay Growth Plan, and in AB 1725 (1988).

- The "funding gap" is made up of:

  - $245 million to adequately serve 52,000 FTE students who are enrolled, but not now funded.

  - $1,548 million to bring operating budgets up from $3,100/FTES to $4,800/FTES, the current Program-Based Funding standard.

  - $39 million to bring funding for staff development and deferred maintenance of facilities up to recommended levels.

  - $98 million to continue the Colleges' capital outlay program at necessary levels.

  - $382 million to meet the demand by adult Californians for Community College education, thereby restoring access to levels suggested by the *Master Plan for Higher Education.*

- This gap has developed over the past decade and is due largely to Proposition 13 (1978), inadequate funding between 1982 and 1985, the funding cap on growth since 1982, and the current budgetary crisis.

On the consequences of the "funding gap":

- Classroom instruction and library/media services appear most impacted by the "funding gap." Using data from national studies, student:faculty ratios for credit instruction in California Community Colleges (27:1) are substantially higher than at comparable community colleges (18:1) in eight other large industrial states, in part because of larger class sizes, but also because California faculty teach more classes per academic term (5 vs. 4).

- Recent estimates show that the Colleges offer only about one-half of the basic skills instruction needed. Colleges also have had difficulty offering those high-cost vocational classes that are taught in small labs with expensive equipment. Current funding formulas fund all FTES at the average rate, whether they are high or low cost. Colleges, therefore, may offer low-cost classes where they are needed, but may be unable to offer those that are high cost.

- Library holdings and services are substantially below national standards and their delivery is often outmoded in technological sense. Maintenance of facilities and equipment replacement is below appropriate levels. And, California Community Colleges utilize their physical plant at rates averaging 50 percent more than at comparable colleges in other states.

- Because of the funding gap, access to Community Colleges has declined – from serving one in every eleven adults in 1981 to one in every fourteen today. Those traditionally underrepresented have been most affected by this decline in access. To match the level of access recorded ten years ago, the Community Colleges would have had to enroll 280,000 more students than they did in Fall 1991. It is estimated that the Colleges turned away 120,000 potential students in the Fall 1991 because these individuals were unable to obtain the classes they needed.

- This year, Community Colleges have enrolled individuals who in other years would have attended the University of California and the California State University. But, the Colleges have not been able to meet their obligations for retraining the unemployed during this recession and have found it quite difficult to educate all the new California immigrants who need skills, particularly in English, so as to become productive citizens.

- Under the public financing structure in California, Community College students currently support about two-thirds of their annual educational costs, including their direct costs of attendance and earnings they forego while in attendance, a total of about $7,000. Taxpayers support the other one-third, about $3,500, including both operating and capital costs. As taxpayers, businesses support just over one-tenth of the total cost.

- The balance of benefits that result from Community College education; i.e., private *versus* public, cannot be precisely calculated. However, it is apparent that the skills and knowledge obtained at Community Colleges by the many Californians who otherwise would not be educated helps both the economic and social development of the state. Thus, all taxpayers – including both consumers and businesses benefit. And, Community College students are substantially less-wealthy than are the taxpayers who support a third of their education.

Maintaining the Master Plan Under the "Current State Funding Scenario":

- The Governors proposed budget for 1992-93 could provide for over four percent FTES growth and eliminate about $80 million (7%) of the funding gap for program improvements and unfunded FTES.

- State funding, however, is highly uncertain. Adding to this uncertainty are the bond election, possible voucher initiative, and a court case on Proposition 13 (1978), all to be determined in 1992.

- Demand for Community College education is expected to remain strong over the next five years, fueled by a slow economic recovery (many unemployed seeking retraining), by continued immigration, and by rapidly increasing numbers of high school graduates.

- State revenues are expected to grow at a rate of 5 percent annually over the next five years. At the same time, the Proposition 98 guarantee will grow at 8% annually. If COLAs average nearly 4% annually, together with an estimated annual increase of 3% in FTES students, this suggests that this growth and a small amount of program improvement may be accommodated over the next five years. Thus, the "funding gap" would be narrowed slightly.

- By contrast, a higher 5% FTES growth rate that continues trends in access achieved between 1985 and 1990, could not be sustained within Proposition 98. In this scenario, the funding gap would grow.

- Because of the funding gap, Community Colleges are not currently able to maintain their mission under the *Master Plan for Higher Education*. Since state and local tax revenue growth will not be adequate to close the funding gap, the Community Colleges can only maintain their mission (i.e., close the funding gap) if they become even more cost-effective at delivering their programs than they are now and/or if they obtain additional sources of financial support.

- The Board of Governors Commission on Innovation is exploring alternative ways of delivering Community College education. Once endorsed, some techniques like better use of the calendar, can be implemented readily. Others, like interactive television, computer-aided instruction, and the entire "distance learning" realm will require substantial capital outlays and more time for their development and implementation.

- A number of cost-effective measures may be possible within traditional delivery techniques. One of these is to increase College staff productivity. Comparisons with colleges in other states, however, suggest that California Community College staff are among the most productive in the nation.

Further increases in productivity could seriously detract from program quality, particularly if they involve increasing class sizes.

- Another possible measure is to change the mix of staffing. While continuing to build a core of ethnically-diverse, full-time faculty, one way that Colleges may become more cost-effective is to utilize more part-time faculty, peer tutors, and teaching assistants. Again, such changes may detract from program quality. Indeed, current policy in AB 1725 and PBF advocates increasing the share of credit instruction taught by full-time faculty from 65% to 75%.

Potential Policies

- If public funds are so scarce that priorities for class enrollment must be employed, these priorities should be determined by the local Colleges so as to best reflect the educational needs of their communities. These priorities also may reflect the need to accommodate the most economically vulnerable and least educated, along with those individuals nearing completion of their educational objectives.

- Despite the "peace dividend," a continuing, large federal debt makes it unlikely that federal aid to community college education will increase. Even so, the California Community Colleges should pursue (1) a greater share of funds available for vocational education, such as the Perkins Act and JTPA, and (2) for the education of immigrants, more funds under SLIAG.

- Community Colleges were once supported primarily by local property tax revenues. This, of course, was changed by Proposition 13 (1978). Now, given the inadequate State-level tax revenues, it appears that local taxpayers should be given the ability to support needed improvements in their Colleges – through vehicles such as majority-vote local tax increases – if that is their preference.

- Businesses may contribute both resources and money as a kind of quid pro quo for the skilled workers they receive from Community Colleges. For instance, more classes at the work-site would utilize existing resources and reduce student transportation costs. Use of work-site equipment and/or equipment donations would help ensure the currency of student training. Mixing public and private revenue, with appropriate quality controls, should improve the Colleges' ability – in partnership with business and industry – to deliver vocational training to Californians.

- While flat increases in fees would detract from access, certain students might be asked to support a larger part of the cost of their education where

(1) they already have received a substantial amount of publically-subsidized postsecondary education or (2) their training is quite expensive and their resulting private earnings are quite high.

- State and local funding policies should provide the maximum incentive for Colleges to adopt alternative, cost-effective delivery techniques, to offer needed programs – whether they are high or low cost, and to secure alternative, supplemental revenues.

- Policies should always be assessed as to whether they enhance or detract from the ability of the California Community Colleges to carry out their mission under the *Master Plan*.

At a January 1991 study session held by the Board of Governors, Community College officials were unanimous in supporting the need for the Colleges to maintain their mission as defined by the State's *Master Plan for Higher Education* and reaffirmed by AB 1725 (1988). These same officials, however, noted that current funding does not enable the Colleges to carry out that mission.

The ability of Community Colleges to meet their mission as defined by the *Master Plan* is vital to the economic and social development of California. The Colleges have a particularly significant role to play in helping close the potential gap between the State's new jobs and the lack of skilled labor available to fill them. Community Colleges not only provide individuals with transfer and vocational education for these new jobs, but they also enroll more individuals than do other postsecondary institutions from the groups (women, minority, immigrant, etc.) that will comprise most of the new workers.

Recommended Action

That the Board authorize the Chancellor to transmit the report on the "Funding Gap" to the Governor, the Legislature, and to the California Postsecondary Education Commission.

Staff Presentation: *Joe Newmyer, Vice Chancellor*
Fiscal Policy

Chuck McIntyre, Director
Research and Analysis

Funding Gap Study

(as required by Supplemental Language in the 1991 Budget Act)

Background

Supplemental Language in the *1991 Budget Act* requires the three segments of public higher education to study and report on the impact of what is referred to as the "funding gap," i.e., the gap between state appropriations and what is needed to fully support each segment's mission under the State's *Master Plan for Higher Education.*

The charge for the Community College Board of Governors in this *Supplemental Language* (see in Appendix A) is to:

- Identify the gap, if any, between state appropriations and funding needed to fully support the Community College mission under the State's *Master Plan.*
- Measure the consequences of this funding gap on program quality and access.
- Report on how the Community Colleges plan to maintain their mission under the current State funding scenario.
- Recommend future state policies for financing the Community Colleges.

Identifying the Funding Gap

The basic standard used here to measure the "funding gap" is the level of financial support required for:

> operating budgets as advocated by the Board in its Program-Based Funding procedure and for capital outlay consistent with standards and priorities set by Board planning, such as those in the *Long-Range Capital Outlay Growth Plan.*

in light of the Community College role, first articulated in the *Master Plan* and since reaffirmed in AB 1725 (1988). As described in the Board's *Basic Agenda: Policy Directions and Priorities for the Nineties*, that role is to:

> ". . . provide Californians – particularly those who have been underrepresented in higher education and in the workplace – with quality programs in transfer and career education and in the mastery of basic skills and English as a second language. . . ."

Other Board policies, such as that on staff development and the use of full- and part-time, faculty are contained in AB 1725 (1988).

Working with these policies, the "funding gap" can be measured with regard to

- the deficiency that exists in the Colleges' ability to adequately serve students currently enrolled – referred to as program quality in the *Supplemental Language* – and
- the deficiency that exists in the Colleges' ability to serve all those Californians desiring and qualified to attend – referred to as access in the *Supplemental Language*.

Program Quality

The funding gap or deficiency in Community College program quality can be categorized in the following four ways:

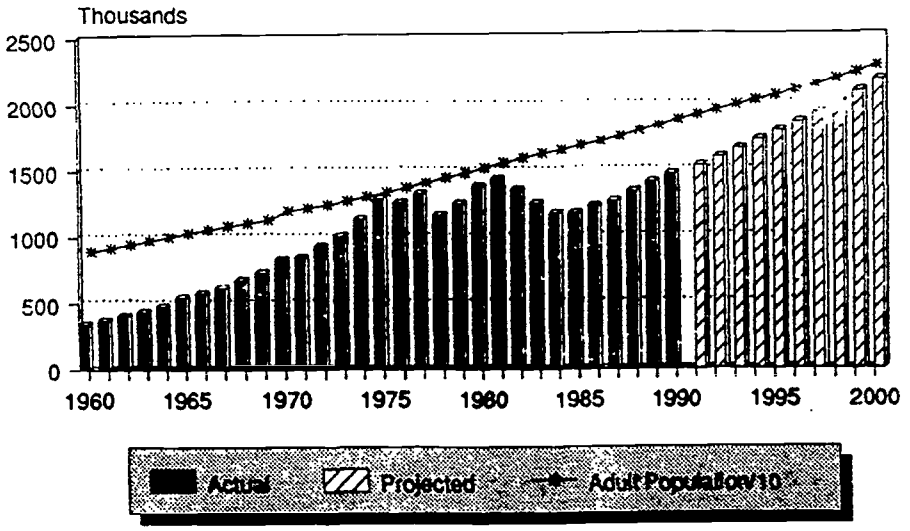
1. Students who are enrolled and for whom the Colleges receive no support; known as the "unfunded FTES," and currently estimated at $245 million annually;
2. The difference between appropriate funding standards and the actual funding that is available for students who are enrolled – currently estimated at $1,548 million annually;
3. Funding needed, but not now provided, for the development and maintenance of the human and physical resources employed by the Colleges – currently estimated at $39 million annually; and
4. The level of capital outlay needed for orderly system growth, in contrast to that provided – currently estimated at $98 million annually.

Unfunded FTES

Since 1982, funding for enrollment growth in the California Community Colleges has been limited each year to no more than the rate of increase in California's adult population. During the three-year period, 1982 through 1985, this policy had little impact since the Colleges were provided no cost-of-living adjustment (COLA) (for two years) and implemented a new enrollment fee (the third year) so that enrollment was declining (see Figure 1). However, beginning in 1986, normal funding enabled the Colleges to grow at an average of more than four percent annually for the next five years – a rate twice that of the adult population growth. Consequently, the Colleges now enroll many students for which they are not funded.

Figure 1

Total Enrollment
1960-2000



Source: Appendix B, Tables 1 and 2;
Chancellor's Office, 1992

It is estimated that the Colleges are serving 52,000 full-time equivalent students (FTES) for which they are not funded during 1991-92. At $4,809 per FTES, the current value of the Program-Based Funding standards, this part of the funding gap, amounts to $245 million.

Funding Standards

Proposals to fund Community Colleges according to their program activity and costs, have been recommended for the past two decades. Following several studies, the Board of Governors endorsed Program-Based Funding (PBF). It was included as a funding policy in AB 1725 (1988) and is being implemented beginning 1991-92.

The difference between PBF standards ($4,809/FTES) and actual current funding ($3,070/FTES) is $1,739/FTES. Applied to the funded enrollment, 890,000 FTES, this produces a gap of $1,548 million.

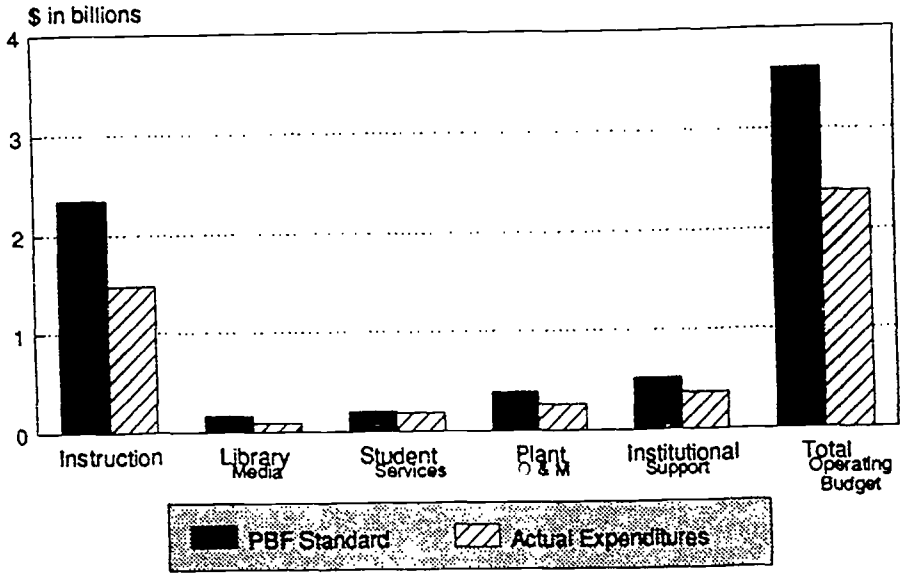
The PBF funding policy is based on what has been deemed by the Board, as appropriate, support levels for five different "programs" or functions:

1. Instruction and Instructional Administration
2. Instructional Services, i.e., library/media services
3. Student Services
4. Operation and Maintenance of Plants
5. Institutional Support

The current PBF standards of support are calculated for 1989-90 and contrasted with actual district expenditures for that same year (Figure 2). The amount that districts actually spent is just two-thirds of what PBF standards would have provided. And, PBF standards also exceeds, by one-third, the level of funding originally sought by the Board five years ago.

Figure 2

Comparison of Program-Based Funding Standards and Actual Expenditures
1989-90



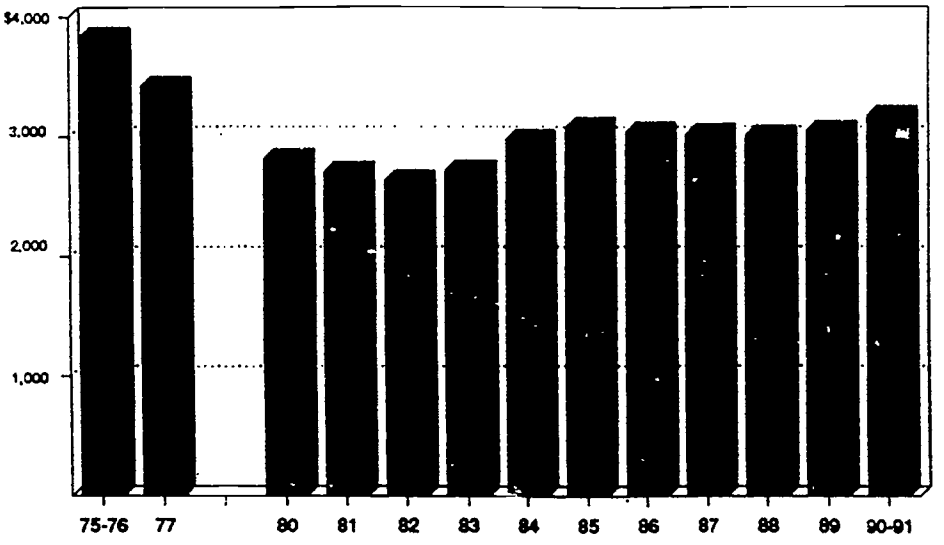
Source: Appendix B, Table 3

The largest funding gap – as measured by the difference in PBF standards and district expenditures – appears to be in instruction and library/media services. While also short, expenditures on the other functions of operation and maintenance of plant and institutional support were somewhat closer. Actual district outlays for student services were very close to what PBF would provide.

A review of Community College expenditures over time, tends to support the results from PBF analyses. In 1990, Community College expenditures of $3,176 per FTES were down 17% from the (price-adjusted) 1975-76 outlay of $3,830/FTES, and down 7% from the $3,419/FTES figure reported for 1977-78, just prior to Proposition 13 (see Figure 3A). During the ten-year period, 1980 to 1990, constant-dollar expenditures per FTES (i.e., comparable buying power per student) for instructional services (library/media) and for operation and maintenance of plants dropped (see Figure 3B). Outlays for instruction, student services, and institutional support increased. Overall, however, operating budget expenditures per student in all years fall far short of PBF standards and short of expenditure levels reported prior to Proposition 13 (1978).

Figure 3a

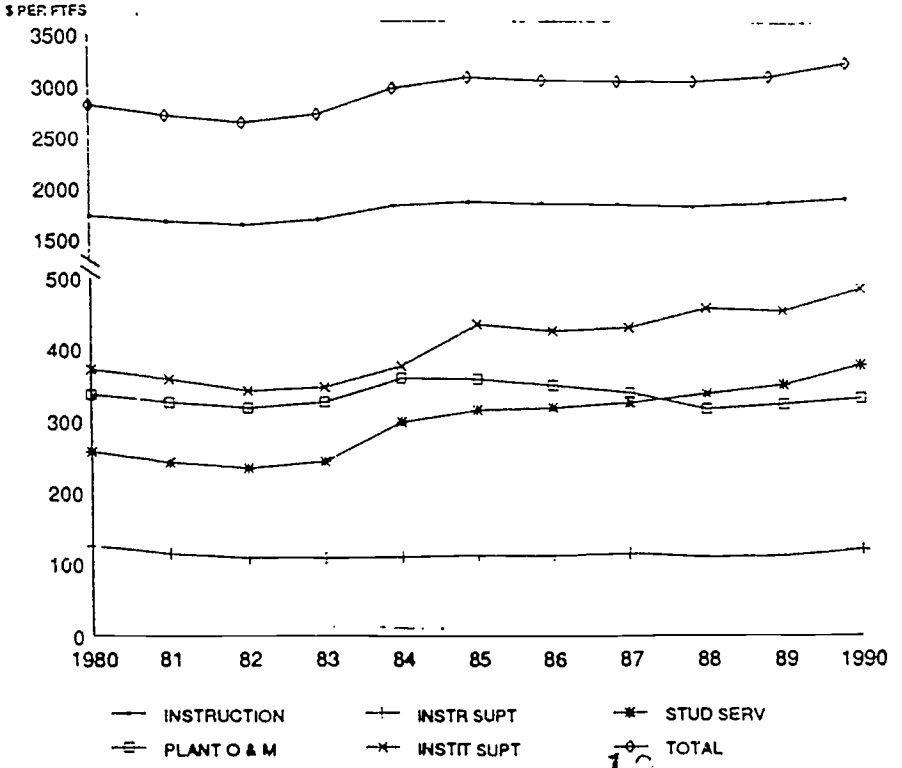
Total General Fund Expenditures Per FTES
in Constant Dollars – 1991-92



SOURCE: APPENDIX B, TABLE 4

Figure 3b

Real (Price-adjusted) General Fund
Expenditures Per FTES in Constant Dollars – 1991-92

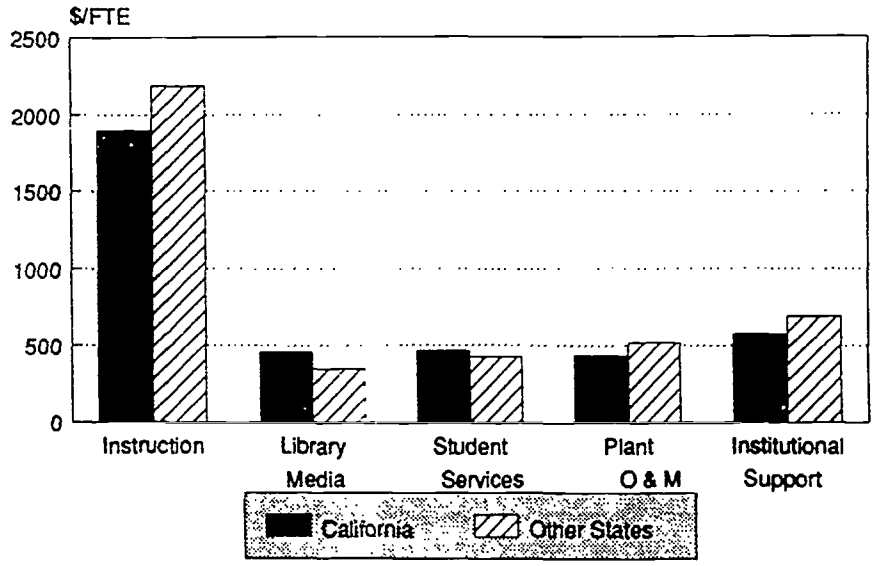


Another perspective on the "funding gap" is gained by comparing California Community Colleges resource allocations with those of community colleges in other large industrial states during 1989-90. Our comparisons, derived from a uniform database collected by the National Association of College and University Business Officials (NACUBO), match reports by 33 California districts (two-thirds of the statewide enrollment) with colleges in 8 other large industrial states. NACUBO staff have conducted their survey for the past ten years and have produced the most valid set of nationwide information on community college budgets and students that is available.

Resources available for instruction in the California Community Colleges fall below the average of the other states (Figure 4). In fact, none of these 8 other states spent less per student in 1989-90 than did California. California Community Colleges budgets for instruction, institutional support, and for plant operation and maintenance, are quite low in the comparison. By contrast, California expenditures for academic support (library/media) and for student services are higher than the eight-state average.

Figure 4

Median Expenditures in Community Colleges
California and Eight Other Large States
1989-90

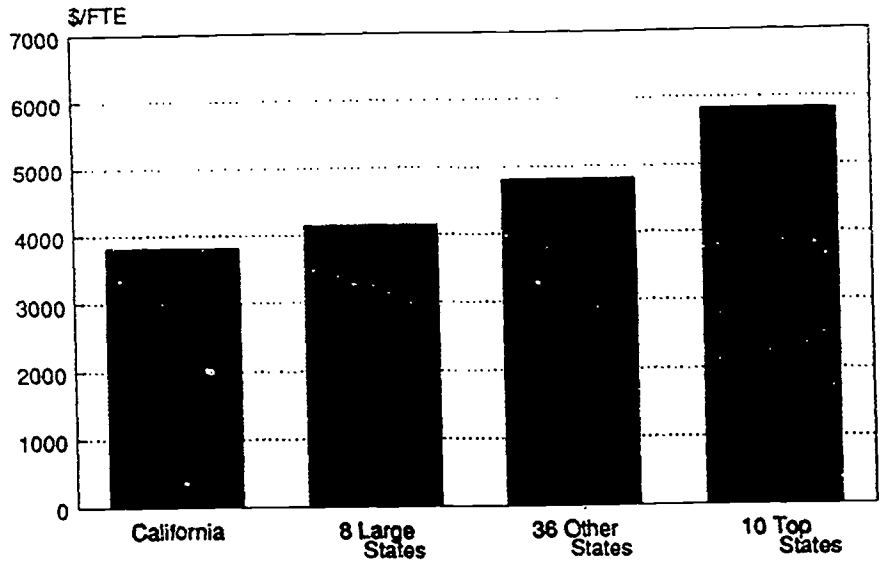


Source: Appendix B, Table 5

Total capital outlays for operating budgets in the California Community Colleges are about $300/FTE less than the eight-state average (see Figure 5). Expanding the comparison to all 36 other states in the NACUBO study, California spent $1,000/FTE less than the national average. Finally, comparison with the top 10 other states (a

Figure 5

Average of Total Operating Budget Expenditures in Community Colleges
1989-90



Source: Appendix B, Table 5

recommended funding standard in Proposition 111), shows California to be $2,000/FTE behind.

This expenditure context suggests that the funding gap may be greatest for instruction in the California Community Colleges. Actual expenditures for instruction in 1989-90 were just two-thirds of PBF standards and four-fifths of the average of the 8 other states. (Under "Consequences" below, we explore some of the reasons causing this difference.) In other areas, California fares somewhat better, both in relation to the standards and to the other states. In the library and media area, where national standards were used to develop PBF standards, it would appear that, unlike the other four functions, community colleges in other states are generally worse off than those in California. It seems doubtful that colleges in any of the other eight states meets even the minimum levels of staffing and service advocated by the American Library Association (ALA) – the basis for PBF standards.

Resource Maintenance and Development

There is a great deal of concern today about the nation's "infrastructure." In most discussions, this is about capital or physical resources, like buildings, bridges, roads, and other facilities. For institutions like community colleges, there is the same concern; existing resources must be maintained and, periodically, developed and

renewed. In the case of the Colleges, however, these resources are human as well as physical.

There have been numerous studies of the need to develop Community Colleges' human resources or staff. In 1987, the California Postsecondary Education Commission (CPEC) hired Berman-Weiler Associates to study staff development needs. Based on this study, CPEC recommended that the State appropriate $20 million annually that would be earmarked for staff development. A program to manage the distribution of these funds was incorporated in AB 1725 (1988). However, the funding level has not exceeded $5 million. Consequently, the "funding gap" for staff development is estimated at $15 million.

Staff work on the Board's *Long-Range Capital Outlay Growth Plan* included estimates of the funds needed to maintain the existing physical facilities at the California Community Colleges. Based on reports of their operating budgets, Colleges will spend an estimated $78 million this year to maintain existing facilities. Chancellor's Office staff has calculated that an additional $32 million would need to be spent in 1991-92 under a policy objective of eliminating one-fifth of the existing deferred maintenance each year (Appendix B, Table 7). The 1991-92 budget contains just $8 million for deferred maintenance and, therefore, the estimated "funding gap" for deferred maintenance is currently $24 million.

Altogether, the *estimated "funding gap" for maintaining and renewing existing human and physical resources at this time is $39 million* annually.

Capital Development

The Board of Governors *Long-Range Capital Outlay Growth Plan* proposed a 15-year program that totals $3.2 billion, an average of $212 million per year, in appropriations. The *Plan* is to accommodate an additional annual enrollment of 500,000 (316,000 FTES) by the Year 2005. Renewing and "building out" of existing campuses is estimated at $1.8 billion. Converting 6 existing centers to campuses, and the addition of 24 new centers, would cost an additional $1.4 billion. Estimates of need are based on the Department of Finance (DOF) student enrollment projections, existing space and utilization standards in statute, and a number of planning rules proposed by the Board of Governors and endorsed by CPEC. The *Plan* also has been approved by the Legislature as a working document on which specific requests for expansion would be based.

For the first year of the plan, 1991-92, the Board of Governors had proposed $220 million in capital outlay appropriations. Because the 1990 Higher Education Facilities Bond Act failed, Community College priorities were adjusted and the 1991-92 Governors Budget contained only $122 million. Therefore, the funding gap for Community College capital outlay is currently estimated at $98 million.

Access

The foregoing estimates measure the current funding gap, based upon the resources needed to properly serve existing students. The *Master Plan for Higher Education* dictated that the California Community Colleges would be "open access" institutions; serving all Californians with high school degrees or who are 18 years old and can benefit from instruction. Given this charge, it is necessary, also, to assess the level of student demand – some of which is unmet – and determine what it would cost to educate those who desire and, in the interest of Californians, need Community College education, but have had it denied because of budget constraints.

During an earlier year of normal funding, 1981-82, California Community Colleges enrolled 1,431,000 students, about 1 in every 11 Californians. Following that year, funding declined and the Colleges had to restrict access such that by 1984, access had dropped to a low of 1 in every 17 Californians. While funding has improved substantially since that time and enrollments have increased, it is estimated that to serve Californians at the 1981-82 rate, Community Colleges would have had to enroll 280,000 more California adults in the Fall 1991 than they did.

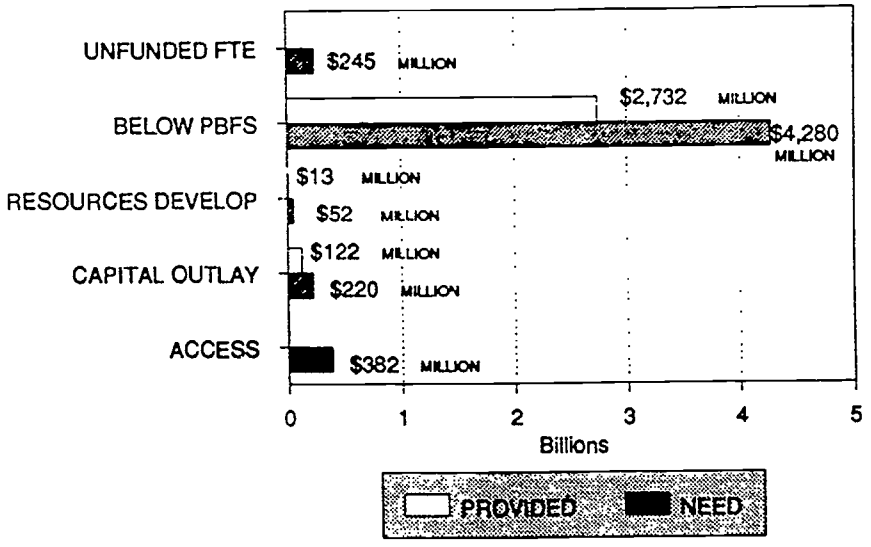
In its recently-issued report, *Estimate of Fall 1991 Enrollment*, the Chancellor's Office staff analyze the reasons why an estimated 120,000 individuals who wanted to enroll at a Community College this past Fall were unable to do so. Thus, one possible measure of the "access" portion of the funding gap would be that had there been normal funding, Community Colleges would have increased 10%, rather than 2% in Fall 1991 enrollment, and that approximately 76,000 FTES were unable to obtain classes because of a lack of funding. At $4,809 per FTES – the PBF-recommended funding rate – their cost would have been an additional $365 million this year. Added to this estimate would be the capital cost to house these individuals. Estimates from the Board of Governors *Long-Range Capital Outlay Growth Plan* would set this cost at $17 million. (This calculation is obtained by amortizing the $9,200 cost of constructing facilities for one FTES over a 40-year facility life, $230 per FTE per year, and multiplying that by the number of students denied access, 76,000.) *In total, the funding gap for access is estimated at $382 million.*

Summary

While State formulas and other revenue sources supporting the educational program at the Community Colleges will provide an estimated $2.87 billion this year, standards advocated by the Board of Governors for the California Community Colleges to carry out their mission, as set forth in the *Master Plan for Higher Education*, would require $5.18 billion; a "funding gap" of $2.32 billion, 80% more than provided (see Figure 6). Needed program improvement accounts for about four-fifths of this gap, and constraints on access account for the other one-fifth.

Figure 6

Summary of Funding Gap
1991-92



SOURCE: Appendix B, Table 8

This "funding gap" can be attributed to a number of factors, but primarily is due to Proposition 13 (1978), the ten-year cap on funded enrollment growth (not more than adult population growth), budget reductions between 1982 and 1985, and the current budgetary crisis. Consequences of the gap can be examined in the same way it has been identified: in terms of programmatic provisions and access.

Consequences of the Funding Gap

The consequences of the funding gap are two-fold: (1) that the California Community Colleges cannot provide the access guaranteed in the *Master Plan* and, therefore, are not enrolling a number of students who desire to attend, and (2) that for those who are enrolled, the educational services available to them are not what they ought to be under current policies.

Program

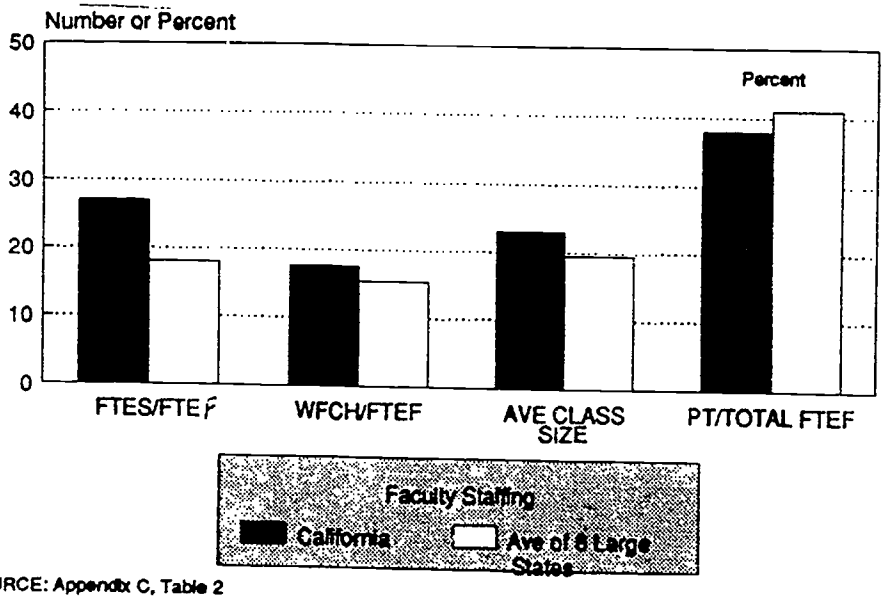
Classroom instruction and library and media services appear most impacted by the "funding gap." The impact on instruction is seen by the one-fifth increase in student:faculty ratio from 29.4 FTES/FTEF in 1977-78, just prior to Proposition 13 (1978), to 34.7 FTES/FTEF in 1990-91 (Appendix C, Table 1). (These ratios differ from those reported above because NACUBO adjusted FTES to achieve compara-

bility.) Since 1981, the student:faculty ratio has ranged between 33 and 35 FTE students for every faculty FTE. At the same time, average class section sizes have increased such that, for 1991-92, they are estimated at 31 students – 10% higher than 1981-82 and the highest level recorded during the past decade. This is the result of growth having outpaced funding.

Another perspective on the allocation of Community College instructional resources can be gained by examining national data. The nationwide study by NACUBO shows that student:faculty ratios, in a sample of 36 California Community College districts (27:1), are substantially higher than at comparable community colleges (18:1) in 8 other large industrial states (Figure 7) This is due, in part, to California's larger classes (a reported average of 23 *versus* 19.5 in credit instruction), but also because California faculty teach more classes per term (5 *versus* 4).

Figure 7

Community College Faculty Staff in Credit Instruction
California and 8 Large States
1989-90



SOURCE: Appendix C, Table 2

In the same study, 38% of credit instruction in California is reported to be taught by part-time faculty. This is lower than practices of colleges in the eight large states (a median of 41%); but similar to the average practice reported for 36 states, including a number where colleges are much smaller in size than those in California.

The funding gap also impacts those students in need of basic skills. A recent Chancellor's Office study shows that the Community Colleges are providing just under two-fifths of the basic skills instruction that may be needed. Overall, 52% of the students in this statewide study were assessed at the precollegiate level for reading, writing, and computational skills and, presumably, would need some basic skills work before proceeding. This work, for 1990-91, is estimated at about 204,000 FTES worth of instruction. The Colleges report they enrolled 76,000 FTES in basic skills courses that year, far short of the apparent need.

Yet another view of the funding gap's consequences is revealed by the specific standards for instruction recommended in PBF:

	Recommended Standard	Actual
1.	Full-time faculty teach 75% of credit instruction	They teach 65%
2.	Faculty salaries are comparable to CSU	They are $6,700 less
3.	Resources equate to the top 10 of other states	They are $2,000/FTE less
4.	A student:faculty ratio of 25:1	The ratio is 35:1
5.	Adequate support staff and supplies.	NA
6.	Academic administration is budgeted at 12.5% of above	NA

Actual allocations are far short of standards in most cases. Chancellor's Office staff estimate that Standard 3 generates enough funding to cover Standards 4, 5, and 6.

PBF differentiates the cost of instruction from that of library/media, student services, maintenance of plant and institutional support. PBF does not, however, differentiate the cost of, say, English instruction from that of Nursing. The PBF formula funds instruction for all FTES at one average rate, whether they are high or low cost. Colleges, therefore, may offer low-cost classes where they are needed, but may be unable to offer those classes that are high cost. While no data are available to demonstrate this point, it appears that all Colleges experience difficulty offering those high cost vocational classes that are taught in small labs with expensive equipment.

As noted above, there appears to be the largest gap between PBF standards and actual allocations to library and media services. The standards, derived from ALA guidelines, are based on staffing and materials purchase and replacement in both the library and media center. Library holdings and services are substantially below acceptable standards and often outmoded in a technological sense.

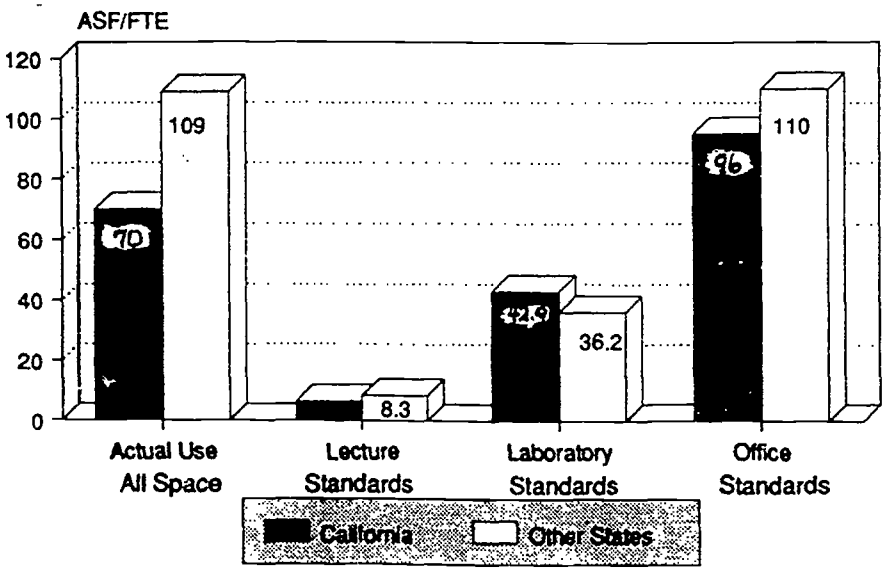
Another study by the Chancellor's Office indicates that the average California Community College expends 4.2% of its total budget on learning resources or

library/media. Evidence gathered by ALA indicates that a fully developed library/ learning resources program requires from 7% to 12% of the operating budget of a College. Of the five major College functions, the library/media area has been supported the least over the last decade. Between 1980 and 1990, outlays for library/ media actually dropped by 5% (see Figure 3). However, California expenditures for library and media services do exceed the average for the eight other states (see Figure 4).

Facility space utilization standards for lecture rooms and faculty offices are higher for the California Community Colleges than for comparable colleges in 15 large states (Figure 8). Moreover, all facilities in the California Community Colleges are utilized at a rate which exceeds, by 54%, those reported by colleges in the eight other large states of the NACUBO study. And, while California Community Colleges appear to be maintaining their physical plant at about the same rate as do other states, even this level, will result in the build-up of deferred maintenance, which at a later time, will likely be more expensive to correct.

Figure 8

Community Colleges Facilities Utilization
California and Other States



SOURCES: Appendix C, Tables 3 & 4

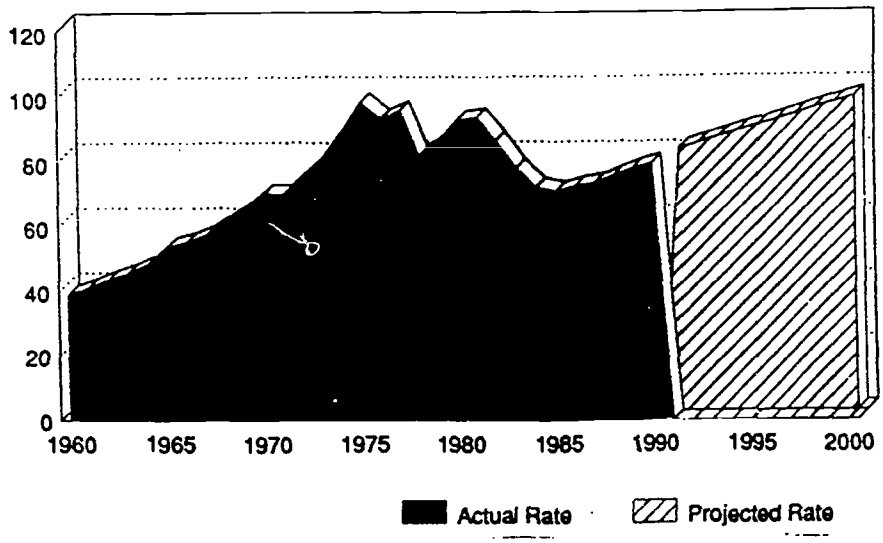
Access

During the past three decades, Community College enrollments have increased dramatically (see Figure 1). Only part of this is due to population increase. Another major reason for the increase is that the Colleges have enrolled an increasing proportion of California's adult population. Participation rates (enrollment divided by adult

population) peaked in 1975, when 1 in every 10 California adults were enrolled (see Figure 9). Because of funding cuts, enrollments declined – while population grew rapidly – so that, by 1985, the rate had dropped to its lowest since the early 1970s.

Figure 9

California Community Colleges Participation Rates Per 1,000 Adult Population (18-64)

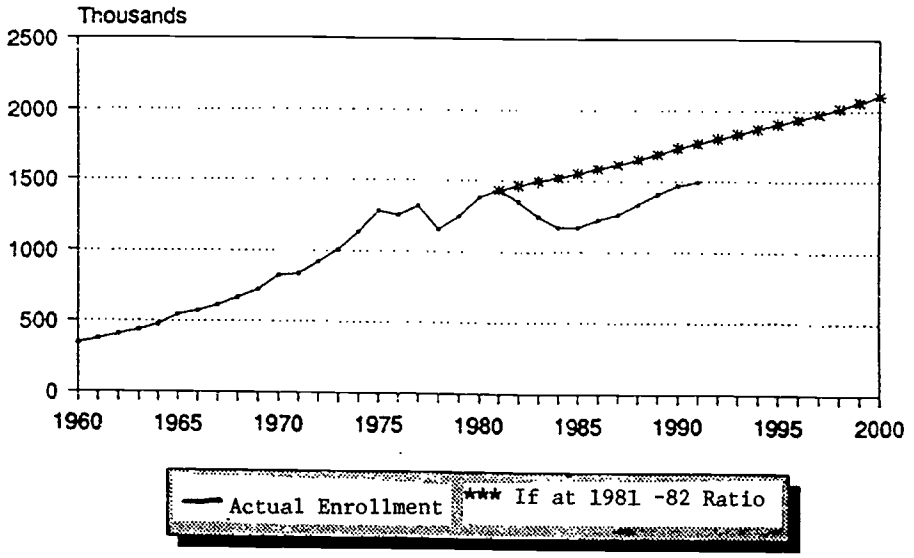


High demand and increased funding since 1985 have resulted in consistent increases in Community College participation. If these increases were to continue, the Community College participation rate would nearly reach its previous (1975) peak by the end of this century. If so, then Community College enrollments will reach 2 million by the Year 2000. Under current DOF projections, this does not happen until 2005. What actually happens will be determined by funding since it appears that demand will remain high throughout the decade as a result of a slow economic recovery, continued immigration, and a substantial increase in the number of California high school graduates, beginning 1993.

Demand for Community College classes exceeded the funding provided in Fall 1991. Staff estimate that because courses were either closed or deleted, 120,000 individuals were unable to obtain the classes they wanted. Approximately 45,000 of these potential students were enrolled during the first week of classes, but withdrew by the fourth week. And, had the Community Colleges enrolled California adults at, say, their 1981-82 rate in Fall 1991, enrollment would have been 280,000 higher than it was (see Figure 10).

Figure 10

Total Headcount Enrollment
1960-2000



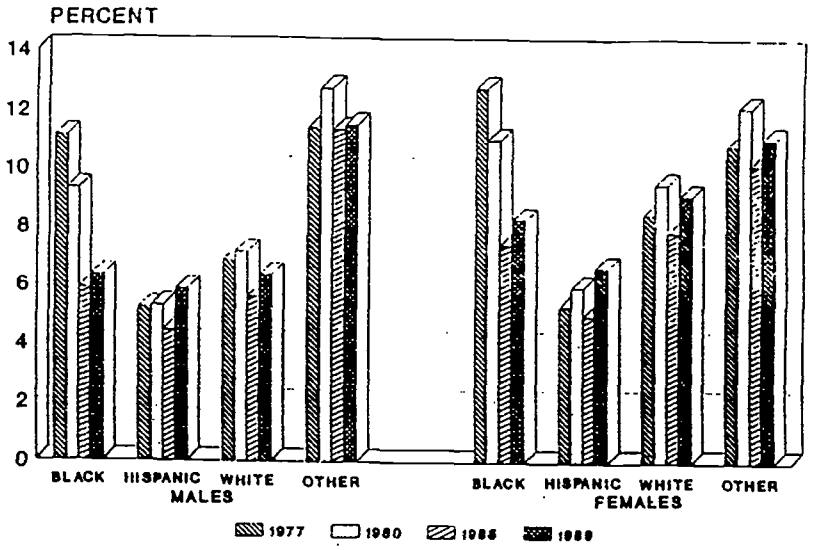
Most of this year's enrollment demand – roughly 2 of every 3 individuals – was due to a worsening economy and the many unemployed who wanted to return to college for retraining. Other factors stimulating enrollment demand were continued population growth, particularly immigration, and fee and course policies adopted by the University of California (UC) and the California State University (CSU), which resulted in many students – possibly as many as 24,000 – who would normally do their lower division work at those institutions, choosing instead to enroll at a Community College.

Thus, Community Colleges are enrolling many students who, in other years, would have attended UC and CSU. But the Colleges have not been able to meet their obligations for retraining the unemployed during this recession and have found it quite difficult to educate the new California immigrants who need skills, particularly in English, in order to become productive citizens.

Today, Community Colleges enroll 1 in every 14 California adults, a degree of access that is down substantially from the level reported ten or 15 years ago. Those traditionally underrepresented have been most affected by this overall decline in access. As measured by participation rates, this decline has been most significant for black males and females (see Figure 11). And, while Hispanic enrollment has recently increased to its highest level ever, participation of both male and female Hispanics is below that of any other racial and ethnic group.

Figure 11

Percent of Each Adult Population Cohort by Ethnicity and Gender that Enrolls in California Community Colleges
1977-1989



Also of importance to access is the impact the funding gap and current state funding policies have had on the issue of who provides more of the cost of educating a Community College student: the student and his/her family, or the taxpayer? Does the sharing of costs approximate the sharing of resulting benefits? If not, the sharing of costs may not be appropriate. And, are taxpayers more or less wealthy than the students they subsidize? If they are less wealthy, then the impact of their subsidy is regressive; that is, the less wealthy are supporting the more wealthy through the Community College finance mechanism. If this were true, then the goal of access or equal opportunity may not be met at all.

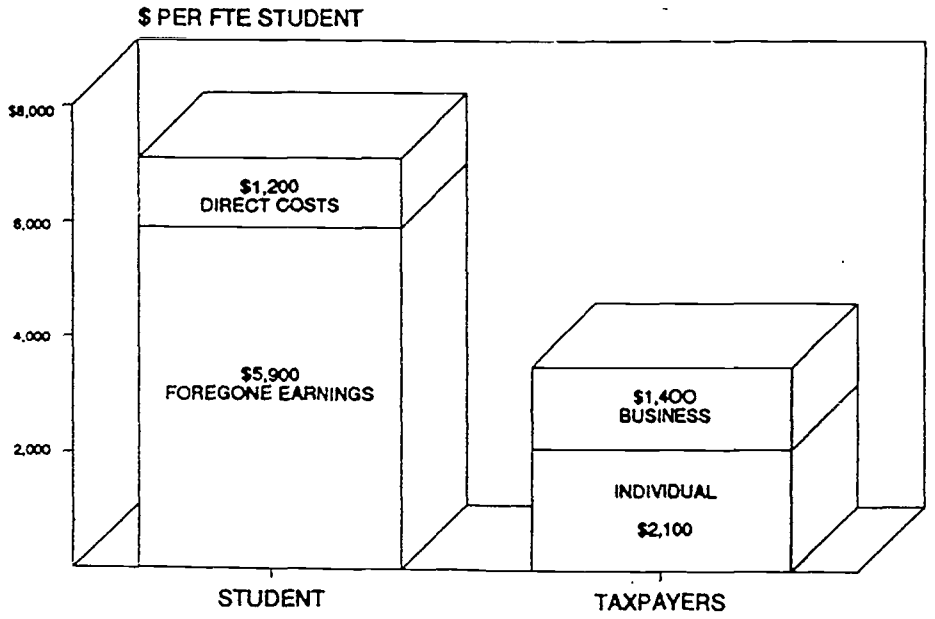
Since student tuition and fees at the California Community Colleges are low – the lowest in the nation – one might expect that the taxpayer subsidizes most of the cost. This is not the case.

Taxpayers pay for the operating and capital outlay costs of California Community College education, currently estimated at $3,500/FTES annually. Of this, local property taxes account for $900 and State General Fund taxes for $1,900/FTES. The balance, $700/FTES, comes from federal sources, the lottery, and other district revenues.

It is possible to estimate the portion of Community College costs paid for by the individual versus the business taxpayer. Two-thirds of local property taxes are levied on commercial property, while one-third is levied on individual residences. If – as some analyses suggest – businesses pass two-thirds of the State sales tax to consumers, then individuals pay for about 75% of the State General Fund, while business accounts for the other 25%. Thus, individuals contribute $2,100, and business $1,400 to the cost of one California Community College FTES (Figure 12).

Figure 12

Student and Taxpayers Share of Annual Cost Per FTE Student



SOURCE: APPENDIX C, TABLE 5

When attending Community Colleges, students and/or their families face two costs: direct out-of-pocket expenses and foregone earnings. The total of these two costs amounts to $7,100/FTES per year.

Direct out-of-pocket costs for books and supplies, transportation, fees, and child care, are estimated at $1,200 per FTES per year. Students also must forego the opportunity to work and earn wages when they attend class. If, over the academic year, an FTES spends 30 hours per week (in class, commuting, and studying), then he or she spends a total of 1,050 hours on education. If the probability of these individuals obtaining a $7 per hour job is 80% (a conservative assumption) then the average FTES foregoes $5,900 per year.

Overall, to support the $10,600 annual cost per Community College FTES, it is estimated that:

students and/or their families pay	$7,100,
individual taxpayers pay	$2,100, and
business taxpayers pay	$1,400.

Thus, students bear two-thirds of the cost, plus a little more (about $140) since 1 in every 14 individual taxpayers is a student also. Businesses contribute just over one-tenth of the cost.

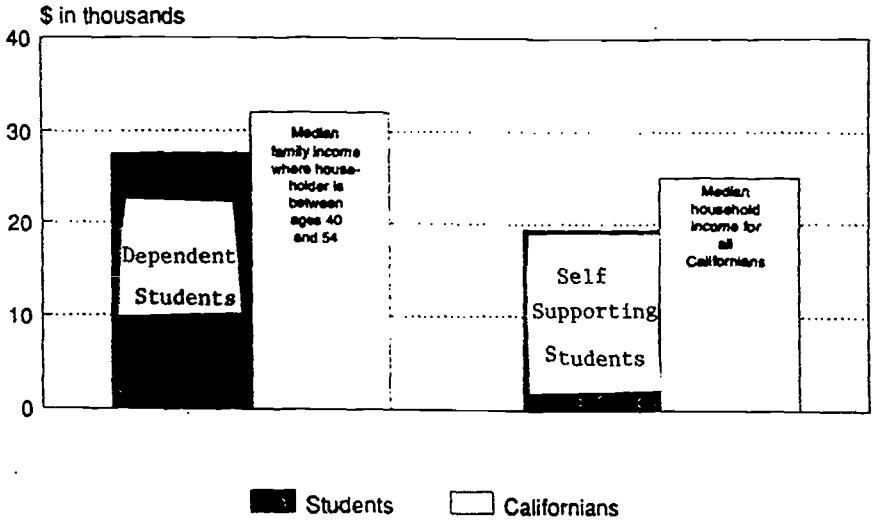
The balance of benefits that result from Community College education; i.e., private versus public, can not be precisely calculated. However, it is apparent that the skills and knowledge obtained at Community Colleges by the many Californians who otherwise would not be educated helps both the economic and social development of the state. Thus, all taxpayers – including both consumers and businesses-benefit.

Data on Community College students and Californians indicate that these students are less wealthy than those adults in the state's population who are in similar circumstances (see Figure 13).

Figure 13

Annual Income for California Community College Students and All Californians

1985



SOURCE: Chancellor's Office (1987) FEE IMPACT STUDY. Sacramento.

While these data are seven years old, increases in Community College enrollment – largely Hispanics and immigrants (who typically report lower-than-average incomes) – and in the California economy, suggests that the differences reported seven years ago are even greater today. Thus, a more wealthy California taxpayer subsidizes a part of the cost of educating a less wealthy Community College student. The redistribution of income in this transaction is progressive. Moreover, it is consistent with the notion underlying open access (equal opportunity regardless of income) and the Community College charge under the *Master Plan*, to provide opportunities to all California adults.

Maintaining the Mission Under Current Funding Scenarios

State funding for both the near- and long-term is quite uncertain. To examine what is likely, we begin with the 1992-93 Governor's Budget and the latest forecasts by the Commission on State Finance (COSF). As evidence of the current uncertainty, COSF estimates that even if the economy recovers in mid 1992, as the Governor assumes, his $43.8 billion budget will be out of balance by $2.3 billion (5%). If recovery is delayed until 1993, COSF forecasts the possibility of a $6 billion imbalance (14%).

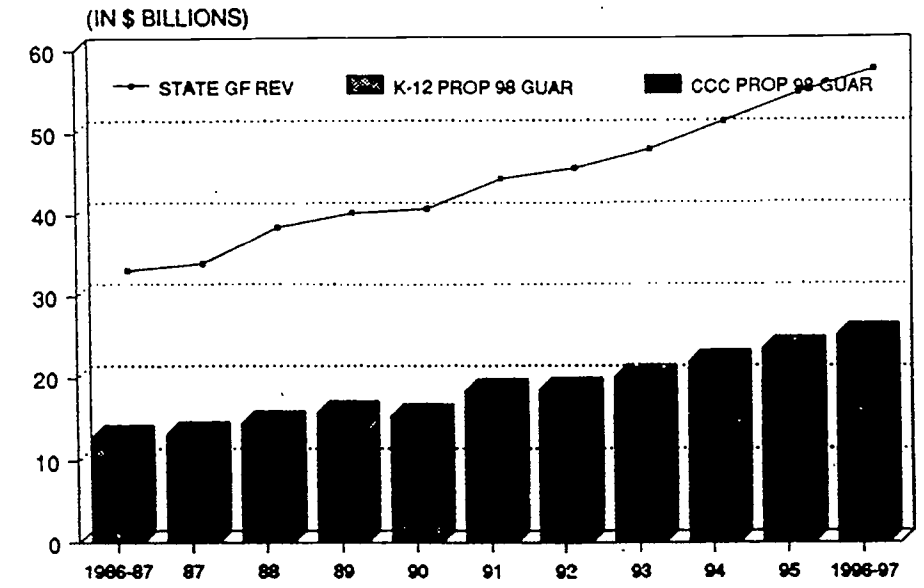
Adding to this uncertainty are two proposed ballot items and a pending court case. Bonds to support $102 million in Community College capital outlay for 1992-93 and other higher education facilities construction will be before California voters in June 1992. Also, if it qualifies, voters will decide on an initiative, which would provide Californians with a public voucher of $2,500, to be used for private K-12 education. Among its other problems, this proposal would reduce public K-12 ADA to an unknown degree, thereby reducing the Proposition 98 guarantee and the California Community Colleges share of that. In the court case, the legality of Proposition 13 (1978) will be decided by the U.S. Supreme Court in 1992. If the court overturns Proposition 13, properties will be reassessed. The impact on Community Colleges and other local public agencies that rely, in part, on property tax revenues would be uncertain, but, in any case, significant.

At present, the Proposition 98 guarantee for K-12 and the California Community Colleges is determined under "Test 2," where revenue for education increases by the increase in K-12 ADA, plus the increase in the state's personal income per capita. Use of this test has increased the guarantee's share of General Funds from 40% in 1987 when Proposition 98 began to 42% currently (see Figure 14). Alternative calculations use a fixed percentage of the General Fund (Test 1) or ADA, plus revenue per capita (Test 3). The Community College share of the Proposition 98 guarantee has ranged between 9% and 11%.

Recent trends in the revenues supporting Community Colleges show the property tax gaining in real (price-adjusted) value per FTE, while state revenues and student fees have declined slightly and lottery funds have declined substantially (see Figure 15). Federal funding of the Colleges has just kept up with inflation.

Figure 14

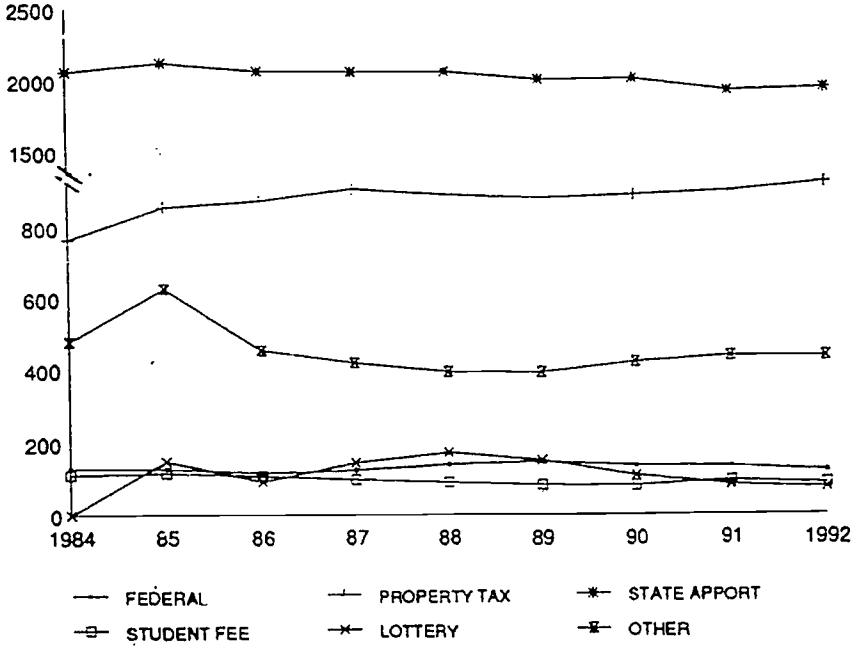
State General Fund Revenue
Proposition 98 Guarantee and California Community Colleges Share



SOURCE: APPENDIX D, TABLE 1

Figure 15

Major General Fund Sources of Revenues Per FTE
in Constant 1991-92 Dollars



SOURCE: APPENDIX B, TABLE 2

The analysis here examines two closely related state funding scenarios for the next five years. The first is that of the Governor for 1992-93, supplemented by COSF forecasts for 1993 through 1997. The second scenario contains all the same assumptions, but incorporates a COSF estimate of a $472 million 1991-92 overpayment to Proposition 98, which may be taken out of the Governor's proposed 1992-93 allocation. The Community College share of this reduction would be $47 million.

To examine the consequence of these possible revenue scenarios – against the expected future needs of Community Colleges – we use COLA forecasts by COSF and several forecasts of FTES growth. From the resulting estimate of state apportionment, we deduct forecasts of future property tax revenues, increasing at 9% per year, and student enrollment fee revenues, at their current rates, to obtain this part of the General Fund requirement. To this is added a forecast of future categorical aids. The result is matched against what is estimated to be available from Proposition 98. Funds remaining, if any, may be put to either FTES growth that exceeds the rate of adult population growth, supporting unfunded FTES, and/or to program improvement.

We use two forecasting models to estimate future FTES. (See Appendix E for details.) One model is based upon demographics and relates FTES to enrollments that are driven by changes in high school graduates and adult population. One forecast under this model assumes that the participation of high school graduates and adults, generally, at Community Colleges will remain at 1991 levels. This is a "low" forecast of about 2.5% annual increase since it is unlikely that participation will be this low under any circumstances (see Figure 16). Another, "high" forecast of 5% annually is obtained by assuming that participation will increase like trends that occurred between 1985 and 1990. This is high because it assumes that 1985-1990 funding will continue – an unlikely scenario – and ignores the impact of a slowly improving economy.

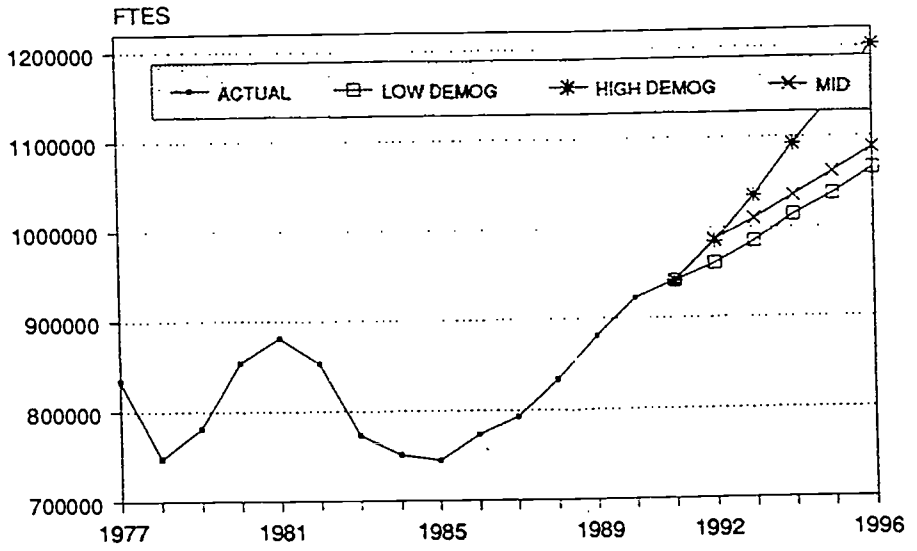
A second FTES forecasting model incorporates changes in the price of attending a Community College, economic conditions, and available funding, as well as demographic changes. This produces a forecast that averages 3% annual FTES growth over the next five years. Given the likely funding from Proposition 98 (lower than 1985-1990 levels) and the dampening effect of economic recovery, this may be a reasonable "mid-range" estimate.

If our mid-range forecast of FTES growth at 4.8% were to be realized in 1992-93, Community Colleges would have enough funds to cover that growth, put $50 million toward program improvement, and reduce the level of unfunded FTES by 20,000. (See Figure 17 and Appendix D, Tables 3 and 4.) Overall, this reduces the funding gap by $80 million or 3%.

Figure 16

California Community Colleges FTE

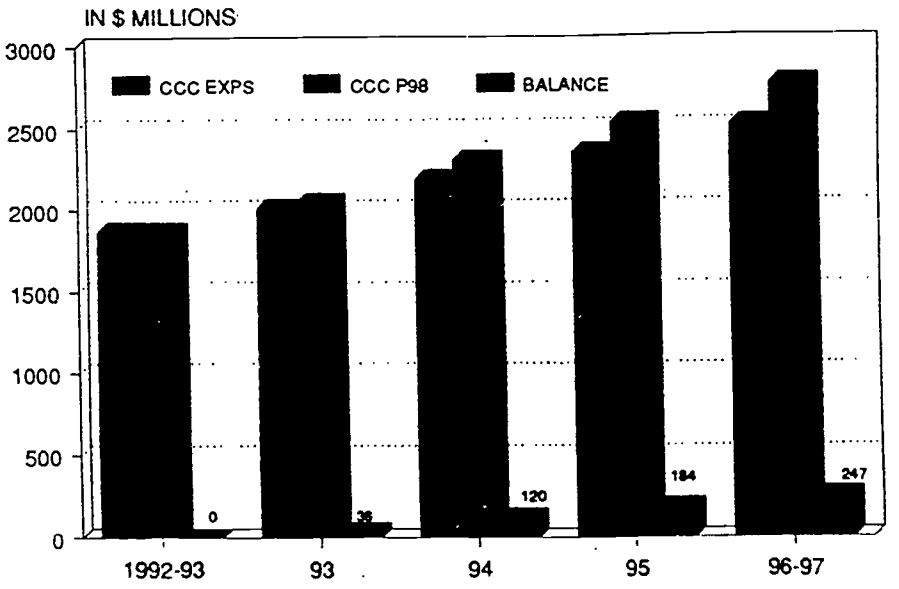
Actual 1977-1991, Forecast 1992-1996



SOURCE: Appendix E

Figure 17

California Community Colleges Funding for Mid-Range FTES Forecast



SOURCE: APPENDIX D, TABLE 3

A second scenario of a reduction of $47 million in the Governor's 1992-93 Budget proposal changes the above. In our forecast, this produces a lower mid-range FTES growth projection of 4.2% in 1992-93. If as expected, the COLA is removed in this funding reduction, this could result in about the same reduction of unfunded FTES and the same program improvement, but 7,000 FTES or 13,000 student enrollment that would have been unserved.

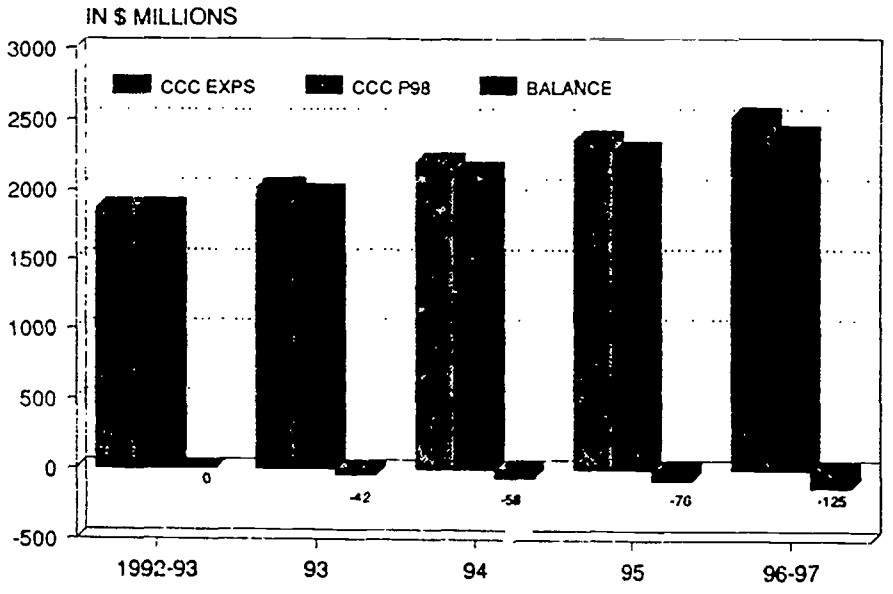
Returning to scenario "one," COSF forecasts of the Proposition 98 guarantee, together with our mid-range FTES forecast, results in a balance (Proposition 98 guarantee exceeds Community College need) of $36 million in 1993-94. This could be put to a reduction of unfunded FTES or it all could be put to program improvement, or, of course, to some combination of the two policies. And, as we examine the final three years of the forecast, some further reductions of the funding gap are possible. By 1996-97, the gap could be reduced by $154 million or what at that time would amount to 5% of the total.

Scenario "two" again alters the above (Appendix D). And, any further cutbacks from the Governor's 1992-93 budget proposal would simply compound that impact.

The expected state funding scenarios, together with a mid-range 3% FTES growth rate, enable the Colleges to make some improvement in access and to improve program quality slightly, thereby reducing the funding gap slightly. By contrast, a higher 5% FTES growth rate can't be supported from the existing tax structure (Figure 18). Thus, improvements in access like those recorded during the period 1985-1990 (when growth averaged between 4% and 5%) can not be attained under the expected five-year state funding scenario.

Figure 18

California Community Colleges State Funding for High FTES Growth Forecast



SOURCE: APPENDIX D, TABLE 3

Because of the funding gap, Community Colleges are not currently able to maintain their mission as directed by the State *Master Plan for Higher Education* and by AB 1725 (1988). Since the present structure of state and local tax revenues will not be adequate to significantly close the funding gap, the Colleges can only maintain their mission; i.e., close the gap, if they secure additional funding, from either existing or alternative sources, and/or become even more cost-effective in the way they deliver their programs and services, preferably without reducing the quality of those services.

The Board of Governors Commission on Innovation is exploring alternative ways of delivering Community College education. Once endorsed, some techniques such as better use of the calendar, can be implemented readily. Others, like interactive television, computer-aided instruction, and the entire "distance learning" realm will require substantial capital outlays and more time for their development and implementation.

A number of cost-effective measures may be possible within traditional delivery techniques. One of these is to increase College staff productivity. Comparisons with colleges in other states, however, suggest that California Community College staff are among the most productive in the nation. Further increases in productivity could seriously detract from program quality, particularly if they involve increased class sizes.

Another possible measure is to change the mix of staffing. While continuing to build a core of ethnically-diverse, full-time faculty, one way that Colleges may become more cost-effective – if funds are scarce and/or demand is high (due to economic recessions) – is to utilize more part-time faculty, peer tutors, and teaching assistants. Again, such changes may detract from program quality. Indeed, current policy in AB 1725 and PBF advocates increasing the share of credit instruction taught by full-time faculty from 65% to 75%.

Potential Policy Options

A number of changes to policies financing California Community Colleges are possible. Some of these are discussed below.

If public funds are so scarce that Community College enrollment demand can not be met and priorities for class enrollment must be employed, these priorities should be determined by the local Colleges, so as to best reflect the educational needs of their communities. These priorities also could reflect the need to accommodate the most economically vulnerable and least educated, as well as those nearing completion of their educational objectives.

Despite the "peace dividend," a continuing, large federal debt makes it unlikely that federal aid to California Community College education will increase. Even so, Community Colleges should pursue (1) a greater share of funds available for

vocational education, such as the Perkins Act and JTPA, and (2) for the education of immigrants, more funds under SLIAG.

The California Community Colleges were once supported primarily by local property tax revenues. This, of course, was changed by Proposition 13 (1978). Now, given the inadequate state-level tax revenues, it appears that local taxpayers should be more able to support needed improvements in their Colleges – through vehicles such as majority-vote local tax increases – if that is their preference.

Businesses may contribute both resources and money as a kind of *quid pro quo* for the skilled workers they receive from Community Colleges. For instance, more classes at the worksite would utilize existing resources and reduce student transportation costs. Use of worksite equipment and/or equipment donations would help ensure the currency of student training. Mixing public and private revenues, with appropriate quality controls, may maximize the Colleges' ability – in partnership with business and industry – to deliver vocational training to Californians.

While flat increases in fees would detract from access, certain students might be asked to support a larger part of the cost of their education where their training is quite expensive and their resulting private earnings are quite high, or where they have already received a substantial amount of publicly-subsidized postsecondary education.

State and local funding policies should provide the maximum incentive for Colleges to adopt alternative, cost-effective delivery techniques, to offer needed programs – whether they are high or low cost, and to secure alternative, supplemental revenues.

Policies should always be assessed as to whether they enhance or detract from the ability of the California Community Colleges to carry out their mission under the *Master Plan*. At a January 1991 study session held by the Board of Governors, Community College officials were unanimous in supporting the need for the Colleges to maintain their mission, as defined by the State's *Master Plan for Higher Education* and reaffirmed by AB 1725 (1988). These same officials, however, noted that current funding does not enable the Colleges to carry out that mission.

The ability of the California Community Colleges to meet their mission, as defined by the *Master Plan,* is vital to the economic and social development of California. The Colleges have a particularly significant role to play in helping close the potential gap between the State's new jobs and the lack of skilled labor available to fill them. Community Colleges not only provide individuals with transfer and vocational education for these new jobs, but they also enroll more individuals than do other postsecondary institutions from the groups (women, minority, immigrant, etc.) that will comprise most of the new workers.

APPENDIX A

APPENDIX A

Supplemental Budget Language

California Community Colleges

(Item # 6870-001-001)

The Legislature requests the California Community College Board of Governors to document the extent of the current gap, if any, between State appropriations for the California Community Colleges and funding that is needed to fully support the Community Colleges' current mission under the State Master Plan for higher education. The review shall include where possible an identification of the consequences of the finding gap on program quality and student access. This review should include the Board's plans and priorities for maintaining the mission of the California Community Colleges under the current State funding scenario, accompanied by recommendations to the Governor and the Legislature on future state policies for financing the California Community Colleges. A preliminary review should be forwarded to the Governor, Legislature, and the California Postsecondary Education Commission by December 15, 1991. The segment's final report shall be transmitted to the Governor, Legislature, and the California Postsecondary Education Commission by April 1, 1992. The California Postsecondary Education Commission shall comment on the segment's final report and transmit its comments to the Governor and Legislature by May 1, 1992. The final segmental report should by managed so as to invite public comment on the Board's recommendations.

APPENDIX B

The Funding Gap

APPENDIX B

Table 1

Headcount Enrollment
Full-time Equivalent Students (FTES) and
Average Daily Attendance (ADA)
Actual 1977 to 1989; Estimated 1990-92

Year	Headcount Enrollment *(In Thousands)*	Percent Change	FTES	Percent Change	ADA
1977-78	1,322	5.3	534,018	–	734,915
1978-79	1,160	-12.3	747,544	-10.4	658,716
1979-80	1,248	7.6	781,447	4.5	688,591
1980-81	1,384	10.9	853,963	9.3	752,490
1981-82	1,431	3.4	880,954	3.2	776,274
1982-83	1,352	-5.5	852,348	-3.2	751,067
1983-84	1,248	-7.7	772,543	-9.4	686,573
1984-85	1,173	-6.0	751,082	-2.8	666,140
1985-86	1,174	0.1	744,939	-0.8	659,499
1986-87	1,225	4.3	773,429	3.8	685,031
1987-88	1,284	4.8	792,685	2.5	701,919
1988-89	1,336	4.0	833,401	5.1	737,980
1989-90	1,408	5.4	880,807	5.7	772,485
1990-91	1,469	4.3	922,417	4.7	806,722
1991-92E	1,491	1.5	941,100	2.0	

Source: Chancellor's Office, California Community Colleges, 1992.

Table 2

Adults, High School Graduates, and Unemployed in California

(1980-1996)

Year	High School Graduates*	Percent Change	Adult Population	Percent Change	Unemployed	Percent Change
1980	263,389	–	14,931,840	–	832,000	–
1981	265,924	0.96	15,292,876	2.42	1,042,000	25.24
1982	261,994	-1.48	15,658,203	2.39	1,198,000	14.97
1983	257,633	-1.66	15,992,073	2.13	1,083,000	-9.60
1984	251,143	-2.52	16,262,878	1.69	957,000	-11.63
1985	252,150	0.40	16,574,825	1.92	912,000	-4.70
1986	262,921	4.27	16,909,338	2.02	840,000	-7.89
1987	274,707	4.48	17,265,090	2.10	769,000	-8.45
1988	269,059	-2.06	17,654,132	2.25	742,000	-3.51
1989	259,228	-3.65	18,092,862	2.49	780,000	5.12
1990	258,094	-0.44	18,537,396	2.46	973,000	24.74
1991	262,906	1.86	18,910,906	2.01	1,151,000	18.29
1992	272,428	3.62	19,265,183	1.87	1,156,000	0.43
1993	282,197	3.59	19,624,792	1.87	1,101,000	-4.76
1994	295,269	4.63	20,003,682	1.93	1,060,000	-3.72
1995	303,502	2.79	20,372,698	1.84	1,049,000	-1.04
1996	316,004	4.12	20,739,113	1.80	1,045,000	-0.38

* Public and Private High School Graduates.

Sources: California State Department of Finance, 1991; California Employment Development Department, 1992; Commission on State Finance, 1992; Chancellor's Office, California Community Colleges, 1992.

Table 3

Comparison of Standards, Board Proposals, State Appropriations, and District Expenditures, 1989-90

(In Millions)

	PBFS	PROP	SA	ACT	Ratio ACT/PBFS
Operating Budget	$ 3,606	$ 2,641	$ 2,173	$ 2,381	.66
Instruction	2,350			1,481	.63
Library/Media	161			89	.55
Student Services	199			183 *	.92
Plant Operation	383			261	.68
Institutional Support	512			366	.72

* Student services expenditure excludes estimate of categoricals

Source: Chancellor's Office, California Community Colleges, 1992.

Definitions:

PBFS: Funding levels provided by the Board policy on Program-Based Funding.

PROP: Funding levels actually proposed by the Board of Governors in 1988.

SA: Actual State appropriations (including fee and property taxes for operating budget).

ACT: Actual district expenditures, from district general funds (some 14% higher than just State general appropriations since is includes non-State district general funding)

Table 4

General Fund Expenditures by Program Base Category

Year	Instruc.	Instruc. Support	Student Services	Plant O&M	Institution Support	Total
Nominal Dollars in Millions						
75-76						$ 1,345
77-78						1,304
80-81	$ 889	$ 64	$ 132	$ 173	$ 191	1,449
81-82	954	65	138	186	204	1,547
82-83	957	63	137	186	200	1,543
83-84	939	60	135	181	193	1,508
84-85	1,034	62	169	203	213	1,681
85-86	1,083	65	183	208	252	1,791
86-87	1,145	70	198	217	264	1,894
87-88	1,211	76	216	225	285	2,013
88-89	1,321	80	247	232	334	2,214
89-90	1,481	89	283	261	366	2,480
90-91	1,665	106	335	294	428	2,828
1991-92 Constant Dollars in Millions						
75-76						$ 3,342
77-78						2,852
80-81	$ 1,478	$ 106	$ 219	$ 288	$ 317	$ 2,409
81-82	1,474	100	213	287	315	2,391
82-83	1,395	92	200	271	292	2,250
83-84	1,309	84	188	252	269	2,102
84-85	1,376	83	225	270	283	2,237
85-86	1,388	83	235	267	323	2,296
86-87	1,423	87	246	270	328	2,353
87-88	1,441	90	257	268	339	2,396
88-89	1,497	91	280	263	379	2,509
89-90	1,605	96	307	283	397	2,688
90-91	1,725	110	347	305	443	2,930
1991-92 Constant Dollars Per FTES in Millions						
75-76						$ 3,830
77-78						3,419
80-81	$ 1,730	$ 125	$ 257	$ 337	$ 372	$ 2,820
81-82	1,674	114	242	326	358	2,714
82-83	1,637	108	234	218	342	2,640
83-84	1,695	108	244	327	348	2,722
84-85	1,832	110	299	360	377	2,979
85-86	1,864	112	315	358	434	3,082
86-87	1,839	112	318	349	424	3,043
87-88	1,818	114	324	338	428	3,022
88-89	1,796	109	336	315	454	3,011
89-90	1,823	110	348	321	450	3,052
90-91	1,870	119	376	330	481	3,176

Source: Chancellor's Office, California Community Colleges, Fiscal Data Abstracts.

Table 5

Community College Expenditures
California and Eight Other Large States*

(Dollars/FTES in 1989-90)

	Calif. ACT	OTHER LARGE STATES		
		Low	Median	High
Instruction	$ 1,895	$ 2,046	$ 2,186	$ 2,607
Library/Media	458	189	345	600
Student Services	466	309	426	577
Plant Operation	432	412	515	642
Institutional Support	574	511	691	1,061
Total	**$ 3,825**	**$ 3,463**	**$ 4,163**	**$ 5,442**

* Texas, Florida, Illinois, Washington, Arizona, Michigan, Pennsylvania, and New York.

Sources: National Association of College and University Business Officials, 1991. *Statewide Financial Statistics, Public Community and Junior Colleges*, 1989-90. Washington D.C. Chancellor's Office, 1992.

Definition:

Calif. ACT: Actual expenditures reported to NACUBO by thirty-three (33) California Community College districts.
Median: Median value of other states.

Table 6

Community College Expenditures Per FTES
California and U.S. Community Colleges

	$ per FTES
Average of ten (10) highest states.	$ 5,835
Average of thirty-six (36) other states.	4,800
Average of eight (8) other large states.	4,144
Average for California.	3,825

Sources: National Association of College and University Business Officials, 1991. *Statewide Financial Statistics, Public Community and Junior Colleges*, 1989-90. Washington D.C. Chancellor's Office, 1992.

Table 7

Facility Maintenance
1988-89 to 1996-97

(In Millions, 1991-92)

Year	Operating Budget	Capital Need*	State Aid	Gap
1988-89	NA	NA	$ 15.0	–
1989-90	NA	NA	15.0	–
1990-91	NA	NA	8.7	–
1991-92	$ 78.2	$ 32.0	8.0	$ 24.0
1992-93	78.2	26.4	8.0	18.4
1993-94	78.2	23.5	–	–
1994-95	78.2	21.9	–	–
1995-96	78.2	21.7	–	–
1996-97	78.2	22.0	–	–

* Assumes that one-fifth of existing deferred maintenance will be eliminated each year. Existing 1991 deferred maintenance based on district plans. Added maintenance needs based on the following formula:

$$M = [(\tfrac{2}{3})(RPV)][(\text{buildings average age})/1275]$$

This is based on: (1) 50-year building life; (2) only two-thirds of a building needing maintenance; and (3) the replacement value of buildings, RPV. Estimated maintenance outlays from operating budgets based on district expenditure reports.

Source: Board of Governors *Long-Range Capital Outlay Plan*, 1991; Method described in *CPEC Technical Background Papers to Higher Education at the Crossroads*, 1991.

Table 8

Summary of the Funding Gap

(In Millions)

	Need	Provide	Gap
Program Quality			
1. Unfunded FTES (51,000 x $ 4,809)	$ 245	$ 0	$ 245
2. Funding Standards (890,000 x $1,739)	4,280	2,732	1,548
3. Resource Maintenance and Development	52	13	39
4. Capital Development	220	122	98
Access			
76,000 FTES x $ 4,809 = $365 million (operating)			
76,000 FTES x $230 = $17 million (capital)	382	0	382
Total *(1991-92)*	**$ 5,179**	**$ 2,867**	**$ 2,312**

APPENDIX C

Consequences of the Funding Gap

APPENDIX C

Table 1

Student:Faculty Ratio, Average Class Size, FTE Faculty Hour Load

(1977 to 1991)

Year	FTES/FTEF	Average Class Size	FTE Faculty Hour Load
1977-78	29.4	NA	NA
1981-82	NA	28.4	NA
1982-83	35.1	27.8	18.1
1983-84	33.8	26.9	18.2
1984-85	33.1	27.9	17.2
1985-86	32.6	27.6	17.2
1986-87	33.5	28.4	17.1
1987-88	34.3	29.3	17.0
1988-89	35.2	29.8	17.1
1989-90	35.3	29.2	17.5
1990-91	34.7	29.6	17.0

Source: Chancellor's Office, California Community Colleges, *Fiscal Data Abstracts* and *Staff and Salary Reports*.

FTEF: Full-Time Equivalent Faculty.

Table 2

Community College Faculty Staffing

(California and Eight Other States, 1989-90)

State	(1) FTES / FTEF (Credit)	(2) WFCH (Credit)	(3) SEC Size Median (Credit)	(4) PT / TOT (Credit)	(5) PT / TOT (Non-credit)
California	27	17.6	23	.38	NA
Arizona	18	22.5	12	.53	.68
Florida	25	17.0	22	.33	.91
Illinois	20	15.8	19	.48	1.00
Michigan	18	15.0	18	.44	1.00
New York	16	12.6	19	.40	1.00
Pennsylvania	17	12.8	20	.42	1.00
Texas	17	12.1	21	.26	.94
Washington	22	15.7	21	.38	.32
Median (8)	18	15.4	19.5	.41	.97
West	18	15.9	17	.39	.34
South	18	15.0	18	.27	.79
Central	17	14.2	18	.36	.85
East	17	12.8	20	.36	1.00

Source: NACUBO, 1991.

WFCH: Weekly Faculty Class Contact Hours
SEC: Class Section
PT/TOT: Ratio of Class Hours Taught by Part-Time Faculty

Table 3

Facilities Utilization Standards

	Calif.	COMPARABLE STATES*		
		High	Median	Low
Classroom – ASF/FTES	6.4	12.8	8.3	6.7
LAB – ASF/FTES	42.9	59.7	36.2	24.3
Office – ASF/FTEF	95.0	187.0	154.0	110.0

* Colorado, Florida, Kansas, Maryland, Nebraska, New Hampshire, New Jersey, Ohio, Oklahoma, Oregon, Tennessee, Utah, Virginia, Washington, Wisconsin.

Source: MGT Consultants *Survey of Space and Utilization Standards*, (1990) Sacramento.

Table 4

Facilities Data

Community Colleges
California and Eight other States

State	(1) BRV / FTE (Credit & Non-credit)	(2) POM / BRV (Ratio)	(3) POM / GSF	(4) ASF / FTE
California	$ 5,890	.05	$ 4.65	70
Arizona	7,228	.06	4.04	105
Florida	9,120	.04	3.12	111
Illinois	8,200	.04	3.29	115
Michigan	11,086	.05	3.05	129
New York	9,902	.04	4.50	107
Pennsylvania	7,952	.04	3.28	103
Texas	8,465	.05	3.11	140
Washington	10,131	.03	2.88	107
Median (8)	8,800	.05	3.20	109
West	8,612	.04	3.04	118
South	8,193	.04	2.78	129
Central	7,972	.04	2.71	120
East	8,777	.04	3.91	107

Source: NACUBO, 1991.

Definitions: BRV – Building Replacement Value
FTE – Full-time Equivalent
POM – Plant Operations and Maintenance
GSF – Gross Square Feet
ASF – Assignable Square Feet

Table 5

Calculation of Public/Private Costs for One California Community College FTES

(1991-92)

Student Cost

Foregone Earnings:

(30 hours/week) x 35 Weeks on class work: 1,050 hours

x probability of employment: .80 = 840 hours

x $7/hourly wage rate: 7.00 = $5,880

Direct Cost:

Books and Supplies, Transportation, Fees, and Child Care: $1,200

Total Student Cost:

$7,080

Public Cost

Operating and Capital Budget: $3,500

Incidence	Individual	Business
Property Tax*	$ 300	$ 600
General Fund**	1,400	500
Other	400	300
Total	2,100	1,400

* One-third of the property tax is levied on individual residences.

** Two-thirds of the sales tax is passed by business to consumer.

APPENDIX D

Maintaining the Mission

APPENDIX D

Table 1

Projected State General Fund Revenues and Proposition 98 Allocation

(In Millions)

Year	State GF Revenues	Percent Change	PROPOSITION 98 ALLOCATION			
			K-14	% Change	CCC	% CCC
Actual						
86-87	$ 31,673	–	$ 12,774	–	$ 1,233	9.652
87-88	32,534	2.7	13,181	3.2	1,301	9.870
88-89	36,977	13.7	14,480	9.9	1,449	10.007
89-90	38,749	4.8	15,732	8.6	1,581	10.050
90-91	39,214	1.2	15,330	-2.6	1,714	11.181
91-92E	42,854	9.3	18,421	20.2	1,694	9.196
92-93P	44,162	3.1	18,520	0.5	1,866	10.076
Projected						
93-94	$ 46,476	5.2	$ 20,069	8.4	$ 2,007	10.000
94-95	49,887	7.3	21,873	9.0	2,187	10.000
95-96	53,310	6.9	23,488	7.4	2,349	10.000
96-97	56,107	5.2	25,170	7.2	2,517	10.000

Source: Commission on State Finance, Governor's 1992-93 Budget Proposal.

Definitions:

E = Estimated
P = Proposed

Table 2

District General Fund Revenues
California Community Colleges

Year	Federal	Local Property Taxes	State General Fund	Student Fee	Lottery	Other State Funds	Local Misc.	Local Debt Service	Total
Nominal Dollars in Millions									
84-85	$ 73	$ 432	$ 1,165	$ 63	$ 0	$ 14	$ 235	$ 21	$ 2,002
85-86	73	498	1,234	66	85	87	259	19	2,320
86-87	73	545	1,285	67	57	8	259	15	2,310
87-88	82	604	1,374	65	97	17	250	12	2,502
88-89	103	655	1,516	66	127	10	272	9	2,758
89-90	120	716	1,632	67	122	14	300	6	2,977
90-91	122	791	1,793	72	97	7	361	9	3,251
91-92	125	844	1,814	88	76	8	394	9	3,358
92-93P	125	947	2,000	89	76	8	433	9	3,686
1991-92 Constant Dollars in Millions									
84-85	$ 96	$ 575	$ 1,551	$ 83	$ 0	$ 19	$ 312	$ 28	$ 2,664
85-86	94	638	1,582	85	109	111	332	24	2,974
86-87	90	677	1,597	83	71	10	322	19	2,870
87-88	98	719	1,635	78	115	21	298	15	2,977
88-89	117	742	1,719	75	144	11	308	10	3,126
89-90	130	776	1,769	73	133	15	325	7	3,227
90-91	126	819	1,857	75	101	7	373	9	3,368
91-92	125	844	1,814	88	76	8	394	9	3,358
92-93P	120	910	1,921	85	73	7	416	9	3,541

Source: Governor's Budget Summary, 1992-93.

Table 2

District General Fund Revenues *(Continued)*

Year	Federal	Local Property Taxes	State General Fund	Student Fee	Lottery	Other State Funds	Local Misc.	Local Debt Service	Total
1991-92 Constant Dollars Per FTES									
84-85	$ 128	$ 766	$ 2,064	$ 111	$ 0	$ 25	$ 416	$ 37	$ 3,547
85-86	126	856	2,123	114	147	149	445	32	3,993
86-87	117	875	2,065	108	92	13	416	25	3,711
87-88	124	907	2,062	98	145	26	376	18	3,756
88-89	140	890	2,062	90	173	13	370	12	3,751
89-90	147	881	2,008	83	151	17	369	7	3,664
90-91	137	888	2,013	81	109	7	405	10	3,651
91-92	133	897	1,928	93	81	8	419	10	3,568
92-93P	122	921	1,945	86	74	7	421	9	3,585

Source: Governor's Budget Summary, 1992-93.

Table 3

Estimates of Funding Need and Proposition 98 Guarantee

(1988-89 to 1996-97)

Year	ADJ CCC APP*	Percent Change	Special State General Funds	Local Property Tax	Student Fee	State General Fund Need	Prop. 98 Guarantee	Balance	FTES	Percent Change
Actual In Millions										
88-89	$ 1,955	–	$ 215	$ 655	$ 66	$ 1,449	$ 1,449	$ 0	833,401	–
89-90	2,144	9.7	220	716	67	1,581	1,581	0	880,954	5.71
90-91	2,344	9.3	233	791	72	1,714	1,714	0	922,417	4.71
91-92E	2,426	3.5	228	844	88	1,694	1,694	0	941,095	2.02
92-93P	2,678	10.4	232	947	89	1,866	1,866	0	986,548	4.83
Projected – Based on Adult Population Growth In Millions										
93-94	$ 2,836	5.9	$ 246	$ 1,032	$ 90	$ 1,959	$ 2,007	$ 48	1,004,306	1.80
94-95	2,995	5.6	259	1,120	92	2,042	2,187	145	1,023,388	1.90
95-96	3,160	5.5	274	1,215	93	2,125	2,349	224	1,043,855	2.00
96-97	3,322	5.1	288	1,318	95	2,196	2,517	321	1,059,513	1.50
Projected – Based on Mid-Range Forecast In Millions										
92-93P	$ 2,678	10.4	$ 232	$ 947	$ 89	$ 1,866	$ 1,866	$ 0	986,548	4.83
93-94	2,851	6.5	247	1,032	95	1,971	2,007	36	1,009,902	2.37
94-95	3,026	6.1	262	1,120	101	2,067	2,187	120	1,034,977	2.48
95-96	3,209	6.0	278	1,215	107	2,165	2,349	184	1,061,116	2.53
96-97	3,406	6.2	295	1,318	113	2,270	2,517	247	1,087,924	2.53

* Adjusted Community College Apportionment.

Table 3

Estimates of Funding Need and Proposition 98 Guarantee *(Continued)*

Year	ADJ CCC APP	Percent Change	Special State General Fund	Local Property Tax	Student Fee	State General Fund Need	Prop. 98 Guarantee	Balance	FTES	Percent Change
Projected – Based on Mid-Range Forecast Less $47 Million Adjustment										
92-93	$ 2,631	8.5	$ 232	$ 947	$ 89	$ 1,827	$ 1,819	$ (8)	980,360	4.17
93-94	2,802	6.5	247	1,032	91	1,926	1,960	34	1,003,905	2.40
94-95	2,976	6.2	262	1,120	93	2,025	2,140	115	1,029,186	2.52
95-96	3,157	6.1	278	1,215	96	2,124	2,302	178	1,055,513	2.56
96-97	3,352	6.2	296	1,318	98	2,231	2,470	239	1,082,510	2.56
Projected – Based on High-Range Forecast in Millions										
92-93P	$ 2,678	10.4	$ 232	$ 947	$ 89	$ 1,866	$ 1,866	$ 0	986,548	4.83
93-94	2,925	9.2	253	1,032	97	2,049	2,007	(42)	1,034,806	4.89
94-95	3,194	9.2	277	1,120	106	2,245	2,187	(58)	1,091,985	5.53
95-96	3,456	8.2	299	1,215	115	2,425	2,349	(76)	1,143,079	4.68
96-97	3,759	8.8	326	1,318	125	2,642	2,517	(125)	1,201,971	5.15
Projected – Based on High-Range Forecast Less $47 Million Adjustment										
92-93	$ 2,631	8.5	$ 232	$ 947	$ 89	$ 1,827	$ 1,819	$ (8)	980,360	4.17
93-94	2,885	9.7	254	1,032	94	2,013	1,960	(53)	1,034,806	5.55
94-95	3,151	9.2	278	1,120	99	2,210	2,140	(70)	1,091,985	5.53
95-96	3,409	8.2	301	1,215	104	2,391	2,302	(89)	1,143,079	4.68
96-97	3,708	8.8	327	1,318	109	2,608	2,470	(138)	1,201,971	5.15

Source: Governor's Budget Summary, 1992-93; Chancellor's Office, 1992.

Table 4

Estimates of Unfunded FTES and Policy Option

(1988-89 to 1996-97)

Year	STGF Need	Prop 98 Guaran.	Balance	FTES	UNF FTES	Policy	
						UNF FTES	Prog. Impr.
Actual in Millions							
88-89	$ 1,449	$ 1,449	$ 0	833,401	–	–	–
89-90	1,581	1,581	0	880,954	–	–	–
90-91	1,714	1,714	0	922,417	–	–	–
91-92E	1,694	1,694	0	941,095	51,000	–	–
92-93P	1,866	1,866	0	986,548	30,766	–	–
Projected – Based on Adult Population Growth in Millions							
93-94	$ 1,959	$ 2,007	$ 48	1,004,306	–	–	–
94-95	2,042	2,187	145	1,023,388	–	–	–
95-96	2,125	2,349	224	1,043,855	–	–	–
96-97	2,196	2,517	321	1,059,513	–	–	–
Projected – Based on Mid-Range Forecast in Millions							
92-93P	$ 1,866	$ 1,866	$ 0	986,548	30,766	–	–
93-94	1,971	2,007	36	1,009,902	30,766	17,611	–
94-95	2,067	2,187	120	1,034,977	–	30,766	$ 33
95-96	2,165	2,349	184	1,061,116	–	30,766	94
96-97	2,270	2,517	247	1,087,924	–	30,766	154
Projected – Based on Mid-Range Forecast Less $47 Million Adjustment							
92-93	$ 1,827	$ 1,819	$ (8)	980,360	24,414	–	–
93-94	1,926	1,960	34	1,003,905	24,414	11,643	–
94-95	2,025	2,140	115	1,029,186	–	24,414	$ 47
95-96	2,124	2,302	178	1,055,513	–	24,414	107
96-97	2,231	2,470	239	1,082,510	–	24,414	166
Projected – Based on High-Range Forecast in Millions							
92-93P	$ 1,866	$ 1,866	$ 0	986,548	30,766	–	–
93-94	2,049	2,007	(42)	1,034,806	46,086	–	–
94-95	2,245	2,187	(58)	1,091,985	66,570	–	–
95-96	2,425	2,349	(76)	1,143,079	92,647	–	–
96-97	2,642	2,517	(125)	1,201,971	133,868	–	–
Projected – Based on High-Range Forecast Less $47 Million Adjustment							
92-93	$ 1,827	$ 1,819	$ (8)	980,360	30,766	–	–
93-94	2,013	1,960	(53)	1,034,806	50,555	–	–
94-95	2,210	2,140	(70)	1,091,985	75,527	–	–
95-96	2,391	2,302	(89)	1,143,079	106,231	–	–
96-97	2,608	2,470	(138)	1,201,971	152,389	–	–

Source: Chancellor's Office, 1992.

STGF: State General Fund

APPENDIX E

FTES Forecasting Models

APPENDIX E

FTES Forecasting Models

Two forecasting models are used here. One model is **demography-based**, the other is more **broadly-based.**

In the **demography-based** model, we use to sets of functions:

1. Full-time enrollment = f (High School Graduates)
   Part-time enrollment = f (Adult Population)
   Noncredit enrollment = f (Adult Population)

2. FTES = f (FTENRL, PTENRL, NCENRL)

   Where, FTES = Full-Time equivalent students
   FTENRL = Full-Time enrollment
   PTENRL = Part-time enrollment
   NCENRL = Noncredit enrollment

Key to this forecast are trends in adult population and high school graduates, and how those populations participate as part-time and full-time students at Community Colleges. The rapid increase in high school graduates, beginning 1993, results in full-time enrollment increasing at a greater rate than part-time enrollment.

Tables 1 and 2 illustrate two different forecasts for 1992 through 1996 based on two sets of assumptions:

1. Future rates of participation increase in the same way they did between 1985 and 1990 – a period of adequate funding where California Community Colleges were nearly able to meet increasing enrollment demand – producing a "high forecast;" and

2. Continuation of 1991 participation – constrained by budget cutbacks – producing a "low forecast."

The more **broadly-based** forecasting model uses the following function:

$$FTES = a + b_1XREV + b_2POP + b_3RFEE + b_4UNEMPL + b_5HSGRAD + e$$

where,

FTES = Community College Full-Time Equivalent Students

XREV = real college revenue: beginning balances + appropriations; deflated by the State and local Government Purchases Index.

RFEE = real cost of Community College-going: fees + books and supplies + transportation + child care; deflated by the Consumer Price Index

UNEMPL = number of Californians in labor force who are unemployed; academic year average

POP = number of Californians between ages 18 and 64

a, b_i = regression parameters and e = error term

In this model, the level of Community College FTES is determined by both demand and supply factors. On the demand side, increasing population will result in more Californians wanting to enroll in Community Colleges. This increase, however, is modified by relative increases or decreases in the cost of college enrollment. Also impacting demand is the economic cycle: when unemployment increases, Community College enrollment increases as individuals seek retraining for renewed employment. Opposite economic conditions produce opposite results.

On the supply side, increases or decreases in revenue cause Colleges to open or close classes and sections, usually by adjusting the number of part-time faculty, along with supporting staff, and thereby enabling more or fewer students to enroll.

This model was tested using data for the "post-Proposition 13 years" of 1978 through 1990. The model explains about 90% of the year-to-year variation in FTES and there is very little autocorrelation of the error terms, suggesting that no important explanatory variables have been omitted.

The model produces similar results whether run using log values in Table 3 or arithmetic values in Table 4. The actual forecast (predicted values) in Table 4, constituting a "mid-range forecast," is just slightly higher than the "low forecast" above. This is expected because of the dampening effect on FTES growth of funding and of economic recovery.

Table 1
Future Participation Rates Change Like 1985-1990 Trend

Demography – Based Forecast Model	
Regression Output	
Constant	-12314.6
Std Err of Y Est	9162.037
R Squared	0.986117
No. of Observations	12
Degrees of Freedom	8

FTES = a + bFTENRL + cPTENRL + dNCENRL + e

	FTENRL	PTENRL	NCENRL
X Coefficient (s)	1.090650	0.422842	0.895621
Std Err of Coef.	0.284233	0.083539	0.152702
T Values	3.837157	5.061600	5.865153
F Ratio		284.13	

Year	FTES	Percent Change	FTENRL	Percent Change	PTENRL	Percent Change	NCENRL	Percent Change
1980	853,963	–	294,547	–	890,129	–	194,000	–
1981	880,954	3.16	303,903	3.18	948,346	6.54	177,000	-8.76
1982	852,348	-3.25	311,778	2.59	883,049	-6 89	164,000	-7.34
1983	772,543	-9.36	290,175	-6.93	801,154	-9.27	163,000	-0.61
1984	751,082	-2.78	270,993	-6.61	734,151	-8.36	168,000	3.07
1985	744,939	-0.82	261,876	-3.36	746,240	1.65	170,000	1.19
1986	773,429	3.82	265,526	1.39	791,052	6.01	168,000	-1.18
1987	792,685	2.49	275,347	3.70	820,014	3.66	189,000	12.50
1988	833,401	5.14	285,420	3.66	835,524	1.89	205,000	8.47
1989	880,807	5.69	305,350	6.98	874,732	4.69	213,000	3.90
1990	922,417	4.72	318,785	4.40	913,220	4.40	222,000	4.23
1991	941,100	2.03	326,085	2.29	929,230	1.75	223,000	0.45
1992	984,480	4.61	348,606	6.91	962,980	3.63	233,802	4.84
1993	1,034,806	5.11	372,201	6.77	997,601	3.60	244,914	4.75
1994	1,091,985	5.53	401,051	7.75	1,033,829	3.63	256,521	4.74
1995	1,143,079	4.68	424,166	5.76	1,070,182	3.52	268,259	4.58
1996	1,201,971	5 15	454,063	7.05	1,107,021	3.44	280,215	4.46

Table 2

Constant Participation Rates *(At 1991 Values)*

Demography – Based Forecast Model	
Regression Output	
Constant	-12314.6
Std Err of Y Est	9162.037
R Squared	0.986117
No. of Observations	12
Degrees of Freedom	8

FTES = a + bFTENRL + cPTENRL + dNCENRL + e

	FTENRL	PTENRL	NCENRL
X Coefficient (s)	1.090650	0.422842	0.895621
Std Err of Coef.	0.284233	0.083539	0.152702
T Values	3.837157	5.061600	5.865153
F Ratio		284.13	

Year	FTES	Percent Change	FTENRL	Percent Change	PTENRL	Percent Change	NCENRL	Percent Change
1980	853,963	–	294,547	–	890,129	–	194,000	–
1981	880,954	3.16	303,903	3.18	948,346	6.54	177,000	-8.76
1982	852,348	-3.25	311,778	2.59	883,049	-6.89	164,000	-7.34
1983	772,543	-9.36	290,175	-6.93	801,154	-9.27	163,000	-0.61
1984	751,082	-2.78	270,993	-6.61	734,151	-8.36	168,000	3.07
1985	744,939	-0.82	261,876	-3.36	746,240	1.65	170,000	1.19
1986	773,429	3.82	265,526	1.39	791,052	6.01	168,000	-1.18
1987	792,685	2.49	275,347	3.70	820,014	3.66	189,000	12.50
1988	833,401	5.14	285,420	3.66	835,524	1.89	205,000	8.47
1989	880,807	5.69	305,350	6.98	874,732	4.69	213,000	3.90
1990	922,417	4.72	318,785	4.40	913,220	4.40	222,000	4.23
1991	941,100	2.03	326,085	2.29	929,230	1.75	223,000	0.45
1992	959,955	2.00	337,895	3.62	946,638	1.87	227,178	1.87
1993	984,440	2.55	350,012	3.59	964,308	1.87	231,418	1.87
1994	1,013,997	3.00	366,225	4.63	982,926	1.93	235,886	1.93
1995	1,036,698	2.24	376,437	2.79	1,001,058	1.84	240,238	1.84
1996	1,065,093	2.74	391,943	4.12	1,019,063	1.80	244,558	1.80

Table 3

DEP Variable: LFTES (Log Values)
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	0.07462268	0.01492454	16.798	0.0002
Error	9	0.007996242	0.000888471		
C Total	14	0.08261892			

Root MSE	0.02980724	R-Square	0.09032
Dep Mean	13.61937	Adj R-Sq	0.8494
C.V.	0.2188591		

Parameter Estimates

(Partial and Semi-Partial Correlations are Squared)

Variable	DF	Parameter Estimate	Standard Error	T for HO: Parameter=0	Prob >|T|	Partial Corr Type I	Partial Corr Type II
INTERCEP	1	6.12658982	5.64350748	1.086	0.3059		
LXREV	1	0.52414244	0.10620155	4.935	0.0008	0.78874494	0.73019752
LUNEMPL	1	0.17291704	0.08005831	2.160	0.0591	0.80423465	0.34138885
LPOP	1	0.49379924	0.14981768	3.296	0.0093	0.50657085	0.54691046
LHSGRAD	1	0.09817532	0.38372300	0.256	0.8038	0.05907508	0.007220698
LRFEE	1	-0.55412542	0.29167408	-1.900	0.0899	0.28623992	0.28623992

Durbin-Watson D	1.635
(for number of OBS.)	15
1st Order Autocorrelation	0.124

Table 4

DEP Variable: FTES
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	51285028961	10257005792	15.690	0.0003
Error	9	5883564441	653729382		
C Total	14	57168593402			

Root MSE	25568.13	R-Square	0.8971
Dep Mean	824178.5	Adj R-Sq	0.8399
C.V.	3.102257		

Parameter Estimates

(Partial and Semi-Partial Correlations are Squared)

Variable	DF	Parameter Estimate	Standard Error	T for HO: Parameter=0	Prob >|T|	Partial Corr Type I	Partial Corr Type II
INTERCEP	1	297579.61	458732.20	0.649	0.5327		
XREV	1	137.04886	30.68025741	4.467	0.0016	0.77585329	0.68916355
UNEMPL	1	148.57549	74.36712573	1.998	0.0768	0.79395270	0.30723749
POP	1	24.94412271	8.17552181	3.051	0.0138	0.51247164	0.50843990
HSGRAD	1	0.02187346	1.21536406	0.018	0.9860	0.01966712	0.000035989
RFEE	1	-386.04666	223.73021	-1.726	0.1185	0.24858190	0.24858190

Table 4 *(Continued)*

OBS	Actual	Predict Value	Residual	OBS	Actual	Predict Value	Residual
1	834018	842461	-8443.5	11	792685	786515	6170.2
2	747544	774270	-26726.0	12	833401	819827	13573.5
3	781447	790608	-9160.7	13	880807	878362	2445.4
4	853963	821924	32038.9	14	922417	922910	-492.7
5	880954	843246	37708.0	15	941100	963311	-22211.4
6	852348	835141	17207.4	16		986548	
7	772543	805703	-33160.0	17		1009902	
8	751082	742485	8596.8	18		1034977	
9	744939	764207	-19268.2	19		1061116	
10	773429	771707	1722.3	20		1087924	

Sum of Residuals 5.25324E-09
Sum of Squared Residuals 5883564441

Durbin-Watson D 1.524
(for number of OBS.) 15
1st Order Autocorrelation 0.190