THE UNIVERSITY OF CALIFORNIA OFFICE OF THE PRESIDENT
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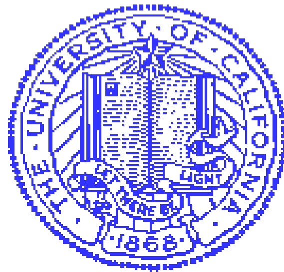
UNDERGRADUATE ENROLLMENT DEMAND:

An Examination of the Factors That Will Shape Undergraduate Demand at The University of California Into the Next Century



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EXECUTIVE SUMMARY

Horizon 1997-98

- Undergraduate enrollment demand for Fall 1998 is not expected to exceed the University's current enrollment capacity (current capacity defined as the total number of new undergraduates who entered the University in either Fall 1993 or Fall 1989). With a 7.0 percent participation-rate, the University should expect to accommodate between 19,600 and 17,600 new freshmen. At these levels of consumption, the University could accommodate between 11,500 and 14,300 new transfer students bringing the total number of new undergraduates to between 31,100 and 31,900. The total number of new undergraduates who entered the University in Fall 1993 and Fall 1989 equaled 31,106 and 31,908 respectively. New transfer students equaled 9,864 in Fall 1993 and 8,068 in Fall 1989.

- Undergraduate enrollment demand at Berkeley and UCLA is expected to remain greater than the 1997-98 stabilization capacity of either campus. This is expected to hold true at both the freshmen and advanced standing levels.

- Undergraduate enrollment demand at campuses located in major metropolitan areas, in areas projected to experience a significant increase in college age students, in areas where economic conditions are favorable, should expect to experience levels of undergraduate enrollment demand that is equal to or exceeds 1997-98 stabilization capacity. Included in this group are Berkeley, Irvine, Los Angeles, and San Diego, and to a lesser extent, Davis and Riverside.

- Undergraduate demand at campuses not located in major metropolitan areas, not located in areas projected to experience large increases in the number of college age students, or located in areas whose economy is not strong or includes a disproportionately large number of lower paying jobs, should expect to experience levels of undergraduate enrollment demand equal to or slightly under the projected 1997-98 stabilization capacity. Included in this group are Santa Barbara and Santa Cruz, and to the degree that these conditions apply, Davis and Riverside.

Horizon 2005-06

- Demand for undergraduate enrollment at the University of California will exceed the University's present capacity as set under the 1997-98 stabilization enrollment plan. It appears that there is a reasonable probability that demand and LRDP capacity will be in near equilibrium in 2005-06[1]. There are a number of factors, independent of the University's control which should, when taken together, either prevent demand from rising above current levels or depress demand below current levels.

- In order to sustain the LRDP undergraduate enrollment targets, the University will need to enroll approximately 40,500 new undergraduates in Fall 2005. Assuming a 7.0 percent participation-rate for high school graduates, the number of new freshmen the University would have to accommodate ranges from a high estimate of approximately 25,400 to a low estimate of approximately 22,850. Given these estimates, the number of new transfers the University could accommodate would range from approximately 15,100 to 17,650.

[1]LRDP Capacity as projected may be difficult to achieve; initial growth has been delayed by current budget shortfalls.

Preface

The University of California is confronting a challenge of enormous proportions. A continuing erosion of state funding for Higher Education in California, coupled with projections for a meteoric rise in the number of high school graduates, when taken together, have the potential to overwhelm the University's current capacity to enroll undergraduate students. Decisions made today concerning the nature of the problem and the appropriate response will shape both the University of tomorrow and determine the range of opportunities available for future students.

Three decisions regarding undergraduate enrollments at the University must be made. First, a consensus must be arrived at on the level of new undergraduate student demand the University can reasonably expect between now and 2005-06. Put simply, how many undergraduate students will seek enrollment at the University in any given year between now and 2005-06? Second, given these expectations about demand, does the University have the capacity, either current or planned under the Long Range Development Plan, to accommodate these students[2]? Finally, if the University's capacity falls short of anticipated demand, can the University expand its enrollment capacity to meet demand (assuming it exceeds capacity) or will it be necessary to maintain capacity and ration consumption thereby bringing capacity and consumption into equilibrium.

Obviously questions of this magnitude cannot and should not be addressed outside the context of either the welfare of the entire University or of higher education in California. Issues as important as these cannot be adequately addressed without delving into fairly limited and discrete segments of the problem. Therefore, this paper will offer some insights into these questions from the perspective of Student Academic Services whose responsibilities include Admissions and Outreach and Student Financial Services.

The purpose of this paper is not to arrive at a decision on the magnitude of the problem nor is it to put forward one set of answers over another. Rather, the intent is to 1) explore the nature and extent of the problem (increasing demand), 2) provide a context within which an assessment of the magnitude of the problem may be better understood, 3) examine a limited set of consequences associated with addressing the problem, and 4) provide an inventory of the enrollment management tools available to address the problem.

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[2]As used here, LRDP enrollment capacity refers to the total capacity of the entire University without regard to the capacity of any one campus.

As noted, this paper is written from the limited perspective of Student Academic Services. As such, the paper will focus only on new undergraduate student demand and capacity. While this may at first appear to be a very limited perspective, it need not be so. There is a very close relationship between the number of new students who enter the University and the size of the total undergraduate population. In addition, changes in demand are most acutely felt at this level. Either an increase or a decrease in undergraduate demand first make s its effect felt at this point. Financial aid, a form of cost discounting, too plays a major role in shaping demand. The amount of aid offered and its packaging can influence who enrolls at the University and who does not.

While undergraduate enrollment is a central factor that, to a great degree, shapes the University's overall demeanor, we have tried to restrict our focus to only new students. Obviously questions pertaining to enrollment capacity speak to the broader context of the mission of the University, its academic program, and the University's obligations under the Master Plan. For our purposes, the present nature of the University and its programs are taken as givens for the future. There seems to be little need or utility gained from advancing proposals which call for a major restructuring of the University until the magnitude of the problem is clearly understood and agreed upon and until all available options to mitigate disequilibrium between demand and capacity are exhausted.

A Model for Evaluating Demand

Long-term undergraduate enrollment demand for the University of California as well as undergraduate enrollment demand at various campuses will depend on a number of factors and the interaction among these factors. As we assess demand in the future we will use the following model to inform our analysis by identifying the factors which warrant examination. Although we cannot examine all the factors in detail, and some are beyond our present ability to predict, we will nevertheless pursue those which are readily available, leaving the remainder for future analysis. Among the factors that affect overall undergraduate enrollment demand are the following:[3]

[3]The following list does not include institutional factors that primarily affect consumption. For example, eligibility rates are not included in this list since their major effect is on consumption, not demand.

1. The absolute number of high school graduates mitigated by the following.

    a. Migration patterns into and out of the state.
    b. Immigration flows into the state.
    c. Natural increase (births and deaths).
    d. Regional redistribution of populations within the state.

2. Nature of high school graduates as it relates to college-going rates as well as interest in the University's academic programs.

    a. Socio-economic status of high school graduates.
    b. Parental educational attainment.
    c. First v. second generation to attend college.

3. The economy of California as it affects the following.

    a. Student aspirations to attend college.
    b. The ability of families to bear the cost of college. For example, UC costs relative to ability of parents/students to pay as measured by total costs relative to Disposable Personal Income (DPI).
    c. The overall demand in the workforce for individuals with a university degree. Not only the overall unemployment rate, but the number and kinds of job opportunities available as well as compensation rates (opportunity costs).

4. Competitors price, perceived value, and capacity.

    a. The cost of attending UC relative to the costs of other institutions, primarily independent institutions with academic programs comparable to UC. The competition with other institutions, including out-of-state publicly funded institutions and in-state public institutions such as CSU also may affect overall levels of demand as might demand for Community College affect where demand is focused (transfer v. new freshmen).

   b. The perceived value of UC attendance relative to the cost and value of competitor's programs or alternative programs (vocational degrees).
   c. The overall capacity of competitors as it affects both price and opportunity.

5. State education policy as it affects either the absolute number of high school graduates or the desire among high school graduates to attend college (and UC in particular).

   a. Changes in levels of state support for K-12 could reduce the absolute number of high school graduates.
   b. A reduced commitment on the part of the state to fund college prep curricula in K-12 could reduce demand.
   c. A shift in funding priorities away from college-prep to vocational training could reduce demand.

6. State and federal financial aid policies can affect overall demand.

   a. A shift in the absolute amount of federal and state aid available to students in higher education.
   b. A redistribution of aid away from universities to vocational and technical programs.
   c. A change in the ratio of grant to loan funds available to students.
   d. Changes in interest rates or repayment schedules.
   e. Increasing the availability and/or amount of aid to students enrolled in independent institutions.

Outline of the Paper

The paper is divided into six sections. Section I examines the magnitude of the undergraduate enrollment problem confronting the University. It begins by examining the projections on high school graduates provided by the Department of Finance (DOF) and compares them to demographic projections released by the UCLA Business Forecasting Project (UCLA-BFP). Following this comparison and a discussion of the assumptions underlying each projection, a range of projections for high school graduates is put forward. The range consists of three alternative

projections whose top band is represented by the DOF's 1993 projection series and whose lower band is 10 percent below the DOF's projections. A middle range projection that is midway between the upper and lower range projections also is introduced. Following this, estimates on the total number of new freshmen who might seek enrollment at the University are developed by multiplying the totals from the three projections on high school graduates by various participation-rates. The participation-rates range from 8.0 to 5.0. These "estimates of demand" will then compared both to existing enrollment capacity and LRDP enrollment capacity to determine if demand exceeds capacity. In some instances demand does exceed capacity, but in other instances, capacity exceeds demand.

Sections II through V contain an assessment of some of the more important factors that help to shape student demand. Section II examines the relationship between family income and college attendance. In the past, students from lower income families have been less likely than their counterparts from middle and high income families to graduate from high school or attend college. When students from low income families do attend college, they are more likely to enroll at two-year institutions. Large scale changes in income levels among Californians can therefore affect college-going rates and hence affect demand at UC. The question is what is going to happen to income levels and poverty in California?

Section III examines the growing poverty in the United States and California. Over the last two decades, and especially in the last few years, the number of persons in poverty and the poverty rate have been on the rise. Particularly hard hit by this increase are children, minorities, and families headed by unmarried females. California, with a poverty rate of 15.8 percent, now ranks 14th in the nation in the percent of its population living in poverty. California's poverty rate places it just behind states such as Arkansas, Alabama, and Tennessee and with states such as North Carolina, Florida, Missouri, and New York. High and rapidly rising rates of poverty today portend lower demand for higher education in the future, barring other changes not yet visible on the horizon.

Another set of factors that can affect demand are examined in Section IV. In this section we examine the total costs to attend the University in comparison to academically comparable independent institutions as well as compare the University's costs relative to the ability of Californians to pay for college. The total costs to attend the University relative to a cost index of academically comparable institutions fell during the 1980s as demand for enrollment at UC rose. In 1983, UC's total costs equaled approximately 50 percent of the total costs to attend comparable independent institutions. This ratio fell to just under 43 percent in 1990. Since then, UC's costs relative to comparable independent institutions has nearly returned to the level it was at in 1983.

Just as the drop in this ratio helped fuel the increase in demand for UC in the 1980s, the increase in the ratio is likely to dampen demand in the future. Not only did UC's costs rise relative to comparable independent institutions, UC's costs rose relative to Californian's ability to pay for college. When compared to Californians' disposable personal income (DPI), UC's costs rose from roughly 52 percent of DPI during most of the 1980s to over 60 percent in 1991 and 1992. At the same time, reductions in federal and state financial aid pushed the minimum expected family contribution up (measured in constant dollars) from $2,682 in 1980 to $4,646 in 1992. Taken together, these developments have pushed demand for UC downward, and to the extent they continue into the future, should have a continuing downward effect on demand in the future.

In Section V we examine the overall California economy to assess the long-term effects the current recession and economic restructuring will have on the state, and by implication, undergraduate demand. As is all too clear to anyone who is living in California, the state is mired in a protracted recession. This recession does not appear to follow the cyclical patterns of the previous recessions in 1969-70 and 1981-82. As of November 1993, the state experienced a cumulative loss of 868,000 jobs from the onset of the recession in May 1990. As a result, in 1992 the state experienced its first net migration out of state in 20 years. In that year, the state lost 180,000 residents to the rest of the United States. Many of the jobs that have been lost were high paying professional jobs. The jobs that have been created during this recession are primarily low paying service jobs. This recession is different from previous recessions. Industries that were closely tied to defense and aerospace have been decimated as federal outlays for defense have been cut. Nearly all agree that these industries, and the jobs they provided, will not return once the national recession abates. The federal expenditures upon which so much of California's economy depended, have been lost to the state for the foreseeable future. The long-term outlook for demand at the University must take this restructuring of the economy into account.

Finally, in Section VI, we will offer an inventory of available enrollment management options. We will focus attention on four mechanisms which the University can use to balance consumption and capacity, and to some degree, effect undergraduate demand. The four mechanisms include: the University's minimum eligibility requirements, the selection criteria used by individual campuses, pricing and financial aid policies, and the outreach and recruitment efforts undertaken by campuses. The judicious and coordinated use of these mechanisms can provide the University with a significant capability to manage enrollments, bringing consumption and capacity into equilibrium, even at times when demand is greater than capacity or capacity exceeds demand.

A Final Note Before Proceeding

While we have tried to avoid taking a position on the question of whether demand will outstrip capacity, we would be less than honest if we did not declare our position on this issue. During the course of preparing this paper, we were of an open mind on the subject. However, having gone through the analysis, we are now of the opinion that there is a strong probability that demand will not be as great as is commonly accepted. Demand at UC should be lower than the DOF projections suggest. There will be an increase in demand, but we believe that most, if not all the increase in demand can be absorbed by the increase in capacity planned in the campus LRDPs. We also believe that there are a number of enrollment management alternatives available that will permit the University to administer the increase in demand in such a way so as to minimize disruptions of major consequence should demand outpace capacity or capacity outpace demand. Finally, we believe it is better for the welfare of the University and the State overall to risk on the side of demand outpacing capacity rather than suffer the consequences associated with a situation in which capacity exceeds demand.

Section I

Assessing the Magnitude of the Problem

A range of twenty-one separate scenarios for the number of new students the University may be called upon to enroll in 1997-98 and 2005-06 will be developed in this section. The estimates are derived by multiplying three alternative estimates on the number of students who will graduate from California's high school by seven different participation rates, ranging from a low of 5.0 to a high of 8.0. Our purpose in undertaking this analysis is twofold: to provide a range of scenarios regarding the potential magnitude of the enrollment problem confronting the University and to gain insight into some of the consequences that may follow.

We will do this by comparing the "demand" scenarios to two benchmarks of enrollment capacity: current new undergraduate capacity and planned new undergraduate enrollment capacity as established by the LRDP. Our goal is to identify the assumptions under which capacity and demand are either in or out of equilibrium. In order to keep the study within reasonable bounds, we will limit our analysis to one short-term and one long-term test of demand and capacity equilibrium. The short-term test will be applied to 1997-98 and the long-term test will be applied to 2005-06. No attempt will be made to identify one estimate or scenario as more likely than another. It is left up to each reader to select the range of estimates he/she believes most likely to occur.

At various locations in this section, information deemed relevant to the discussion is freely injected into the narrative. The purpose is not to lead the reader to one conclusion over another, but rather to enrich the discussion by including additional relevant material deemed appropriate to the discussion.

Estimating Demand

Estimating future enrollment demand will consist of two steps. The first step involves estimating the number of students expected to graduate from California's high schools. The second step requires a determination of the proportion of high school graduates who will apply for admission and, if admitted, enroll at the University. Three different estimates on the number of high school students that can be expected to graduate from California's high school between 1992-93 and 2010-11 will be put forward. The estimates are derived from two sources: the Department of

Finance (DOF) projections on California high school graduates and the UCLA Business Forecasting Project's (UCLA-BFP) demographic projections on California's total population. From these two sets of projections, we will develop three estimates for the number of California high school graduates out to 2010-11. These three estimates will, in effect, serve as a range within which the reader may assign his/her own probability. The three high school graduate estimates have been labeled DOF High, DOF Middle, and DOF Low. The DOF High estimate uses the DOF's 1993 Series projections without any further modification. The DOF Middle and DOF Low estimates represent reductions of the DOF's 1993 series projections by 5 percent and 10 percent respectively (see Chart 1-5 and Table 1-1). The UCLA-BFP demographic projections serve as the basis for establishing the middle and low projections.

Following this, a range of demand estimates for new undergraduates will be developed by multiplying a sweep of seven different participation-rates extending from a high of 8.0 to a low of 5.0 by each of the three estimates on high school graduates (see Table 1-2). This range of estimates based upon three alternative high school graduate projections and seven participation-rates will result in 21 alternative demand scenarios.

Determining Equilibrium Between Demand and Capacity

The 21 demand scenarios will be compared to both the University's existing undergraduate enrollment capacity and the University's future undergraduate enrollment capacity as established in the Long-Range Development Plan (LRDP). Existing enrollment capacity will be defined as the number of new freshmen and total new undergraduates who entered the University in either Fall 1993 or 1989. These two years were selected because Fall 1993 represents the most recent Fall term for which we have data and Fall 1989 represents one of the largest classes of new undergraduate students ever to enter the University. Not only did a near record number of new undergraduates enter UC in Fall 1989, it also was the fourth year in row that a very large number of new students entered the University.

We will first compare existing enrollment capacity to projected enrollment demand. When the products resulting from multiplying the projected number of high school graduates by the various participation-rates are greater than the number of new undergraduates who entered in either 1989 or 1993, projected enrollment demand may be described as exceeding current enrollment capacity. Under this scenario, the University will be faced with three choices: it can expand its present capacity to meet the projected enrollment demand for new undergraduate students; it can ration enrollment consumption to a level equal with its enrollment capacity; or, it can intervene into the

enrollment market in such a way so as to bring consumption and capacity into equilibrium by depressing demand. However, if the products are lower than either the 1993 or 1989 totals, then current enrollment capacity exceeds projected future enrollment demand. In such an instance, the University will be faced with an enrollment shortfall. The University would be faced with a situation in which it would have to either increase demand or increase consumption.

This current capacity/future-demand equilibrium test will be followed by a second test in which projected enrollment demand is compared to LRDP projected enrollment capacity. As before, if the products resulting from multiplying the projected number of high school graduates by the various participation-rates are greater than the number of new students needed to sustain the LRDP enrollments, then projected enrollment demand exceeds LRDP enrollment capacity. In this case, the University will not able to accommodate all students who wish to enroll. However, if the products are lower than the number of new students needed to sustain LRDP targets, then enrollment capacity exceeds projected demand.

A Note on Assumptions

It would be impossible to undertake an exercise of this sort without building into the analysis some fundamental assumptions about the nature of the University, its programs, and policies. Every effort was made to exclude any assumptions that called for fundamental changes in the nature of the University. The following assumptions are built into the estimates:

1. There will be no major changes in the University's academic program.
2. The ratio of upper division to lower division undergraduate students will remain at 60:40.
3. When comparing enrollment demand for 1997-98 to current capacity, the number of new transfer students will be stabilized at 9,864 (the number enrolled in Fall 1993). While we posit no growth in the total number of new transfer students who will enter the University, the University could still absorb an increase in Community College entrants provided the University ceases the admission of lower division transfer applicants and most, if not all, admitted applicants were to come from California's Community Colleges.
4. The proportion of new undergraduates entering the University in the Fall, Winter, and Spring terms will remain unchanged from the present.
5. Undergraduate time-to-degree will remain unchanged from the present.
6. Persistence-rates of undergraduates will remain unchanged from the present.

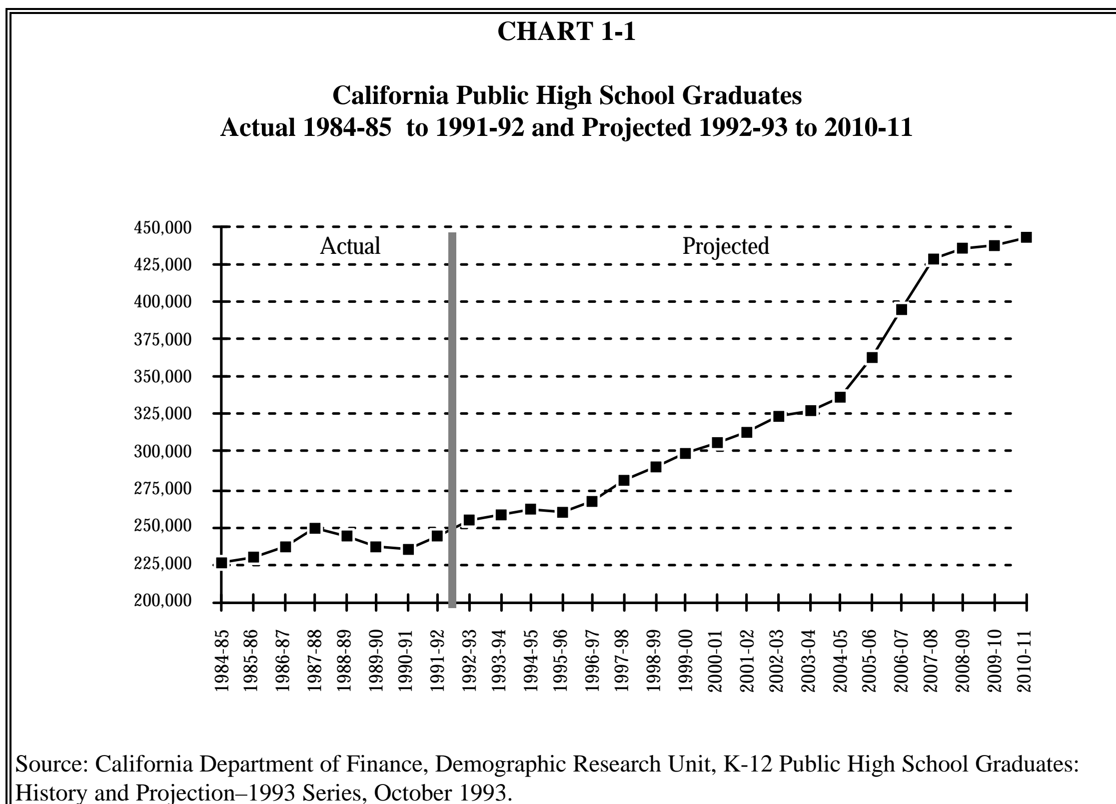
7. The overall high school eligibility rate will remain at the present level.

California High School Graduates

By now, most are well aware of the alarming figures concerning the sheer number of students projected to graduate from California's high schools (see Chart 1-1). The Department of Finance (DOF) is projecting that the number of public high school graduates will increase by 118,338 or 48.4 percent, from 244,594 in 1991-92 to 362,936 in 2005-06[4]. By 2010-11, DOF is projecting the number of high school graduates to increase to 443,556, an increase of 198,962, or 81.3 percent, over the 1991-92 total.

CHART 1-1

California Public High School Graduates
Actual 1984-85 to 1991-92 and Projected 1992-93 to 2010-11



Source: California Department of Finance, Demographic Research Unit, K-12 Public High School Graduates: History and Projection–1993 Series, October 1993.

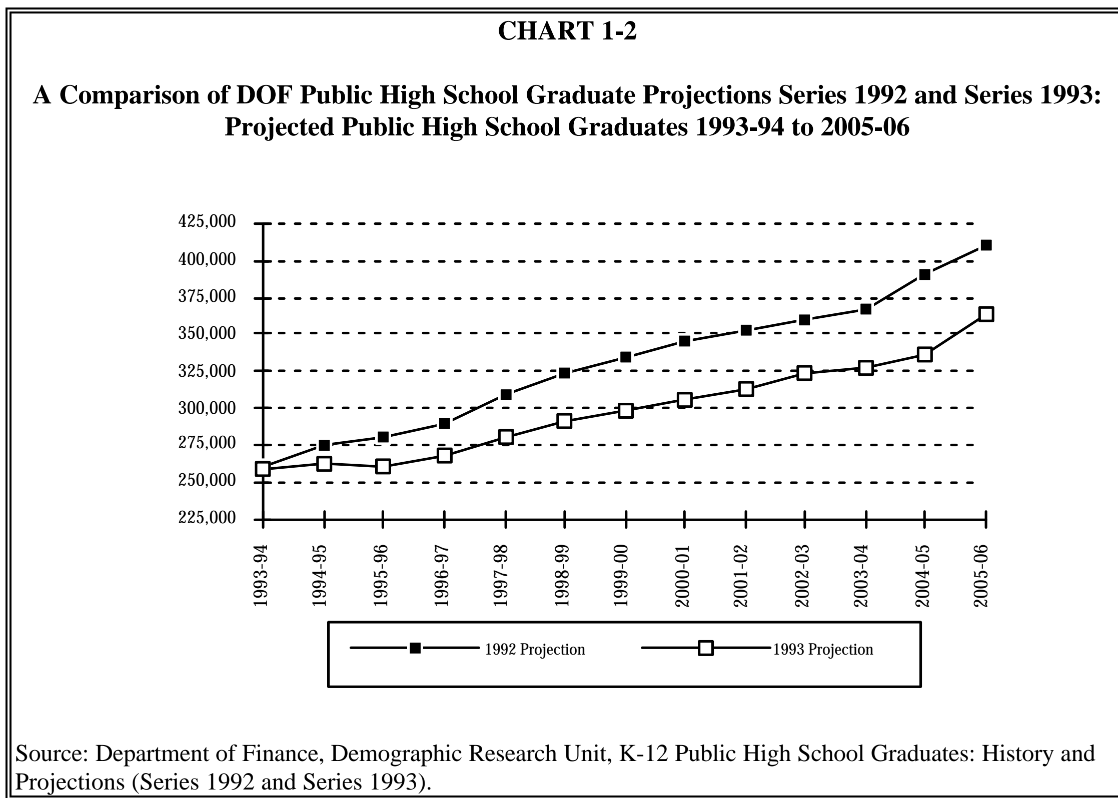
[4]Department of Finance, Demographic Research Unit, "K-12 Public High School Graduates." Series 1993. October 1993

The Variability of Projections

A note of caution is warranted on the variability of Department of Finance (DOF) projections of high school graduates. All projections involve assumptions and their accompanying risks. There are many variables that can affect projections regarding the number of students who will graduate from California high schools. The DOF annually makes projections on the number of students expected to graduate from the state's public high schools. As a result of increasing net out-migration, the DOF significantly reduced its projections for the number of students expected to graduate from the state's public high schools (see Chart 1-2). The October 1992 DOF projection series estimated there would be 411,387 students graduating from California's public high schools in 2005-06. One year later, the October 1993 DOF projection series scaled back the projections for 2005-06 to 362,932 graduates, a difference of 28,455 students or 11.8 percent. The effects of increasing out-migration on DOF projections can be seen as early as five years out from the present. The DOF's 1993 projection series adjusted its estimates for public high school graduates in 1998-99 down by as much as 10.3 percent, from 308,694 projected in the 1992 series to the 1993 series figure of 280,506.

CHART 1-2

A Comparison of DOF Public High School Graduate Projections Series 1992 and Series 1993: Projected Public High School Graduates 1993-94 to 2005-06



Source: Department of Finance, Demographic Research Unit, K-12 Public High School Graduates: History and Projections (Series 1992 and Series 1993).

Assessing the Assumptions Underlying Population Projections

The observed change in DOF projections raises a serious question regarding the reliability of these projections given the rapidly changing economic and social structure of California. The forces that affect population shifts can develop rapidly and have long-term consequences. There are three factors that affect population projections: net out-migration, immigration, and natural increase. Long-range demographic projections released by the UCLA-BFP forecast concluded the following about these three variables:

1. Net Domestic Out-Migration. In 1992, California experienced net domestic out-migration for the first time in 20 years. Because of the length and depth of the recession, net migration to California (migration between California and the rest of the U.S.) is now negative with a loss of about 180,000 per year to other parts of the country. Current data indicate a continuing drop of net migration to California and continuing job losses for Los Angeles county, which by the end of the recession will have absorbed 70 percent of California's job losses[5]. The domestic net out-migration is expected to be even larger in 1993 and will continue until California's economy recovers. The net migration out of State is most pronounced among individuals aged 30 to 64. This age group has relatively high income and net worth. Domestic migration, which provided 18 percent of the growth in the 1980s will probably have a negative effect in the 1990s. A stabilization of migration is projected after the year 2000 based upon the continuing reduction in California's housing prices relative to those in the rest of the U.S. Reduced housing prices in California would presumably give Californians less incentive to sell and move to lower-priced markets and the price of housing would be less of a disincentive to move to California.

2. Immigration. Immigration has played a major role in California's growth, particularly in the past decade. About 37 percent of the State's growth in the 1980s was due to foreign immigration. As a result, 23 percent of the State's residents, amounting to 5.7 million individuals, are now foreign-born.[6]

[5]The counties in and around Los Angeles are important feeders for the University of California. Approximately 50 percent of the state's high school graduates come from these counties.
[6]According to U.S. Census Bureau estimates, over 2 million of these individuals are residing in the State illegally.

Immigration into California slowed in 1991 and 1992 from highs recorded in 1989 and 1990. In 1991, 284,000 immigrants entered California while 264,000 entered in 1992. Compare this to the 415,000 figure for 1989 and 465,000 in 1990. Despite this downturn, both the DOF and UCLA-BFP demographic projections estimate that between 1990 and 2000 immigration will contribute to about 40 percent of the State's growth. This estimate is based on the assumption that the U.S. will continue to absorb 880,000 immigrants per year for the entire period, California will absorb a constant proportion of these immigrants, assuming current immigration laws remain in effect, and the rate of undocumented immigration remains constant. Changes in any of these assumptions could significantly alter population estimates.

3. Natural Increase. Natural increase (births less deaths) will assume the leading role in the State's population growth in the 1990s, increasing from 45 percent of the total population growth in the 1980s to 60 percent in the 1990s. The growing influence of natural increase is important because population growth resulting from natural increase is less likely to be influenced by economic and international conditions than is domestic migration or immigration.[7]

As a result of different perspectives regarding these variables, the UCLA-BFP long-term demographic projections are lower than the DOF projections. The reason for the difference is primarily due to differing assumptions on migration. DOF is assuming a net migration to California of 270,000 per year in the period 1995-2000, and 216,000 per year after the turn of the century. DOF's projections for Los Angeles also are higher than UCLA-BFP projections. By the year 2010, DOF is projecting a California population of 42,408,000, 8 percent higher than the UCLA-BFP forecast of 39,155,000. In Los Angeles County, the DOF is projecting a population of 11,422,000, 7 percent higher than the 10,681,000 UCLA-BFP estimate.

It also should be pointed out that both the DOF and the UCLA-BFP projections assume a constant rate of immigration into the State. Given the current political and economic climate in California and the nation, this assumption may no longer be valid. The United States and California in

[7]The DOF is projecting that births in California will level off and remain constant through 2005-06. After 1994, births are expected to decline in California from 596,000 per year to 587,000 per year. The flat trend in future births is due to two main factors: the number of women in the child bearing ages will grow at one-fifth its previous rate and in general, fertility rates are expected to fall slightly. See Department of Finance, Demographic Research Unit, "Birth Projections for California State and Counties." October, 1993.

particular absorbed large numbers of immigrants over the years 1989 to 1992. The number of immigrants to the United States reached an all time high in 1990, surpassing even the previous highs recorded at the beginning of this century (see Chart 1-3). Likewise, immigrants to California surged in 1989 through 1991. The surge was the result of both an increase in the total number of immigrants entering the United States and an increase in the proportion settling in California (see Chart 1-4).

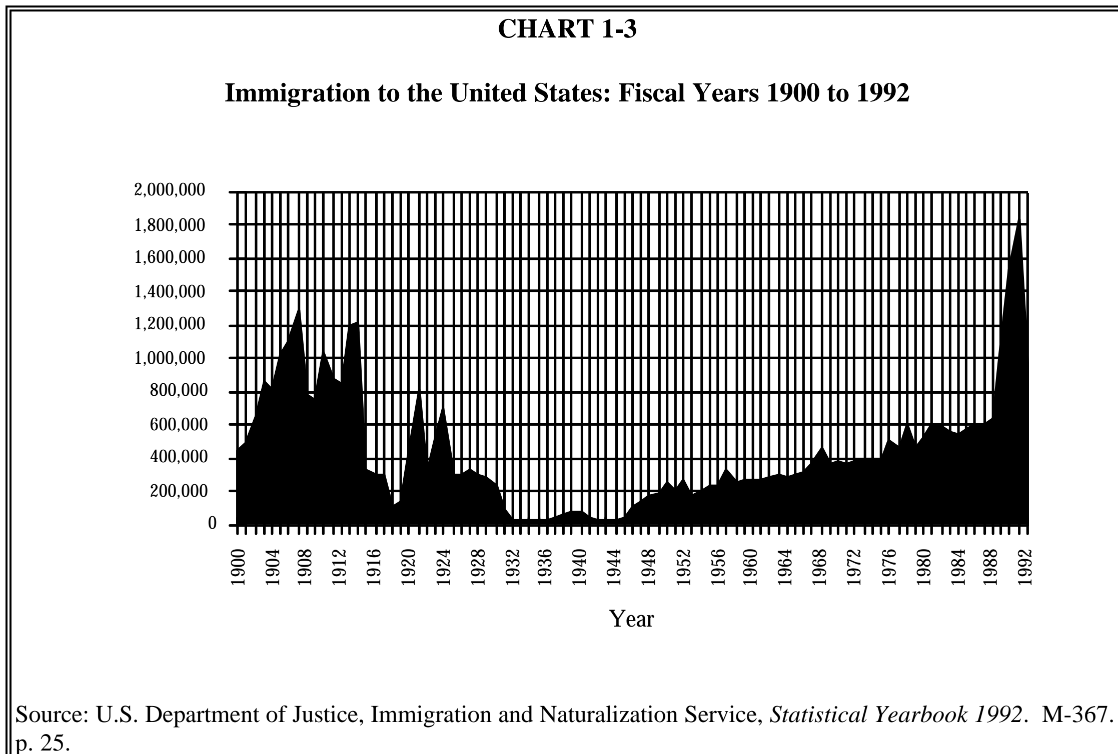


CHART 1-3

Immigration to the United States: Fiscal Years 1900 to 1992

Source: U.S. Department of Justice, Immigration and Naturalization Service, *Statistical Yearbook 1992*. M-367. p. 25.

This bring us to the central question: How many students will be graduating from California's high schools? The simple answer is more than are graduating today, but how many more is open to speculation. It seems prudent to suggest that given the current state of affairs in California, the DOF's 1993 series projections represent the upper range of the problem. The UCLA-BFP long-range demographic projections did conclude that "not withstanding the recent rapid growth in the State's school age population, actual and projected public high school enrollments have continued to slow, though still [display] significant rate[s] of growth."[8] But the UCLA-BFP long-range projections were based on two assumptions that can reasonably be questioned. First, if the economy in California does not recover as rapidly as assumed, net domestic out-migration could

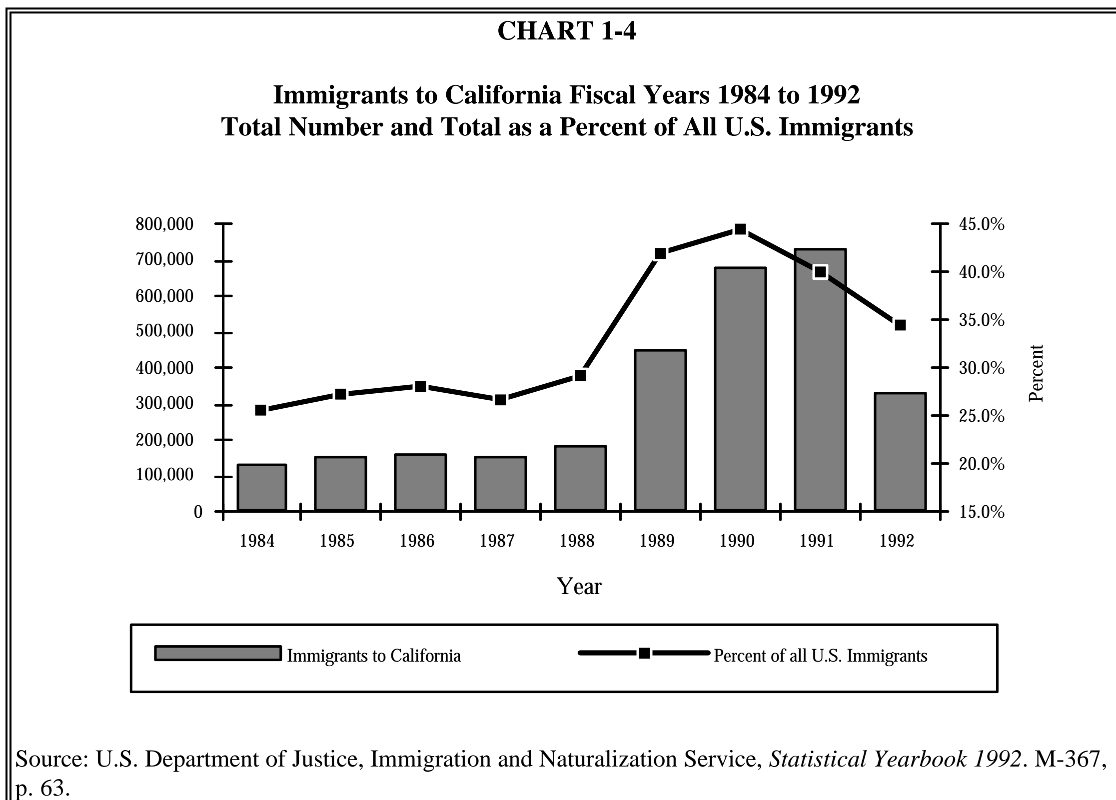
[8]UCLA-BFP Forecast, September 1993. p. 17.

accelerate and last longer than forecast. Second, if U.S. policy towards immigration were to change, population projections in California could be radically altered.

There are signs that could lead one to question the validity of these assumptions. Two points seem particularly important. First, as already noted, the political pendulum seems to be shifting in the favor of reducing immigration into the United States. Second, the immigrants who do enter the United States seem to be less likely to settle in California. Even while the total number of immigrants to settle in California in 1991 increased over the 1990 total, the relative proportion of all immigrants selecting California declined from nearly 45 percent in 1990 to 40 percent in 1991 and 35 percent in 1992 (see Chart 1-4). It appears that the same economic forces that produced a negative net migration of 180,000 Californians in 1992 are driving immigrant settlement patterns as well.

CHART 1-4

Immigrants to California Fiscal Years 1984 to 1992
Total Number and Total as a Percent of All U.S. Immigrants



Source: U.S. Department of Justice, Immigration and Naturalization Service, *Statistical Yearbook 1992*. M-367, p. 63.

A Range of Estimates

Given that downward changes in domestic migration and immigration represent real possibilities, we will put forward two additional estimates for the number of high school graduates. These two alternative projections simply reduce the DOF 1993 projections by 5 and 10 percent. As a result, we have a DOF high estimate (the unaltered DOF 1993 projection), a middle estimate (DOF 1993 less 5 percent), and a low estimate (DOF 1993 less 10 percent). This range of estimates is consistent with the overall state population projections put forward by the UCLA-BFP long-term demographic projections for 2010 which are, as noted earlier, 8 percent lower than DOF's overall state population projections. The three estimates are displayed in Chart 1-5 with specific figures contained in Table 1-1. As can be seen from this table, the estimates for 2005-06 range from 362,932 in the DOF High estimate to 326,639 in the DOF Low estimate. This represents a difference of 36,293 high school graduates (10 percent).

Estimating Undergraduate Enrollment Demand

Undergraduate enrollment demand at the University is difficult to estimate. There are no previous studies of demand to call upon and no easily identifiable measures. The most commonly used indicator of demand is the participation-rate. It is most typically expressed as the proportion of high school graduates from a given academic year who enroll as new freshmen at the University in the following Fall term. The count of new freshmen is limited to residents of California. But the participation-rate, no matter how it is defined, is not a valid measure of demand. It is a valid measure of consumption, although it tends to be an unreliable measure because of the various ways in which it is calculated and the confusing manner in which it is applied. The participation-rate is not a valid measure of demand because it is significantly affected by the overt admission decisions of the University. By expanding or contracting the number of applicants admitted, the University can increase or decrease the participation-rate. In market terms, the University practices a form of "customer selection."

This is not to say that the participation-rate is unrelated to demand. Obviously there is some association between consumption and demand. However, it would be incorrect to conclude from a rise in the participation-rate that demand for enrollment is increasing. A rising participation-rate could just as well indicate an expansion of the University's total enrollment capacity while demand is holding constant. Of course, without a level of demand sufficient to fill the increased enrollment capacity, there would be no consequent rise in the participation-rate. In this same way, a drop in the participation-rate might not indicate a decline in demand. Rather it could simply indicate a

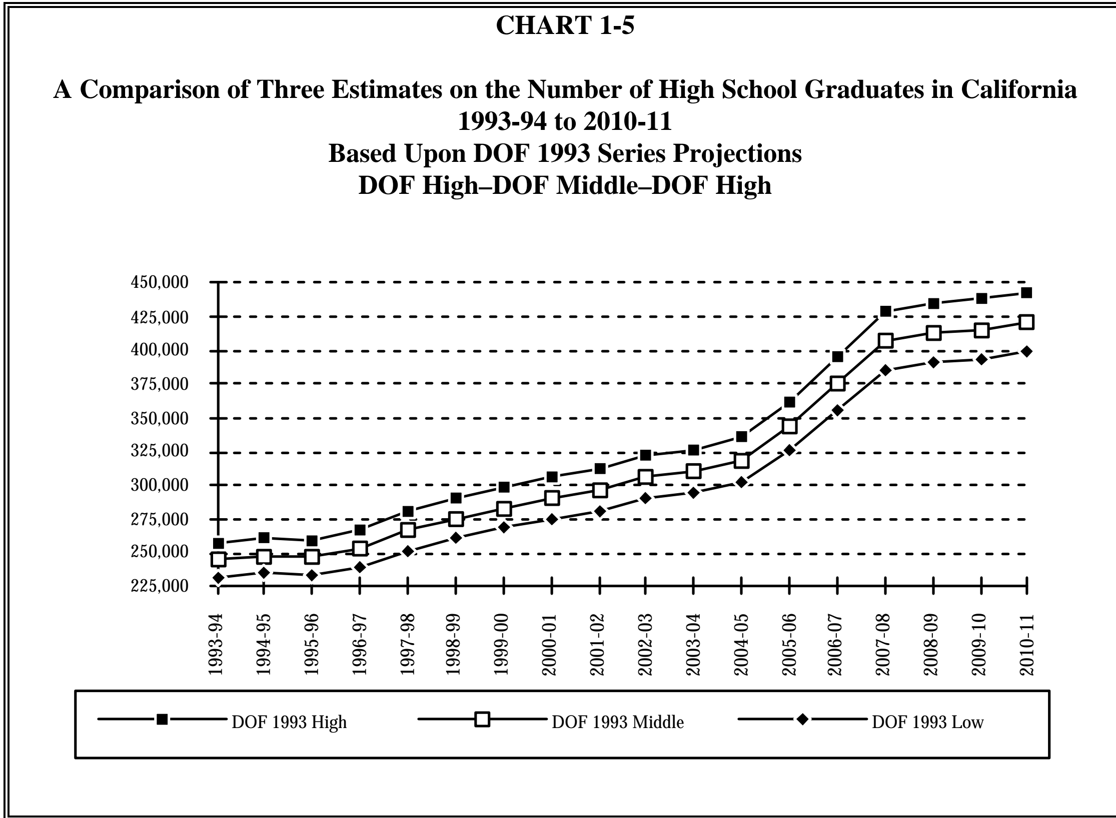


CHART 1-5

A Comparison of Three Estimates on the Number of High School Graduates in California
1993-94 to 2010-11
Based Upon DOF 1993 Series Projections
DOF High–DOF Middle–DOF High

TABLE 1-1

Three Estimates of the Number of Students Who Will Graduate from California's Public High Schools Based Upon DOF 1993 Series Projections
1993-94 to 2010-11

	Projections		
Academic Year	DOF 1993 High Projection	DOF 1993 Middle Projection	DOF 1993 Low Projection
1993-94	258,034	245,132	232,231
1994-95	261,494	248,419	235,345
1995-96	260,453	247,430	234,408
1996-97	267,061	253,708	240,355
1997-98	280,506	266,481	252,455
1998-99	290,483	275,959	261,435
1999-00	298,951	284,003	269,056
2000-01	306,257	290,944	275,631
2001-02	313,200	297,540	281,880
2002-03	323,642	307,460	291,278
2003-04	326,976	310,627	294,278
2004-05	335,769	318,981	302,192
2005-06	362,932	344,785	326,639
2006-07	395,621	375,840	356,059
2007-08	428,603	407,173	385,743
2008-09	435,901	414,106	392,311
2009-10	438,337	416,420	394,503
2010-11	443,556	421,378	399,200

move on the part of the University to restrict undergraduate enrollment. In the case of both an increase and decrease in the participation-rate, the University's admission decisions could be the agent of change. The participation-rate, as a simple measure of consumption, can not be used to determine equilibrium between demand and capacity.

As noted above, the participation-rate, while not an indicator of demand, is an indicator of consumption and can therefore be used to estimate the needed undergraduate enrollment capacity of the University under various estimates regarding the total number of students who will graduate from California's high schools. The participation-rate of new freshmen at the University of California is displayed in Chart 1-6. As the data in this chart indicate, since 1977-78 to 1992-93, the participation-rate has ranged from a low of 5.1 percent to a high of 7.8 percent. The participation-rate rose dramatically from 1978-79 to 1986-87. It increased from 5.5 percent in 1978-79 to an all time high of 7.8 percent in 1986-87. The participation-rate then leveled out, hovering between 7.8 percent and 7.5 percent between 1986-87 and 1988-89. Since then, the participation-rate has slowly declined, dropping to 7.2 percent in 1992-93.

A number of social, economic, and institutional factors account for changes in participation-rates over time. In the late 1970s, an increasing number of women seeking admission into the University helped to push participation-rates up. Beginning in the early 1980s and continuing until 1990-91, rapid and large increases in the costs to attend independent institutions academically comparable to the University, both in California and the nation, helped to push rates even higher. Also in the 1980s, an increase in the number of high school students completing the University's minimum eligibility requirements expanded the eligibility pool above the threshold of 12.5 percent, making a greater number of students eligible for admission. The University's switch to a multiple application environment in Fall 1986 helped to push the participation-rates higher as well. Students denied admission under the single application process, and lost to the UC system, were now provided with a more acceptable alternative than redirection. Applicants now had the opportunity to apply to alternative campuses of their choice rather than rely on the limited choices offered to them by redirection. From the late 1970s through to today, the University's early and immediate outreach programs have been successful in bringing into the University students from underrepresented groups who had formally been only marginal participants. In addition, the use of admission by exception to meet diversity goals, nudged participation-rates upward, although their overall effect has been marginal.

It also should be noted that the late 1970s and early 1980s represent a period in which the undergraduate enrollment capacity at the University was rapidly increasing. The newer campuses,

those built after 1965, were now ready to accommodate larger numbers of undergraduate students. In the late 1970s and early 1980s, overall undergraduate enrollment capacity within the system actually exceeded demand. This was most acutely felt at the newer campuses. These campuses found themselves unable to fill their enrollment capacity even though they were admitting all eligible applicants. Even the very liberal use of admission by exception could not close the gap between demand and capacity. Fortunately, campuses were able to fill all or a major portion of their excess capacity by enrolling nonresident students. As late as Fall 1989, better than 7.5 percent of new undergraduate students were nonresidents (see Table 1-4).

More recently, the participation-rate has been depressed by two factors: a restabilization of undergraduate enrollment levels at the University in response to reductions in State funding for undergraduate FTE and a softening of demand among new freshmen in response to rising costs and the general effects of recession. While the effect of price on demand will be explored in one of the following sections of this paper, it is important to point out that rising costs have already had a small but measurable effect on demand. A continuing rise in costs can be expected to further dampen demand.

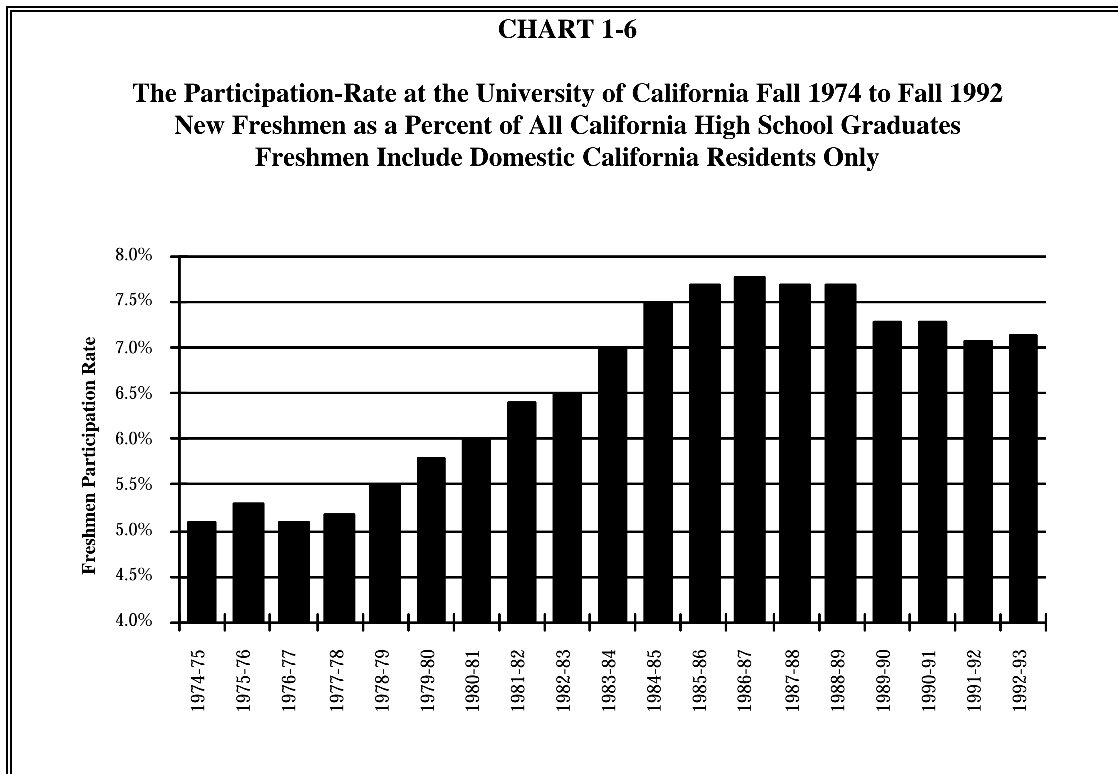


CHART 1-6

The Participation-Rate at the University of California Fall 1974 to Fall 1992
New Freshmen as a Percent of All California High School Graduates
Freshmen Include Domestic California Residents Only

How Many New Undergraduates Will the University Need to Accommodate?

Lets us turn to the question of how many new freshmen the University will need to accommodate in the future. In order to keep the analysis within reasonable bounds, only the two time periods, Fall 1998 and Fall 2006, will be examined. The resulting capacity requirements derived from multiplying the various high school graduate estimates by the participation-rates will be compared to the number of new freshmen and total number of all new undergraduate students (freshmen and advanced standing) who enrolled in Fall 1993 and Fall 1989. Figures for the amount of additional capacity that will be needed in Fall 1998 and Fall 2006 will be arrived at by subtracting the enrollment figures for Fall 1993 and Fall 1989 from the figures arrived at under the parameters of the various scenarios. Fall 1993 was selected because it represents the most recent time period for comparison. Fall 1989 was selected because the number of new undergraduates who enrolled was one of the largest in the history of the University.

It will be assumed that the number of new advanced standing students entering the University in either Fall 1998 or Fall 2006 will equal 9,864.[9] This is the number who entered in Fall 1993 and represents the largest class of new advanced standing undergraduates to ever enter the University. This limitation is not as confining as one might first conclude. The 9,864 transfer students who enrolled in Fall 1993 were not all upper division students. In addition, not all upper division transfer students were from California's Community Colleges. Systemwide, approximately 80 percent of the total new transfer students who enter the University are upper division students from California's Community Colleges.[10] This means that the University could accommodate a 20 percent increase in the number of upper division Community College transfer students by strictly limiting transfer admission to upper division Community College applicants. Such an action would be consistent with the University's obligations under the Master Plan for Higher Education. In short, we are assuming a 20 percent increase in upper division transfers from California's Community Colleges as a result of the University restricting admission to upper division Community College students. The results of this exercise are contained in Tables 1-5 and 1-6.

Fall 1998 Estimated Enrollment Need Compared to Fall 1989 and Fall 1993 Capacity

[9]We are not suggesting that Community College enrollments be held constant nor does this represent an estimate of demand by Community College students. We hold the total number of transfer students constant simply to examine demand from high school graduates.
[10]Approximately 90 percent of transfer students are upper division students.

As can be seen in Table 1-5, the number of new undergraduate students estimated for Fall 1998 is, in all but three cases, less than the University's current enrollment capacity for new undergraduate students, using Fall 1989 or Fall 1993 as benchmarks of capacity. Instances in which current new student capacity exceeds estimated consumption are expressed as negative numbers and are highlighted within the lined border. Only in the instance where the participation-rate equals 8.0 and the DOF High projection is used, does consumption exceed both the Fall 1993 and Fall 1989 benchmarks of new undergraduate capacity. Stated another way, new advanced standing undergraduates equal to the negative number in the table plus the 9,864 fixed figure would have to be enrolled in order to maintain current undergraduate enrollments.[11] For example, assuming the DOF High estimate for high school graduates and assuming a 7.5 percent participation-rate, the University would have to enroll 10,942 advanced standing undergraduate students (9,864 plus 1,078) to equal the number of new undergraduates who enrolled in Fall 1989. If the Fall 1993 benchmark is used, the University need only enroll 10,068 advanced standing undergraduate students to equal the total number of new undergraduates who entered in Fall 1993.

Fall 2006 Estimated Enrollment Need Compared to Fall 1989 and Fall 1993 Capacity

Table 1-6 contains information of the estimated enrollment needs for Fall 2006 under the various scenarios compared to new undergraduate enrollment capacity in Fall 1993 and Fall 1989. In the majority of instances, the estimated needs for new undergraduate student enrollment exceeds both the Fall 1989 and Fall 1993 enrollment capacities. It is only when the participation-rate falls to 6.0 percent or lower across all but one benchmark that current capacity exceeds projected need.

Fall 2006 Estimated Enrollment Need Compared to 2005-06 LRDP Targets

The University's LRDP undergraduate enrollment target for 2005-06 calls for the enrollment of 144,700 undergraduate students in order to achieve an undergraduate FTE figure of 139,000 (see Table 1-7). In order to sustain this level of undergraduate enrollment, assuming present persistence and graduation rates as well as the existing undergraduate time-to-degree, the University would have to bring in approximately 40,516 new undergraduates (139,000 x 0.28) in Fall 2005.[12]

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[11]Once again, assuming all advanced standing students come from Community College.
[12]The 28 percent figure is based upon historic trends and assumes no additional growth, a stable proportion of new students every year, the present proportion of new students entering in Fall term as opposed to other terms, and the maintenance of a 60:40 upper division to lower division ration of students. The actual factor may vary somewhat from one campus to another.

The difference between estimated undergraduate enrollment demand in Fall 2006, as calculated from the various scenarios for high school graduates and participation-rates, and the requisite new undergraduate enrollment capacity for that same term as derived from the 2005-06 LRDP total undergraduate enrollment targets, is contained in Table 1-8. The information in the table shows that in Fall 2006, under all projection scenarios, the total number of new undergraduate students needed equals 40,516. Under the DOF High projection and with an 8.0 percent participation-rate, the estimate for the number of new freshmen who would need to be accommodated equals 29,035. The difference between the number of new students needed to sustain the LRDP (40,516) and the projected number of new freshmen (29,035) equals 11,481. This equals the number of new transfer students the University would need to enroll to accommodate the projected new freshmen enrollment demand and sustain the LRDP enrollment target. In terms of change, the number of new freshmen (23,095) represents an increase of 37.7% over the 21,082 new freshmen who enrolled in Fall 1993 and represent an increase of 22.9% over the 23,624 freshmen who entered in Fall 1989.

Under the DOF High scenario, the number of new freshmen needed to sustain LRDP enrollments ranges from a high of 29,035 under an 8.0 percent participation-rate to a low of 18,147 under a 5.0 participation-rate. The resulting number of new transfer students needed to sustain the LRDP targets ranges from a low of 11,481 under an 8.0 percent participation-rate to a high of 22,369 under a 5.0 percent participation-rate.

The table also contains information on the relative proportion of new freshmen to new advanced standing transfer students under each of the high school graduate scenarios and participation rates. For example, using the DOF high scenario with an 8.0 percent participation-rate, 71.7 percent (29,035) of the needed new students would be freshmen while the remaining 28.3 percent (11,481) would be advanced standing transfer students. The relative proportions for new freshmen range from a high of 71.7 percent to 44.8 percent. In order to maintain a 60:40 mix of upper division to lower division undergraduate students, new freshmen must account for between 65 percent and 75 percent of all new undergraduate students. As the data in Table 1-8 demonstrates, under the DOF High scenario, once the participation-rate falls to 6.5 percent or lower, the relative proportion of new freshmen to new transfer students can no longer maintain the 60:40 upper to lower division mix. Under this scenario, the University is faced with the following choices: accept these figures to sustain the LRDP targets and abandon the 60:40 mix; hold to the number of new freshmen but reduce the number of new transfer students and thereby fail to sustain LRDP enrollments; increase the number of new freshmen while reducing transfer students in order to sustain the LRDP targets

and sustain the 60:40 mix; or attempt to bring in many more lower division transfer students to partially off-set the problem. This final alternative is only a short-term solution in that by bringing in lower division transfers, future demand by upper division transfers is reduced thereby reducing overall demand in the out years.

Conclusion

The magnitude of the undergraduate enrollment challenge does not appear to be as great as popular beliefs suggest. There are certainly situations where the University's enrollment capacity, both present and under the LRDP limits, falls short of meeting projected demand. However, there also are situations where student demand could fall short of existing or planned enrollment capacity.

The issue now at hand involves the determination of risk. The following question must be answered individually. Given the above, does one want to risk a situation in which student demand outstrips the University enrollment capacity or would one rather risk a situation in which the University's enrollment capacity is greater than student demand? While there will no doubt be many differing opinions on the soundness or accuracy of one enrollment scenario over another, it is reasonable to conclude that there is risk in both directions. Given this fact, it seems prudent to advise proceeding slowly on this issue. There are a number of options available to manage enrollments in both the short- and long-term. We will explore these options in the final section of this paper.

However, before moving to the enrollment management options, we will spend some time presenting information that may be of use to the reader. As noted earlier, projections require assumptions about the past as well as about the future. Questions regarding the reasonableness of assumptions are certainly in order. For example, how reasonable is it to assume a 7.0 participation-rate as opposed to a 6.5 participation-rate? And what effects might seemingly extraneous factors play in all this? We have already provided some contextual information to assist the reader better understand the DOF and UCLA-BFP demographic projections. In the following sections we will explore some of the factors which need to be considered. When taken into account, these factors tend to depress overall student demand below current levels.

We would like to point out in closing this section that while we have limited our discussion to demand in terms of new undergraduates, there is a close relationship between the number of new students who enter the University and the total number of undergraduates enrolled at all levels. In those instances where new student demand exceeds capacity, the reader can obtain a quick estimate of the total number of undergraduates the University would need to enroll by multiplying the number of new students by 3.571. For example, by multiplying the 40,516 new students needed in Fall 2006 by this factor, the result is 144,700, the LRDP headcount target for 2005-06.

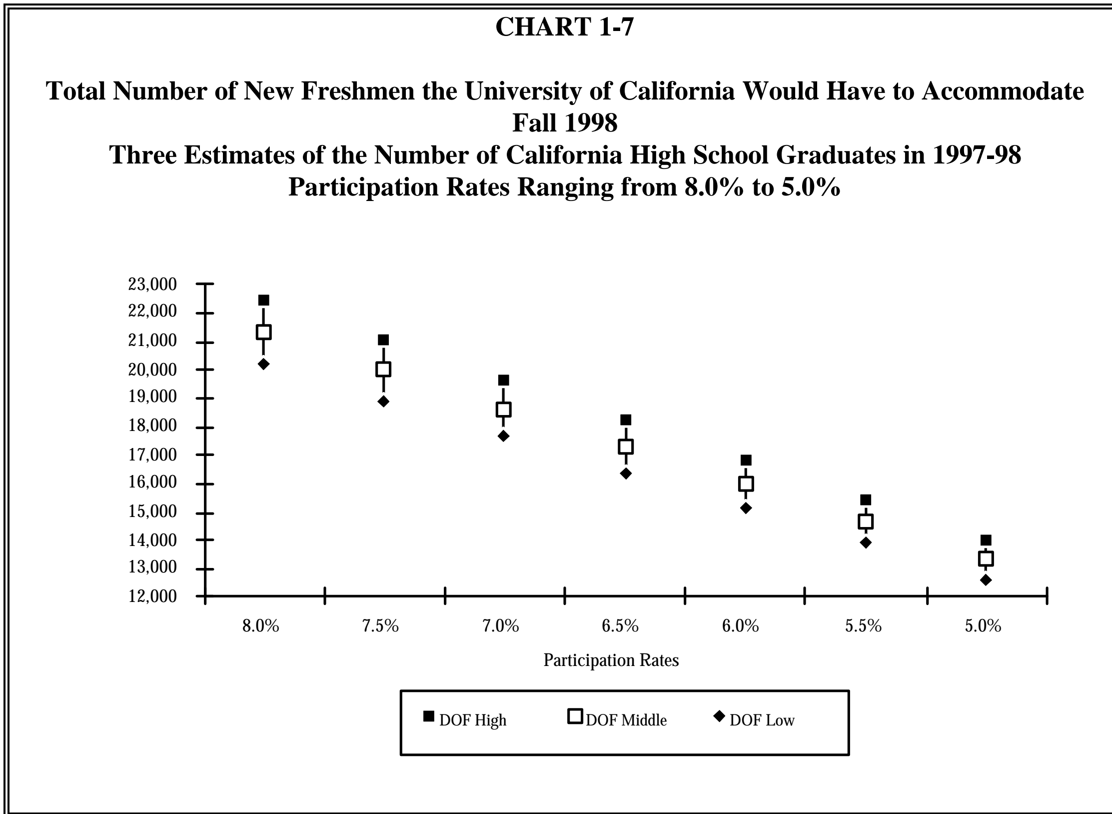


TABLE 1-2

Total Number of New Freshmen the University of California Would Have to Accommodate Fall 1998
Three Estimates of the Number of California High School Graduates in 1997-98
Participation Rates Ranging from 8.0% to 5.0%

	HS Graduate	Freshmen Participation Rates						
Year	Estimate	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%
1997-98	DOF High	22,440	21,038	19,635	18,233	16,830	15,428	14,025
	DOF Middle	21,318	19,986	18,654	17,321	15,989	14,656	13,324
	DOF Low	20,196	18,934	17,672	16,410	15,147	13,885	12,623

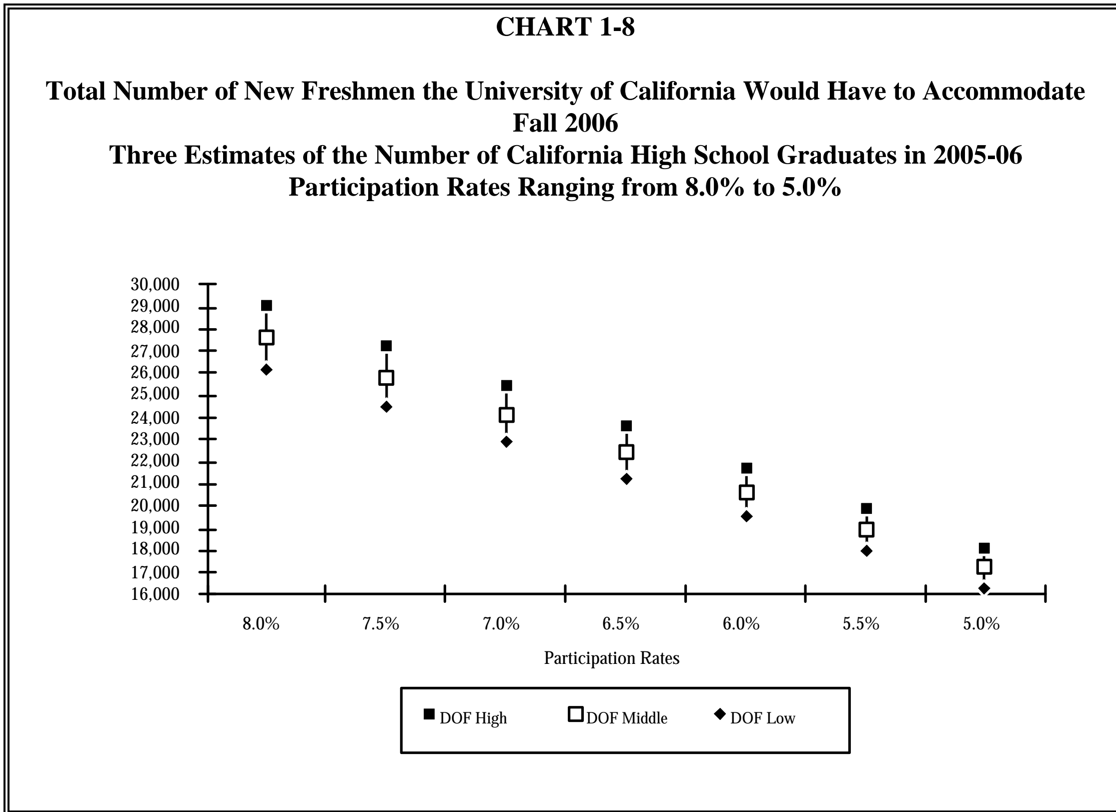


CHART 1-8

Total Number of New Freshmen the University of California Would Have to Accommodate Fall 2006
Three Estimates of the Number of California High School Graduates in 2005-06
Participation Rates Ranging from 8.0% to 5.0%

TABLE 1-3

Total Number of New Freshmen the University of California Would Have to Accommodate Fall 2006
Three Estimates of the Number of California High School Graduates in 2005-06
Participation Rates Ranging from 8.0% to 5.0%

	HS Graduate	Freshmen Participation Rates						
Year	Estimate	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%
2005-06	DOF High	29,035	27,220	25,405	23,591	21,776	19,961	18,147
	DOF Middle	27,583	25,859	24,135	22,411	20,687	18,963	17,239
	DOF Low	26,131	24,498	22,865	21,232	19,598	17,965	16,332

TABLE 1-4

New Undergraduates Entering the University of California
Fall 1989 to Fall 1993
By Class Level and Residency Status

		California Resident		Nonresident U.S.		Nonresident For.		Total New	
Fall	Class Level	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1993	New Freshmen	20,216	95.9%	725	3.4%	141	0.7%	21,082	100.0%
	New Transfer	9,442	95.7%	124	1.3%	298	3.0%	9,864	100.0%
	Other New	138	86.3%	10	6.3%	12	7.5%	160	100.0%
	Total New	29,796	95.8%	859	2.8%	451	1.4%	31,106	100.0%
1992	New Freshmen	20,314	93.8%	1,172	5.4%	174	0.8%	21,660	100.0%
	New Transfer	9,074	95.5%	135	1.4%	292	3.1%	9,501	100.0%
	Other New	129	84.9%	7	4.6%	16	10.5%	152	100.0%
	Total New	29,517	94.3%	1,314	4.2%	482	1.5%	31,313	100.0%
1991	New Freshmen	19,305	92.7%	1,316	6.3%	204	1.0%	20,825	100.0%
	New Transfer	8,424	95.2%	159	1.8%	262	3.0%	8,845	100.0%
	Other New	103	58.5%	9	5.1%	64	36.4%	176	100.0%
	Total New	27,832	93.3%	1,484	5.0%	530	1.8%	29,846	100.0%
1990	New Freshmen	20,020	92.9%	1,317	6.1%	207	1.0%	21,544	100.0%
	New Transfer	8,591	94.5%	223	2.5%	277	3.0%	9,091	100.0%
	Other New	114	81.4%	10	7.1%	16	11.4%	140	100.0%
	Total New	28,725	93.3%	1,550	5.0%	500	1.6%	30,775	100.0%
1989	New Freshmen	21,825	92.4%	1,615	6.8%	184	0.8%	23,624	100.0%
	New Transfer	7,559	93.7%	309	3.8%	200	2.5%	8,068	100.0%
	Other New	157	72.7%	15	6.9%	44	20.4%	216	100.0%
	Total New	29,541	92.6%	1,939	6.1%	428	1.3%	31,908	100.0%

Source: University of California, Office of the President, Student Academic Services, *Information Digest* (1988 to 1993).

TABLE 1-5

A Comparison Between the Number of New Students Projected for Fall 1998 Under Various Estimates for Total High School Graduates/UC Participation Rates and Actual New Students Enrolled in Fall 1989 and Fall 1993
[Total Advanced Standing Transfer Students Held Constant at 9,864]

HS Graduate Estimate	Comparison Fall Term	Freshmen Participation Rates 8.0%	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%
DOF High	Fall 1993	1,198	-204	-1,607	-3,009	-4,412	-5,814	-7,217
	Fall 1989	324	-1,078	-2,481	-3,883	-5,286	-6,688	-8,091
DOF Middle	Fall 1993	76	-1,256	-2,588	-3,921	-5,253	-6,586	-7,918
	Fall 1989	-798	-2,130	-3,462	-4,795	-6,127	-7,460	-8,792
DOF Low	Fall 1993	-1,046	-2,308	-3,570	-4,832	-6,095	-7,357	-8,619
	Fall 1989	-1,920	-3,182	-4,444	-5,706	-6,969	-8,231	-9,493

TABLE 1-6

A Comparison Between the Number of New Students Projected for Fall 2005 Under Various Estimates for Total High School Graduates/UC Participation Rates and Actual New Students Enrolled in Fall 1989 and Fall 1993
[Total Advanced Standing Transfer Students Held Constant at 9,864]

HS Graduate	Comparison	Freshmen Participation Rates						
Estimate	Fall Term	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%
DOF High	Fall 1993	7,793	5,978	4,163	2,349	534	-1,281	-3,095
	Fall 1989	6,919	5,104	3,289	1,475	-340	-2,155	-3,969
DOF Middle	Fall 1993	6,341	4,617	2,893	1,169	-555	-2,279	-4,003
	Fall 1989	5,467	3,743	2,019	295	-1,429	-3,153	-4,877
DOF Low	Fall 1993	4,889	3,256	1,623	-10	-1,644	-3,277	-4,910
	Fall 1989	4,015	2,382	749	-884	-2,518	-4,151	-5,784

TABLE 1-7

The Number of New Undergraduate Students Necessary to Sustain LRDP Enrollment Targets for 2005-06
LRDP Enrollment Targets: Headcount and FTE

Enrollment Category	1997-98	2005-06
LRDP Undergraduate FTE	114,620	139,000
LRDP Undergraduate Headcount (Fall)	119,479	144,700
Fall new undergraduate students needed to sustain LRDP Headcount (Undergraduate Headcount x 0.28)	33,454	40,516

TABLE 1-8

The Number and Mix of New Undergraduate Students Needed to Sustain University of California 2005-06 LRDP Undergraduate Enrollment Targets Under Various Estimates for High School Graduates and Participation Rates

HS Graduate Projection and Enrollment Category	Freshmen Participation Rates						
	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%
DOF High							
New UG Headcount needed	40,516	40,516	40,516	40,516	40,516	40,516	40,516
New freshmen projected	29,035	27,220	25,405	23,591	21,776	19,961	18,147
Difference (new HC less freshmen)							
Transfer students needed	11,481	13,296	15,111	16,925	18,740	20,555	22,369
Percent Freshmen	71.7%	67.2%	62.7%	58.2%	53.7%	49.3%	44.8%
Percent Transfer	28.3%	32.8%	37.3%	41.8%	46.3%	50.7%	55.2%
DOF Middle							
New UG Headcount needed	40,516	40,516	40,516	40,516	40,516	40,516	40,516
New freshmen projected	27,583	25,859	24,135	22,411	20,687	18,963	17,239
Difference (new HC less freshmen)							
Transfer students needed	12,933	14,657	16,381	18,105	19,829	21,553	23,277
Percent Freshmen	68.1%	63.8%	59.6%	55.3%	51.1%	46.8%	42.5%
Percent Transfer	31.9%	36.2%	40.4%	44.7%	48.9%	53.2%	57.5%
DOF Low							
New UG Headcount needed	40,516	40,516	40,516	40,516	40,516	40,516	40,516
New freshmen projected	26,131	24,498	22,865	21,232	19,598	17,965	16,332
Difference (new HC less freshmen)							
Transfer students needed	14,385	16,018	17,651	19,284	20,918	22,551	24,184
Percent Freshmen	64.5%	60.5%	56.4%	52.4%	48.4%	44.3%	40.3%
Percent Transfer	35.5%	39.5%	43.6%	47.6%	51.6%	55.7%	59.7%

Section II

Access to College: The Role of Family Income

Income remains a primary determinant of students' educational opportunities. Students from higher income families enroll in colleges at rates three to four times greater than students from lower income families. Higher income students are more likely to attend four-year institutions than students from lower income families. Lower income students are more likely to attend two-year institutions than their higher income counterparts. Finally, lower income students are more likely to attend part-time and require a longer time to degree than are students from more affluent families.

The purpose of this section is to demonstrate the relationship between family income, college access, college choice, and as a result, our understanding of undergraduate enrollment demand at the University. As noted earlier, to the degree that there is a strong relationship between family income levels and overall demand for undergraduate enrollment at the University, changes in the aggregate income levels of Californians' can be expected to affect that demand. Before we examine the changes in income levels among the resident of California, let us begin by briefly reviewing the relationship between family income levels and college attendance.

In the following section we will examine the effect income has on the following:

- Differential levels of preparation for college.
- Differential access to college.
- Different choices in the institutions selected.
- Differential patterns of enrollment.

Differential Levels of Preparation for College

The opportunity to enroll in college is dramatically affected by choices made by or for students in elementary and secondary schools that determine whether they prepare for college. Family income is among the most powerful predictors of college preparation. Family income has a powerful effect on the likelihood a student will drop out of high school without a diploma (see Chart 2-1). As family incomes increases, the likelihood a student will drop-out decreases.

Family income also has a marked effect on whether a student remains in high school, below the expected grade level reached on average by students at specific ages, after their classmates have graduated. Well over one-third of the 18-24 year olds from low-income families were enrolled in high school, not college (see Chart 2-2). Only about 5 percent of the 18-24 year-old students from high income families are still enrolled in high school. Inadequate or inappropriate pre-college learning experiences and the resultant low academic achievement reduce the potential college-going pool of low-income students by about a third, even before students reach the traditional college age.

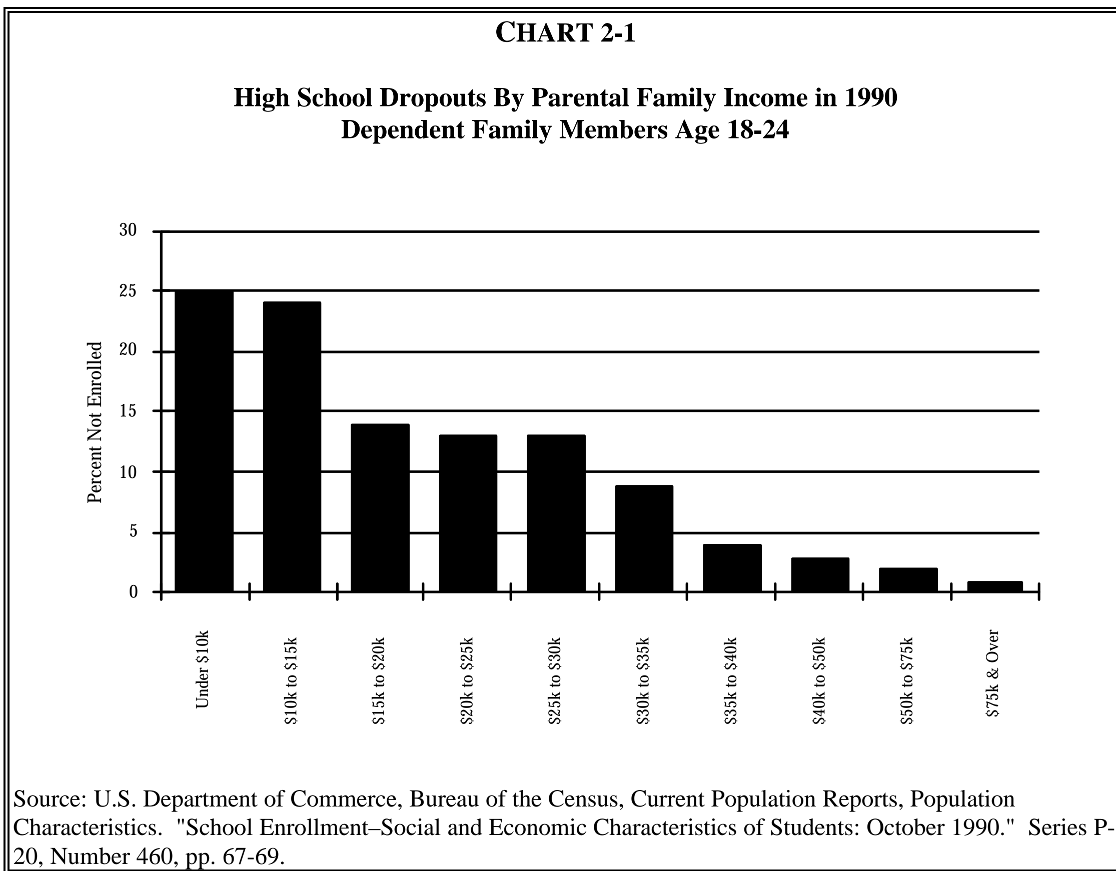


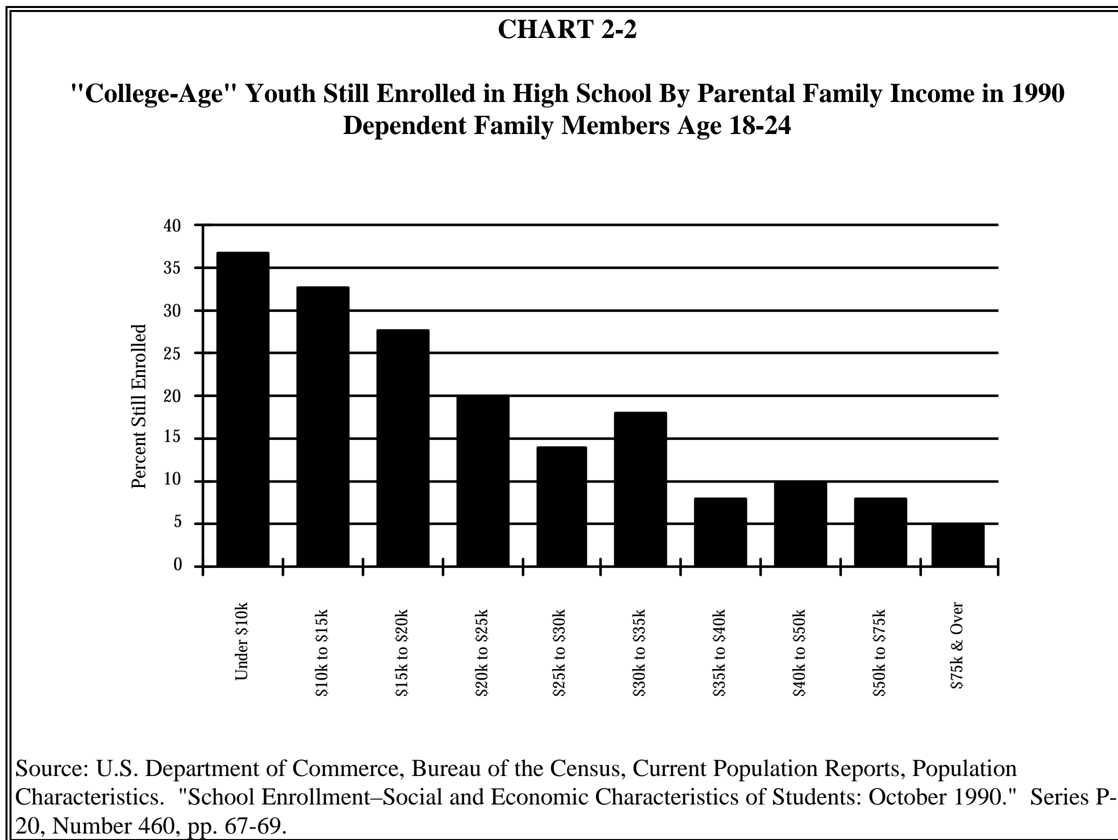
CHART 2-1

High School Dropouts By Parental Family Income in 1990
Dependent Family Members Age 18-24

Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Population Characteristics. "School Enrollment–Social and Economic Characteristics of Students: October 1990." Series P-20, Number 460, pp. 67-69.

CHART 2-2

"College-Age" Youth Still Enrolled in High School By Parental Family Income in 1990
Dependent Family Members Age 18-24



Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Population Characteristics. "School Enrollment–Social and Economic Characteristics of Students: October 1990." Series P-20, Number 460, pp. 67-69.

Differential Access to College

Family income makes a significant difference in college-going rates (see Chart 2-3). Fewer than two out of ten 18-24 year olds from families with annual incomes below $15, 000 were enrolled in college in 1990. By contrast, better than 45 percent of 18-24 year olds from families with incomes between $35, 000 and $75,000 were enrolled. Nearly six out of ten 18-24 year olds from families with incomes greater than $75,000 were enrolled.

College-going rates have remained fairly constant from 1970 to 1990, despite the expansion of need-based student aid programs to overcome the financial barriers to college enrollment.[13] While there have been some gains in college going rates for individuals in the lowest income group, the overall relationship between income and college-going rates for individuals from the remainder of the income spectrum in 1990 remains close to the relationship found in 1970. The large differences in college-going rates of students from higher income families and lower income families remain.

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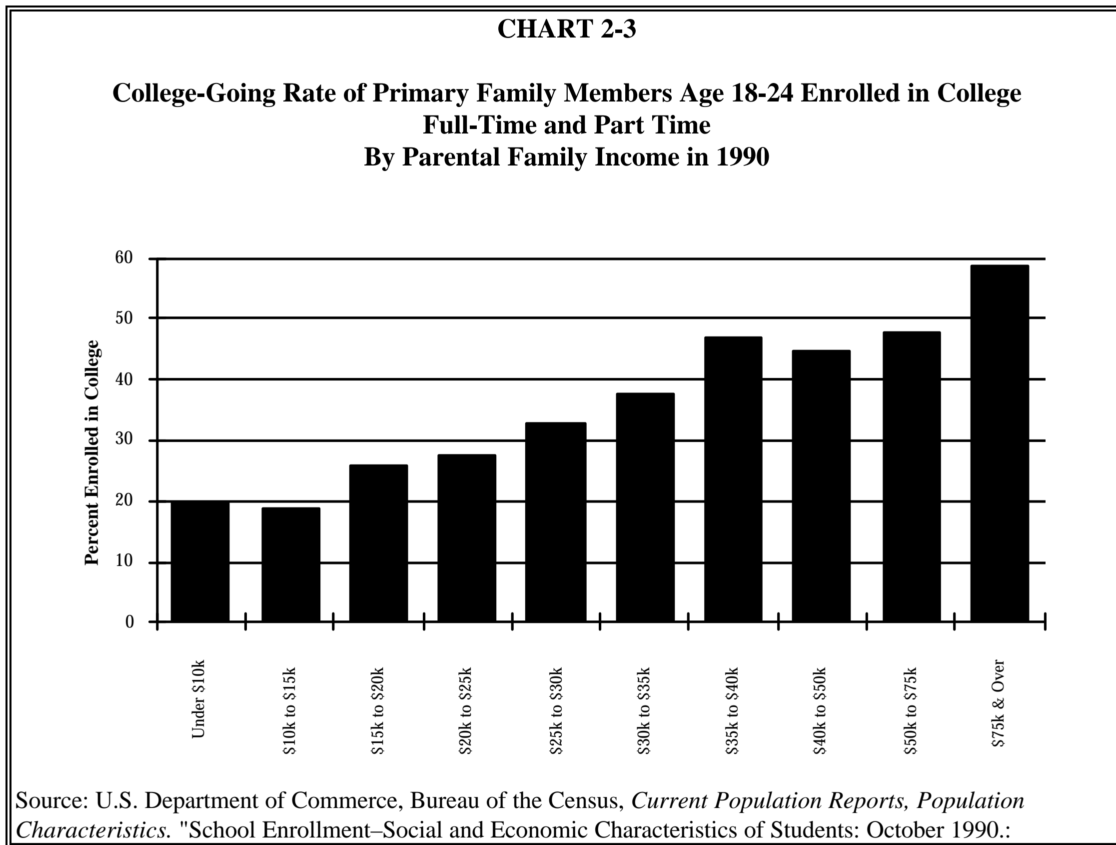
[13]The Basic Educational Opportunity Grant Program, subsequently renamed the Pell Grant Program.

College-age youth from higher income families are about three times more likely to enroll in college than are youth from low income families.[14]

CHART 2-3

College-Going Rate of Primary Family Members Age 18-24 Enrolled in College Full-Time and Part Time By Parental Family Income in 1990



Source: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports, Population Characteristics.* "School Enrollment–Social and Economic Characteristics of Students: October 1990.:

Differential Choices in the Institutions Selected

Generally, the lower the family income, the higher the likelihood that students will attend a two-year college (see Chart 2-4). Some low- and middle-income students, but few high-income students, start taking classes at two-year colleges. Often, the choice of a two-year public college is intended to be a cost-saving strategy. However, many factors, including less than perfect articulation between two- and four-year colleges, frequently cause students to take longer to earn a baccalaureate degree. The resultant delay in entering the work-force, resulting in reduced lifetime earnings together with more years of college tuition and higher drop-out rates, can render the transfer strategy very costly.

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[14]See U.S. Department of Commerce, Bureau of the Census, Current Population Reports, *Population Characteristics*. "School Enrollment–Social and Economic Characteristics of Students: October 1990," Series P-20, Number 460.

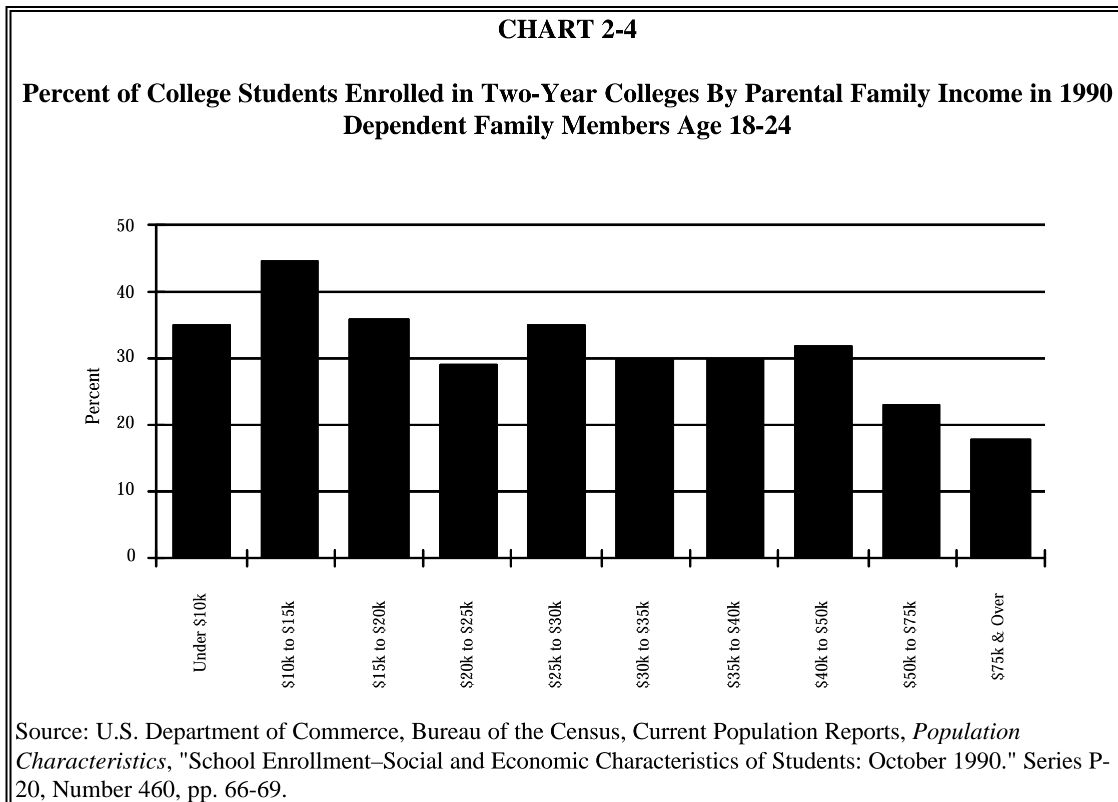

CHART 2-4

Percent of College Students Enrolled in Two-Year Colleges By Parental Family Income in 1990
Dependent Family Members Age 18-24

Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, *Population Characteristics*, "School Enrollment–Social and Economic Characteristics of Students: October 1990." Series P-20, Number 460, pp. 66-69.

Differential Patterns of Enrollment

Between one-quarter and one-half of students earn a baccalaureate degree in four years. At the University of California, about one-third of entering freshmen complete their degree in four years or less.[15] The average time-to-degree at the University is 4 1/3 years. A recent national study found that only 41 percent of high school students who began college had received a bachelor's degree within six years.[16] This study found that after four years of college, students appear to be distributed by family income in much the same way as they began college, that is, higher income students are more likely than lower income students to still be enrolled. By the fourth year there are significant differences emerging between high and low income students in both academic classification and accumulated course credits. Among students in the bottom socioeconomic status (SES) quartile, only 27 percent (in independent institutions) to just over 31 percent (in public

[15] About half of the freshmen who persist to the baccalaureate at the University graduate in four years or less.

[16] Porter, O.F. *Undergraduate Completion and Persistence at Four-Year Colleges and Universities; Detailed Findings*. Washington D.C.: National Institute of Independent Colleges and Universities, 1990.

institutions) persist to college completion compared to 50 percent (in public institutions) to over 65 percent (in independent institutions) of those students in the top SES quartile.

The effects of less income than is needed to pay for college are experienced by students from middle-income families as well as low-income families. Most often, the effect of lower income is to bar access to college. However, the effect of financial pressures can be seen among both low-income and middle-income students when it comes to patterns of participation (see Chart 1-5). Middle-income students, many of who are not eligible for financial aid or adequate financial aid, are more likely than high-income students to attend college part-time. It is also interesting to note that while part-time attendance is comparable for middle- and low-income students, middle-income students are marginally more likely than their low-income counterparts to attend college part-time.

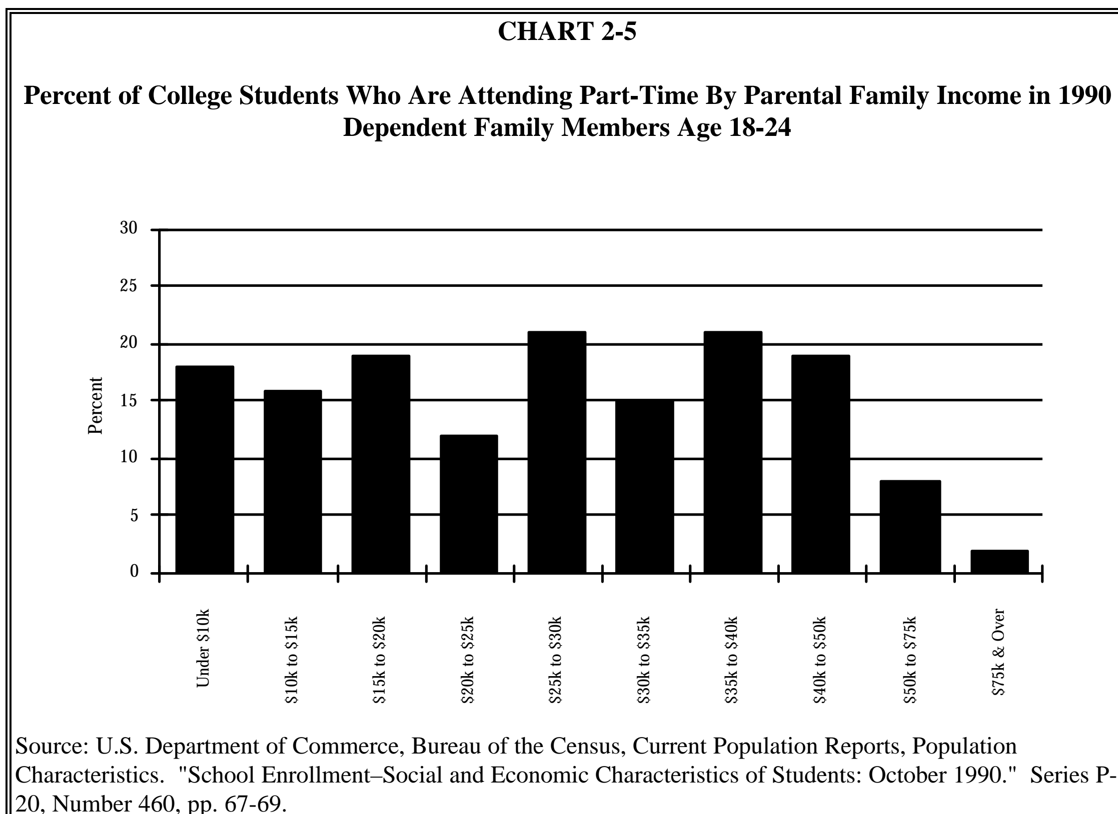

CHART 2-5

Percent of College Students Who Are Attending Part-Time By Parental Family Income in 1990
Dependent Family Members Age 18-24

Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Population Characteristics. "School Enrollment–Social and Economic Characteristics of Students: October 1990." Series P-20, Number 460, pp. 67-69.

Conclusion

As demonstrated, the association between income levels, especially at the lower end of the income continuum, and both college aspirations and attendance are quite strong. Compared to students from middle and high income families, students from families whose incomes place them in the lower quartile of the population are less likely to graduate from high school, less likely to attend a

college or university, and when they do attend, they are more likely to select a two-year institution. Given the nature of the relationship between family income levels and college attendance, changes in income levels in California should be expected to affect undergraduate demand at the University of California[17]. The question then is what has been happening to income levels within the state and what can we reasonable expect will occur in the short- and long-term? In the following section we will examine poverty-rates as an indicator of future demand.

[17]While the attention of this paper focuses on new undergraduate student demand, it is important to point out that there is also a strong relationship between socioeconomic status and persistence in college. This is important in that if persistence-rates decline, the number of new students the University must bring in to offset the attrition increases. In other words, the same factors that tend to diminish University demand among high school students also increases attrition of students enrolled at the University. Studies into persistence have shown that students from the lowest socioeconomic levels drop-out more often than do more advantaged students. This may be less the result of their parents' income and occupation than of their level of educational attainment. While a number of studies have found family income unrelated to persistence, others have reported higher income as positively related to persistence. Some students who drop-out are probably getting less money from home than other students with comparable family incomes if the parents have less education. Studies have shown that less educated parents are less willing to spend money on children in college. See Dario Caloss, "Undergraduate Retention and Persistence: A Review of the Literature." University of California, Office of the President, Student Academic Services, (forthcoming)

Section III

Increasing Poverty in America and California: Depressing Demand

In the previous section, the relationship between family income and college attendance patterns was demonstrated. A summary of the findings indicate that the lower the family income level, the less likely an individual is to graduate from high school, the longer it will take that individual to graduate from high school, and the less likely that individual is to go to college. It also was shown that individuals from low income families are more likely to attend two-year public colleges, are less likely to graduate from college once they enroll, and will require a longer time to earn a baccalaureate degree. The findings indicate that among students from low-income families, the demand for undergraduate enrollment in four-year institutions is lower than demand among students from middle- and high-income families.

Given the above relationship between family income and demand for undergraduate enrollment, what might one expect to happen to demand if family income levels change? All else being equal, demand for undergraduate enrollment should vary directly with changes in family income levels. What is happening to family income levels in the U.S. and California?

In this section we will review the changes that have taken place in individual and family income levels in the United States and California. At times we will rely on US data in the absence of readily available income data from California. Our findings point to a dramatic increase in the number of low income families in the United States, and more especially California. The increase in poverty levels, while accelerated by the current recession, appears to be a long-term trend afflicting the economies of America and California. A large and increasing proportion of all American children are in lower income families, As a result, unless action is taken to counter this trend, colleges and universities should be prepared to confront a drop in the present levels of enrollment demand.

Individuals Living in Poverty

Over the last four years there has been a sharp increase in the number of individuals below the official government poverty level.[18] In the United States between 1989 and 1992, the poverty rate rose from 12.8 percent to 14.5 percent and the number of poor increased by 5.4 million, rising from 31.5 million in 1989 to 36.9 million in 1992 (see Charts 3-1 and 3-2). While the number of people living in poverty decreased in the middle and late 1980s, the general trend since the late 1970s has been upward. Poverty rates are leading indicators of enrollment demand. That is, high poverty rates today portend lowered demand in the future, especially as the children who are now living in poverty either fail to get on track for college or fall off that track.[19] All else being equal, the high and rising poverty rates are, barring other influences, likely to depress undergraduate demand at the University of California in the late 1990s and through 2005-06.

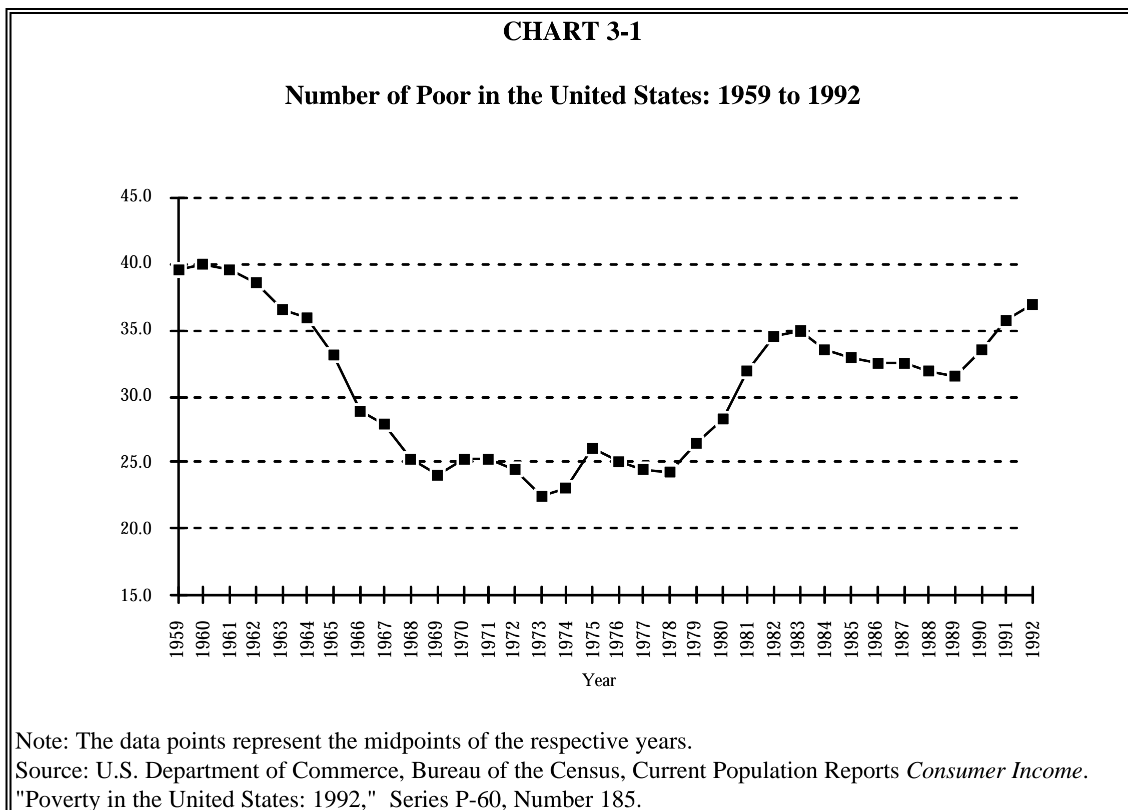

CHART 3-1

Number of Poor in the United States: 1959 to 1992

Note: The data points represent the midpoints of the respective years.
Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports *Consumer Income*. "Poverty in the United States: 1992," Series P-60, Number 185.

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[18]Poverty thresholds are updated every year to reflect changes in the Consumer Price Index. For example, the average poverty threshold for a family of four was $13,924 in 1991 but $14,335 in 1992. Weighted average poverty thresholds in 1992 varied from $7,143 for a person living alone to $28,745 for a family of nine or more members. The poverty definition is based on pre-tax money income only, excluding capital gains, and does not include the value of noncash benefits such as employer-provided health insurance, food stamps, or Medicaid.

[19]See University of California, Task Force on Black Student Eligibility, "Making the Future Different: Report of the Task Force on Black Student Eligibility."

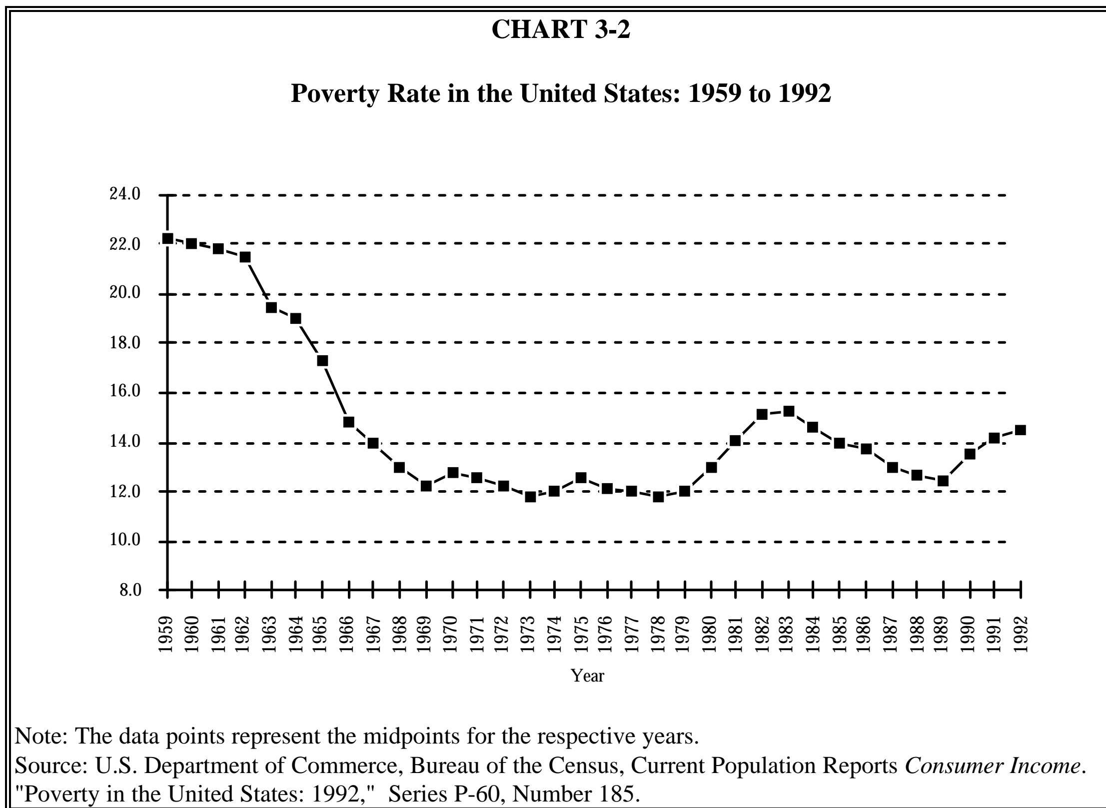

CHART 3-2

Poverty Rate in the United States: 1959 to 1992

Note: The data points represent the midpoints for the respective years.
Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports *Consumer Income*. "Poverty in the United States: 1992," Series P-60, Number 185.

In 1992, the poverty rate was 11.6 percent for Whites and 9.6 percent for non-Hispanic Whites (see Table 3-1). For persons of Hispanic origin (who may be any race) the poverty rate was 29.3 percent and for Blacks, 33.3 percent were poor. For Asians and Pacific Islanders, the poverty rate was 12.5 percent, a rate not significantly different from the poverty rate for Whites. Black and Hispanic families also recorded high poverty rates in 1992. Among Black families, 30.9 percent were below the poverty level while among Hispanic families, 26.2 percent were below the poverty level.

The poverty rates for all individuals, with the exception of Asian and Pacific Islanders, rose significantly from 1989 to 1992.[20] Hispanic and Black individuals recorded the greatest change in their poverty rates from 1989 to 1992 (see Table 3-1). The poverty rate among Hispanics increased by 3.1 percentage points, increasing from 26.2 percent in 1989 to 29.3 in 1992. Among Blacks, the poverty rate rose by 2.6 percentage points, increasing from 30.7 in 1989 to 33.3 in 1992.

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[20]The change was statistically significant at the 90 percent confidence level.

The proportion of families below the poverty level also increased form 1989 to 1992 (see Table 3-1). In 1989, 10.3 percent of all families had incomes that placed them below the poverty level. By 1992, the proportion increased by 1.4 percentage points to 11.7 percent.[21] The proportion of Black and Hispanic families below the poverty level increased at a much faster pace. Among Blacks, the proportion of families below the poverty level increased by 3.1 percentage points, increasing from 27.8 percent in 1989 to 30.9 percent in 1992. Among Hispanic families, the poverty rate increased by 2.8 percentage points, moving from 23.4 percent in 1989 to 26.2 percent in 1992.[22]

The projected increase in the number of Chicanos and Latinos in K-12 in California coupled with the already high and rising poverty rates for Hispanic individuals and families, suggests that if all other variables are held constant, the college-going rates for these students will be lower than currently projected. The rising poverty rates, especially among families, could significantly depress college-going rates for all students in the long-term (more than 10 years). There is ample research suggesting that "college tracking" begins early in a child's life. Students from poor families are generally much less likely to be placed on the college track than are more affluent students.

The number of people living in poverty in California has been increasing at a rate faster than the nation as a whole. California and especially Los Angeles, were among the areas in the nation hit hardest by the recession (see Table 3-2). Based on comparisons of two-year moving averages (1989-90 versus 1991-92), California experienced a statistically significant change in its poverty rate between 1989 and 1992. The California two-year average poverty rate increased by 2.4 percentage points, increasing from 13.4 in 1989-90 to 15.8 percent on 1991-92. The two-year average poverty rate in the Los Angeles Consolidated Metropolitan Statistical Area (CMSA) also increased significantly during this time period. The two-year average poverty rate in the Los Angeles CMSA increased by 2.5 percentage points, increasing from 14.4 percent in 1989-90 to 16.9 percent in 1991-92. In 1992, the proportion of individuals living in the Los Angeles CMSA below the poverty line equaled 17.2 percent. This was 2.6 percentage points higher than the 14.6 percent of individuals in the New York CMSA.

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[21]The change was statistically significant at the 90 percent confidence level.
[22]The change recorded by both Black and Hispanic families was statistically significant at the 90 percent confidence level.

TABLE 3-1

**Persons and Families Below Poverty Level
By Detailed Race
1989 to 1992**

	Below Poverty (Numbers in thousands)						Difference	
	Year=1989		Year=1991		Year=1992		1989 to 1992	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Persons								
Total	31,528	12.8	35,708	14.2	36,880	14.5	5,352	1.7
White	20,785	10.0	23,747	11.3	24,523	11.6	3,738	1.6
Not of Hispanic Origin	15,599	8.3	17,741	9.4	18,308	9.6	2,709	1.3
Black	9,302	30.7	10,242	32.7	10,613	33.3	1,311	2.6
Other Races	1,441	16.4	1,719	17.6	1,744	17.0	303	0.6
Asian/Pacific Islander	939	14.1	996	13.8	912	12.5	-27	-1.6
Hispanic Origin	5,430	26.2	6,339	28.7	6,655	29.3	1,225	3.1
Families								
Total	6,784	10.3	7,712	11.5	7,960	11.7	1,176	1.4
White	4,409	7.8	5,022	8.8	5,160	8.9	751	1.1
Not of Hispanic Origin	3,325	6.4	3,719	7.1	3,860	7.3	535	0.9
Black	2,077	27.8	2,343	30.4	2,435	30.9	358	3.1
Other Races	298	14.7	347	15.5	365	15.2	67	0.5
Asian/Pacific Islander	182	11.9	210	13.0	199	12.0	17	0.1
Hispanic Origin	1,133	23.4	1,372	26.5	1,395	26.2	262	2.8

Note: Persons of Hispanic Origin may be of any race.
Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports *Consumer Income*. "Poverty in the United States: 1992," Series P-60, Number 185.

In 1992, California ranked 14th in the nation in the proportion of individuals living in poverty (see Table 3-3). California now ranks just behind Alabama and Tennessee in the proportion of its residents living below the poverty line. The relationship between poverty and educational attainment can be seen from the following statistics. In 1992, 56.1 percent of poor family householders 25 years old and older were high school graduates, compared to 80.7 percent of all householders. Poverty rates decreased dramatically as years of schooling increased: the poverty rate was 24.1 percent for householders who had not completed high school, 11.0 percent for those who had a high school diploma but no college, and 7.2 percent for householders who had completed some college but had no degree. Of householders with at least a bachelors degree, only 2.2 percent were poor.

The general relationship between education and poverty exists regardless of race or Hispanic origin, although large differences exist among these groups within education category. For example, 28.4 percent of Black family householders who were high school graduates (but had no college) were below the poverty level in 1992, while 19.4 percent of Hispanic householders and only 8.4 percent of White householders with comparable education were poor. At the same time, 32.6 percent of poor Hispanic householders had a high school diploma, compared with 57.0 percent of White and 53.8 percent of Black householders below the poverty level.

TABLE 3-2

Percent of Persons in Poverty in California and Los Angeles CMSA 1989 to 1992

State/CMSA	Percent in Poverty				Two-Year Average Percent in Poverty			Difference in Two-Year Moving Average
	1989	1990	1991	1992	89-90	90-91	91-92	
California	12.9	13.9	15.7	15.8	13.4	14.8	15.8	2.4
Los Angeles CMSA	13.8	15.0	16.6	17.2	14.4	15.8	16.9	2.5

Note: Change for both California and Los Angeles significant at the 90 percent confidence level.
Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports *Consumer Income*. "Poverty in the United States: 1992," Series P-60, Number 185.

Children represent a large segment of the poor (39.6 percent) even though they represent only a little more than one-fourth of the total population. In 1992, the poverty rate for all children under 18 was 21.9 percent. During the 1960's, the poverty rate among children declined from a high of 26.9 percent in 1960 to a low of 14.0 percent in 1969. Throughout the 1970's, the poverty rate for children fluctuated between 14 to 17 percent. Poverty rose among children in the early 1980's, reaching 22.3 percent in 1983 and remaining at or above 20 percent throughout the 1980's. Poverty among children rose as a result of the onset of the recession in the early 1990's. The poverty rate for children in 1992, 21.9 percent, was nearly as high as it was in 1964, when 23.0 percent of children were poor.

Children under 6 years of age have been particularly vulnerable to poverty. In 1992, the overall poverty rate for related children under 6 years of age was 25.0 percent. Among children under 6 years of age living in families with a female householder where no spouse was present, 65.9 percent were poor, compared to only 12.8 percent of such children in married-couple families. Regardless of race or Hispanic origin, a very large proportion of children under 6 years of age

living in female-householder families were poor. Among Whites, 60.5 percent of such children were poor while the comparable percentages for Black and Hispanics-origin children were 73.1 percent and 71.8 percent respectively.

TABLE 3-3

Percent of Persons Living in Poverty in the United States in 1992 By State

Rank	State/District	Percent	Rank	State/District	Percent
1	Mississipi	24.5	27	Minnesota	12.8
2	Louisiana	24.2	28	Ohio	12.4
3	West Virginia	22.3	29	Rhode Island	12.0
4	New Mexico	21.0	30	North Dakota	11.9
5	District of Columbia	20.3	31	Indiana	11.7
6	Kentucky	19.7	32	Pennsylvania	11.7
7	South Carolina	18.9	33	Maryland	11.6
8	Oklahoma	18.4	34	Iowa	11.3
9	Georgia	17.8	35	Oregon	11.3
10	Texas	17.8	36	Hawaii	11.0
11	Arkansas	17.4	37	Kansas	11.0
12	Alabama	17.1	38	Washington	11.0
13	Tennessee	17.0	39	Wisconsin	10.8
14	**California**	**15.8**	40	Colorado	10.6
15	North Carolina	15.7	41	Vermont	10.4
16	Missouri	15.6	42	Nebraska	10.3
17	Florida	15.3	43	Wyoming	10.3
18	Illinois	15.3	44	Alaska	10.0
19	New York	15.3	45	Massachusetts	10.0
20	Arizona	15.1	46	New Jersey	10.0
21	Idaho	15.0	47	Connecticut	9.4
22	South Dakota	14.8	48	Virginia	9.4
23	Nevada	14.4	49	Utah	9.3
24	Montana	13.7	50	New Hampshire	8.6
25	Michigan	13.5	51	Deleware	7.6
26	Maine	13.4			

Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports *Consumer Income*. "Poverty in the United States: 1992," Series P-60, Number 185.

Families with children under 18 years of age were much more likely to be poor than those without children. In 1992, 17.7 percent of families with children were poor, compared to only 5.2 percent of families without children. Better than three out of four families, 78.8 percent, whose incomes were below the poverty line in 1992 were families with children.

Poor children aged 16 and 17 were less likely to be enrolled in school or to have graduated from high school than all children in that age group. In 1992, 6.0 percent of all children 16 to 17 years of age were not enrolled in school, compared to 13.8 percent of their poor counterparts. Of all young people aged 18 to 21 years of age, 13.4 percent had no high school diploma. The comparable percentage for poor persons in this age group (29.2 percent) was twice the rate of all young people.

Another disturbing trend, and one that is significant for the question at hand, is the rising number of poor children living in households headed by a single parent, especially female headed households (see Table 3-4). Between 38.4 percent and 60.4 percent of households in the U.S. headed by single females were living in poverty. This observation is even more striking when we look at the rise in the number of these households (see Chart 3-3). Overall, 40 percent of households headed by single females live in poverty in the U.S. and the proportion of female householder families as a percent of poor families has been rising since 1983.

Conclusion

The effects of increasing poverty have long-term implications for undergraduate enrollment demand at the University of California. As demonstrated, the trend is towards increasing poverty in America. The number of children living in poverty is rising. It takes a number of years for the declines registered today to affect enrollment demand in the future, but the effects will take place. Given this increase in poverty, we should expect some drop in undergraduate demand from current levels. Given this occurrence, what is the prognosis for poverty in the future? We will examine that question in the following section.

TABLE 3-4

Percent of Persons in Poverty in Families with Related Children Under 18 Years of Age United States 1992

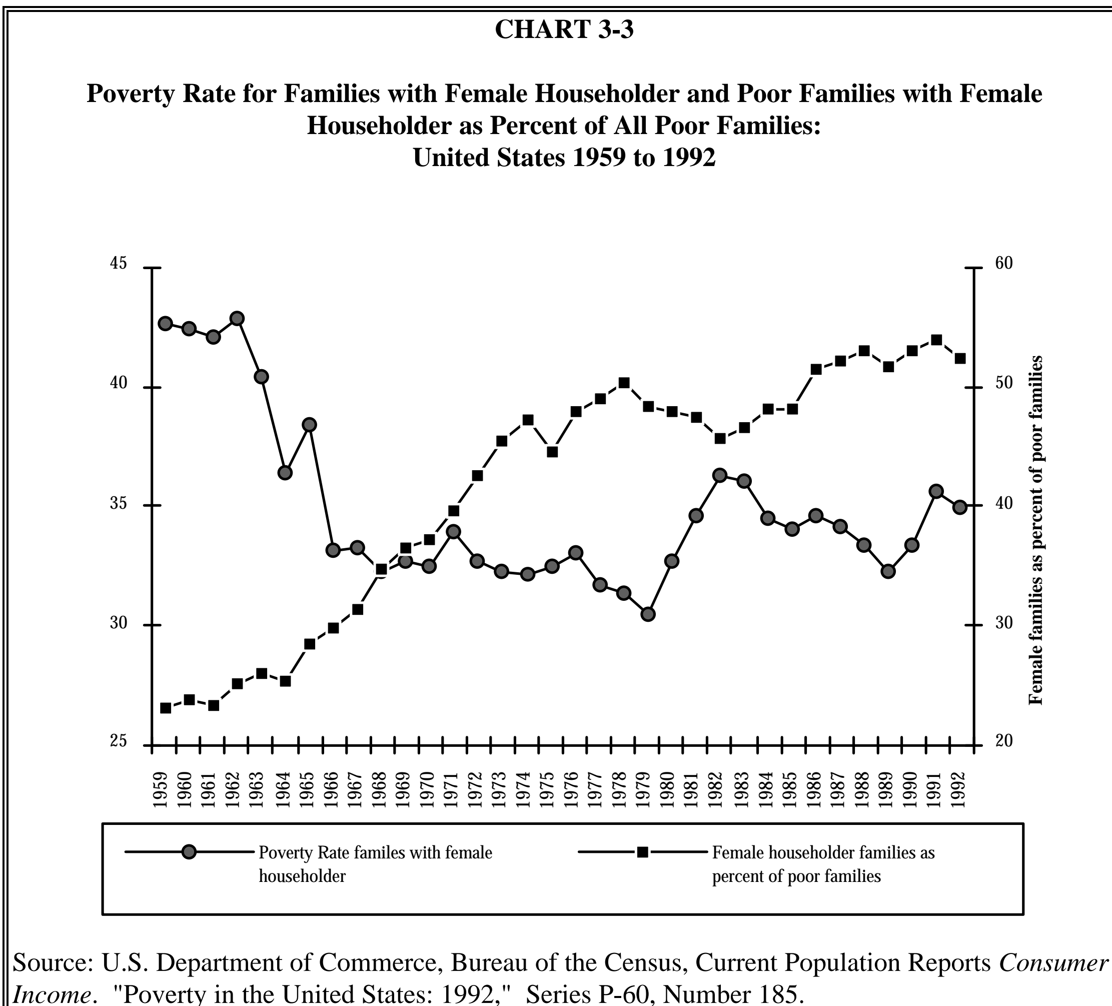
Race	Married Couple Family	Female Householder Family*
White	8.7	40.3
Black	16.5	60.4
Asian/Pacific Islander	9.8	38.4
Hispanic Origin	24.7	58.5

*No husband present

Note: Persons of Hispanic origin may be of any race
Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports *Consumer Income*. "Poverty in the United States: 1992," Series P-60, Number 185.

CHART 3-3

Poverty Rate for Families with Female Householder and Poor Families with Female Householder as Percent of All Poor Families: United States 1959 to 1992



Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports *Consumer Income*. "Poverty in the United States: 1992," Series P-60, Number 185.

Section IV

Costs at the University of California and the Effect on Demand

The total costs to attend the University of California is one of the major factors that can be expected to affect overall enrollment demand. Given even a rudimentary inverse relationship between price and demand for enrollment, and holding all else constant, we should expect enrollment demand at the University to expand when the University's costs drop[23] Likewise, enrollment demand at the University can be expected to drop when the University's prices rise.

But this relationship between price and demand is too simple. A university degree is a very valuable commodity. The opportunity costs associated with foregoing a university degree remain quite high. If price does have an effect on demand, we may best gauge that effect when we examine the costs to attend relative to the costs of comparable institutions and the costs in relation to Californians' ability to pay. In this section we will examine the change in costs to attend the University from the early 1980s to the present in relation to both the costs associated with attending private institutions and in relation to Californian's Disposable Personal Income (DPI)

Costs at Comparable Institutions

In order to examine the relationship between costs and the University of California and costs at comparable institutions, three price indices consisting of the total costs associated with attending independent institutions were constructed[24]. The first index, the California Independent Index (CI), is based on the total costs to attend nine academically comparable independent institutions in California.[25] The National Independent Index (NI) is based upon costs at five academically comparable national institutions.[26] The final index, the Western Independent Index (WI), is based

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[23]We are assuming that independent institutions have the capacity to enroll additional students. This is not a particularly risky assumption given these institutions have published the extent of their unused enrollment capacity. See California Postsecondary Education Commission, "Technical Background Papers to Higher Education at the Crossroads: Planing for the Twenty-First Century." January 1990. p. 130.
[24]Cost figures were taken from The College Board, "The College Source Book." 1983 to 1994.
[25]The following nine institutions are included in the California Independent Index: California Institute of Technology, Claremont McKenna, Harvey Mudd, Pomona, Pepperdine, Pitzer, Stanford, University of Southern California, and Santa Clara.
[26]The five institutions comprising the national independent index are Yale, Harvard, Massachusetts Institute of Technology, Cornell, and Brown.

upon costs at all independent institutions in the Western United States and compiled by the College Board.[27]

Comparison between the total costs to attend the University and the institutions comprising the indices are contained in Charts 4-1, 4-2, and 4-3. These charts display the total costs to attend the University expressed as a proportion of the costs to attend those institutions comprising the various indices. The two charts contain both UC's actual costs relative to the indices from 1983 to 1993 as well as a projection of the proportion based upon the average change in costs recorded at UC and the comparable institutions from 1990 to 1993. The projections were calculated by separately averaging the increase in total costs at the University and the institutions comprising the indices for the years 1990 to 1993. These running averages were then applied as constant rates of increase from 1994 to 2002. The projections are not meant to be predictive, that is, predict actual costs to attend UC or the independent institutions. Rather they are intended to illustrate the magnitude of the change in demand that might be expected were the costs to attend the University to rise at this rate and to these levels. Cost figures actual and projected, are reported in constant 1987 dollars.

From 1983 to 1990, the total costs to attend the University of California rose relative to the CI, NI, and WI indices (see Chart 4-1, Chart 4-2 and Chart 4-3). For example, in 1983 the total costs to attend the University of California were equal to 50 percent of the total costs to attend those institutions comprising the CI index (see Chart 4-1). Throughout the 1980s and until 1990, UC's costs fell relative to the institutions making up the CI index. In 1990, UC's total costs had fallen relative to the institutions comprising the CI index so that UC's cost represented just over 42 percent of the CI index. However, beginning in 1991 and continuing through 1993, UC's cost rose both in real terms and relative to the CI index. By 1993, UC's costs had risen to just below 47 percent of the CI index.

Similar trends occurred when UC's costs were measured relative to the NI and WI indices (see Charts 4-2 and 4-3). A comparable, although less dramatic change took place relative to the NI index (see Chart 4-2). Costs to attend the University fell from 43.2 percent of the NI index in 1983 to 39.6 percent in 1990. The most dramatic change took place relative to the WI index (see Chart 4-3). In 1983, the total costs to attend the University of California equaled 68.0 percent of the WI index. By 1990, the cost to attend UC fell to 56.9 percent.

[27]The College Board. "The College Source Book."

As noted, from 1992 to 1993, the total costs to attend the University began to rapidly rise relative to all three indices. In 1993, the total cost to attend the University of California rose to 47.3 percent of the CI index, 43.7 percent of the NI index, and 66.4 percent of the all WI index. In three years, the total cost to attend the University of California returned to nearly the same position it was in 1983 relative to all three indices. The drop in UC's costs relative to costs at the independent institutions which had occurred over a period of seven years was swept away in only three years. This, along with the recession, helped produce a drop in enrollment demand at the University. Demand for enrollment among new freshmen began to slip in 1991 and continued in 1992. The slippage was most pronounced at those campuses outside the state's major metropolitan areas (Santa Barbara and Santa Cruz). During this same time, freshmen demand at Riverside remained relatively weak, following a period of expansion during the late 1980's while demand at Davis fluctuated, but in a general downward direction.[28]

It is important to note that during the period 1983 to 1990, undergraduate enrollment demand was both strong and increasing at virtually every campus in the UC system. This is demonstrated by the rise in the University's participation-rate. While not a valid indicator of demand, the participation-rate is a valid measure of consumption, and as such, has some relationship to demand. Certainly there were a number of factors affecting the surge in demand, but UC's falling price relative to academically comparable independent institutions certainly played an important role. A study by independent institutions in California found that a decline in the proportion of California high school students attending independent institutions during the period 1983 to 1988 was attributable to two factors: the increasing tuition charged by these institutions and the declining amount of financial aid available from State, federal, and institutional sources. In short, the rapidly rising costs associated with attending the independent institutions drove down demand at those institutions.[29]

How will UC's costs compare to these indices in the future? Let us try to answer this by looking at the change in costs that occurred over the last few years. From 1990 to 1993, the average annual increase in the total costs to attend the University of California, measured in constant dollars, rose by 6.1 percent. This rate of increase was better than twice the rate of the NI index (2.4 percent) and three times the rate of the CI index(2.0 percent). When compared to the average total costs for all independent institutions in the western United States using the WI index, UC's rate of increase

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[28]Caloss, D. and Lee, J. "The Effect of Fees on Freshmen Enrollment at the University of California." University of California, Office of the President, Student Academic Services, January 1994.
[29]California Postsecondary Education Commission, *Technical Background Papers to Higher Education at the Crossroads: Planning for the Twenty-First Century*. Commission Report 90-2, January 1990, p. 127.

was better than 15 times as great (0.4%). If we simply apply these rates of increase for UC and the indices, as is done in the three charts, UC's costs will continue to rise relative to the indices. For example, assuming the rates remain constant, UC's cost relative to the CI index will rise to just under 50 percent in 1994 and reach 55 percent by 1997 (see Chart 4-1).

While these figures are not intended to represent accurate projections of the increase in costs at UC or the independent institutions, they do reflect a general impression that UC's costs will continue to rise, at least during the period 1994 to 1996, and that these increases will be proportionally greater than the increase in costs at independent institutions. The effect on undergraduate demand is likely be negative, that is, demand should fall as UC's prices rise relative to the independent institutions. The same economic forces that shifted demand away from the independent institutions and into UC during the 1980s should now shift some demand back to the independents. Some portion of the undergraduate demand which shifted to UC during the 1980s should now begin to shift back to the independent institutions in the 1990s.

Of course this is assuming there is enrollment capacity within the independent institutions sufficient to absorb the shift in demand. The Association of Independent California Colleges and Universities estimated in 1990 that if the independent institutions comparable in academic standards to the University of California were to return to enrolling the peak number of California residents they enrolled over the last 12 years, they could accommodate an additional 6,100 California residents. By combining this change in composition with their present under-utilized capacity and planned expansion, the independents have the capability to enroll 10,500 more California residents in 1995 then they enrolled in 1990. In addition, beyond 1995, the independent institutions estimate that under favorable Cal Grant award conditions, they could increase their 1995 capacity by another 3,700, bringing the total enrollment capacity among UC comparable independent institutions to 14,200 by 2005.[30]

While it is beyond the scope of this analysis to adequately assess the possibility of demand shifting away from the University and to the California State University system, it is worth mentioning that as costs to attend the University rise, some students intent on attending college will seek affordable alternatives. For some, the cost-effective alternative may be CSU. Given the number and locations of the CSU campuses, actual and planned, there is a distinct possibility that some historically UC bound students may opt to enroll at CSU as a cost savings strategy. CSU, by catering to part-time attendance and by offering an academic program that places greater emphasis

[30]CPEC, Op Cit.

on applied or technical skills, may be more attractive to students in the future. Students who under more prosperous economic circumstances might have in the past selected UC, especially those who are from low income families or those who are the first generation from their family to attend college, may view CSU as a viable option and cost-effective alternative. These students may be willing to sacrifice the prestige and academic quality of the University in favor of a more affordable and flexible alternative.[31]

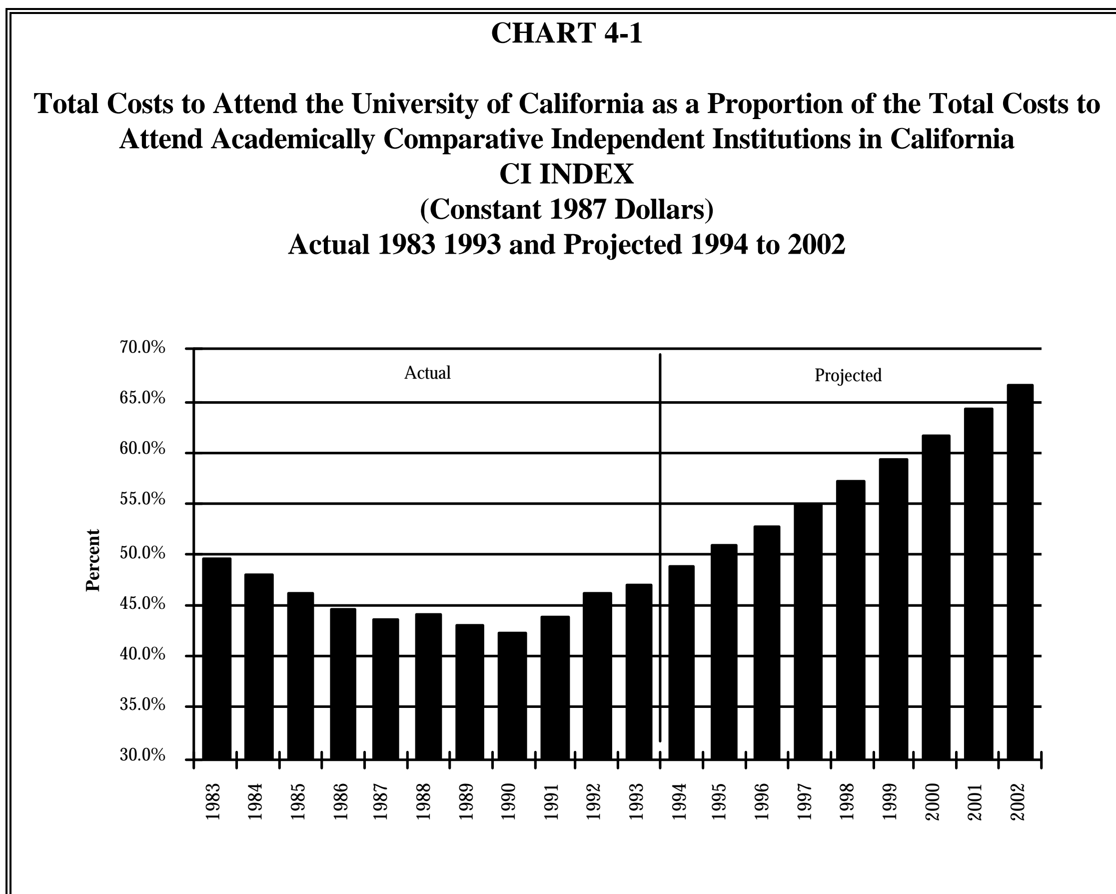


CHART 4-1

Total Costs to Attend the University of California as a Proportion of the Total Costs to Attend Academically Comparative Independent Institutions in California
CI INDEX
(Constant 1987 Dollars)
Actual 1983 1993 and Projected 1994 to 2002

[31]The perception is an important variable affecting college choice. A change in perceived value and quality, whether real or imagined, can affect demand even while costs are held constant. Surveys of students and potential students confirm that there is a perception the quality of a UC education has deteriorated as a result of recent budget reductions. A further erosion of confidence in the ability of the University to deliver a quality academic program could potentially depress demand.

CHART 4-2

Total Costs to Attend the University of California as a Proportion of the Total Costs to Attend Academically Comparable Independent Institutions in the Nation
NI INDEX
(Constant 1987 Dollars)
Actual 1983 to 1993 and Projected 1994 to 2002

Race	Married Couple Family	Female Householder Family*
White	8.7	40.3
Black	16.5	60.4
Asian/Pacific Islander	9.8	38.4
Hispanic Origin	24.7	58.5

*No husband present

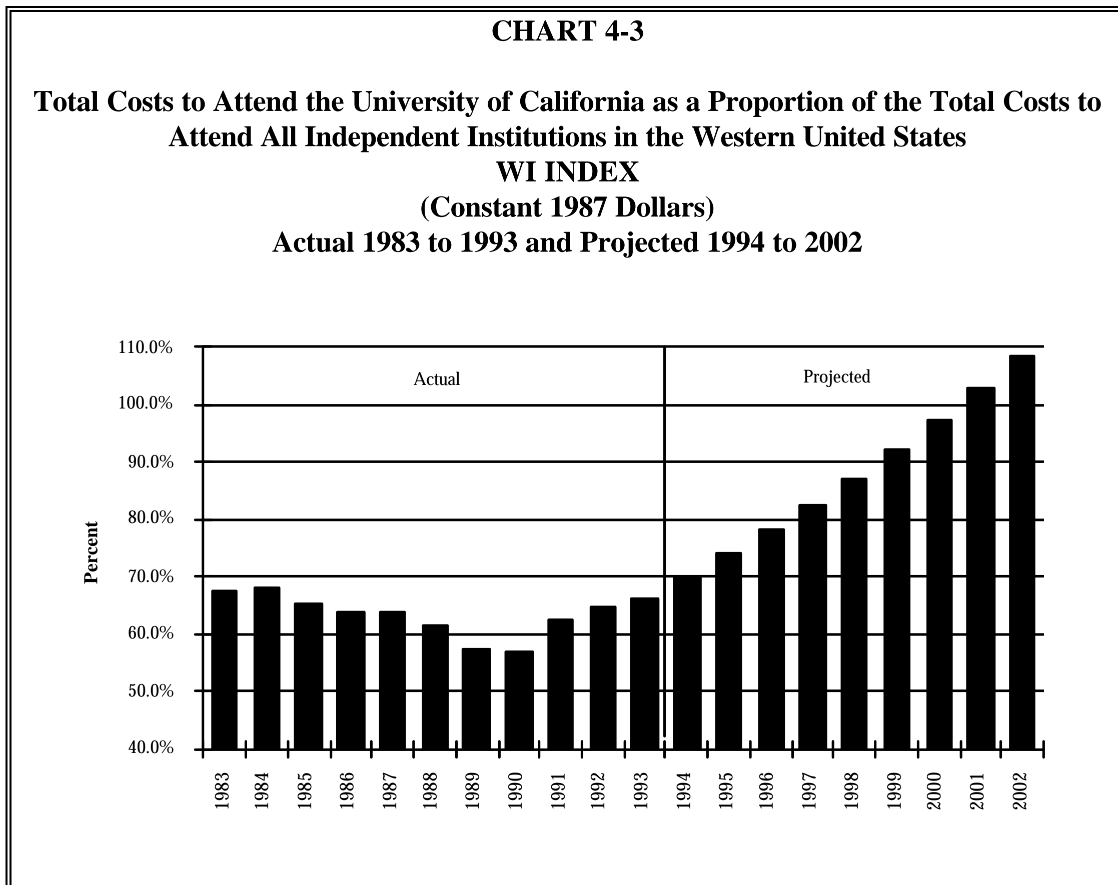


CHART 4-3

Total Costs to Attend the University of California as a Proportion of the Total Costs to Attend All Independent Institutions in the Western United States
WI INDEX
(Constant 1987 Dollars)
Actual 1983 to 1993 and Projected 1994 to 2002

Total Costs Compared to Ability to Pay

While costs to attend comparable institutions have an effect on demand, the absolute costs, measured in terms of an individual's ability to pay, is also an important factor that affects demand. This is especially true for those students whose incomes place them at the margin of affordibility. One way to assess costs relative to ability to pay is to compare the total costs to attend the University to Californian's per capita disposable income (DPI).[32] Since a significant portion of the costs to pay for college is financed from an individual's present annual income, an increase in total costs relative to DPI demonstrates the real effect of a family's (diminishing) ability to meet the costs of attending the University of California. A comparison of the costs to attend the University relative to Californian's DPI from 1980-81 to 1992-93 is contained in Table 4-1.

TABLE 4-1

University of California Undergraduate Fees and Total Costs in Relation to Disposable Personal Income: 1980-81 to 1992-93

Academic Year	Disposable Personal Income per Capita 1987 Dollars	Total Undergraduate Fees 1987 Dollars	Total Costs 1987 Dollars	Total Fees as a percent of per Capita DPI 1987 Dollars	Total Costs as a percent of per Capita DPI 1987 Dollars
1980-81	$12,005	$988	$5,693	8.2%	47.4%
1981-82	$12,156	$1,147	$5,874	9.4%	48.3%
1982-83	$12,146	$1,473	$6,369	12.1%	52.4%
1983-84	$12,349	$1,532	$6,698	12.4%	54.2%
1984-85	$13,029	$1,413	$6,683	10.8%	51.3%
1985-86	$13,258	$1,366	$6,760	10.3%	51.0%
1986-87	$13,552	$1,345	$6,967	9.9%	51.4%
1987-88	$13,545	$1,433	$7,139	10.6%	52.7%
1988-89	$13,890	$1,424	$7,221	10.3%	52.0%
1989-90	$14,030	$1,428	$7,296	10.2%	52.0%
1990-91	$14,154	$1,515	$7,641	10.7%	54.0%
1991-92	$13,897	$2,046	$8,432	14.7%	60.7%
1992-93	$14,036	$2,359	$8,627	16.8%	61.5%

(a) Represents the average of fees charged by the nine institutions.
Note 1: DPI figures from "Economic Report of the President to Congress." February 25, 1992. Table B-25.
Note 2: The 1992-93 DPI drawn from data drawn from the Survey of Current Business, July 1992. Table 2-1. p.27.

It is clear that not only did costs to attend the University rise sharply in 1991-92, but the increase absorbed a much larger share of Californian's disposable personal income. While constant dollar costs of University attendance rose nearly as dramatically in the early 1980s as they have in the early 1990s, those earlier costs increases did not consume a greater proportion of disposable personal income. Total costs throughout the 1980s, even in the early years of sharp cost increases, consumed roughly a constant 50% of disposable personal income. In 1992-92, costs rose dramatically, but more importantly, consumed a much larger share of personal disposable income.

It should also be pointed out that Americans are saving less today then they did only ten years ago. In 1981, savings in the United States represented 9% of disposable personal income. By 1991, the rate decreased by almost half, representing only 5%[33]. Not only are the costs to attend the

[32]Disposable personal income is defined as personal income less any payments to federal, state, local governments or foreign governments. It is a standard measure used by economists to measure an individual's ability to purchase products or services.
[33] See Council of Economic Advisors, *Economic Indicators*, January 1992 (Washington, D.C.: U.S. Government Printing Office, 1992).

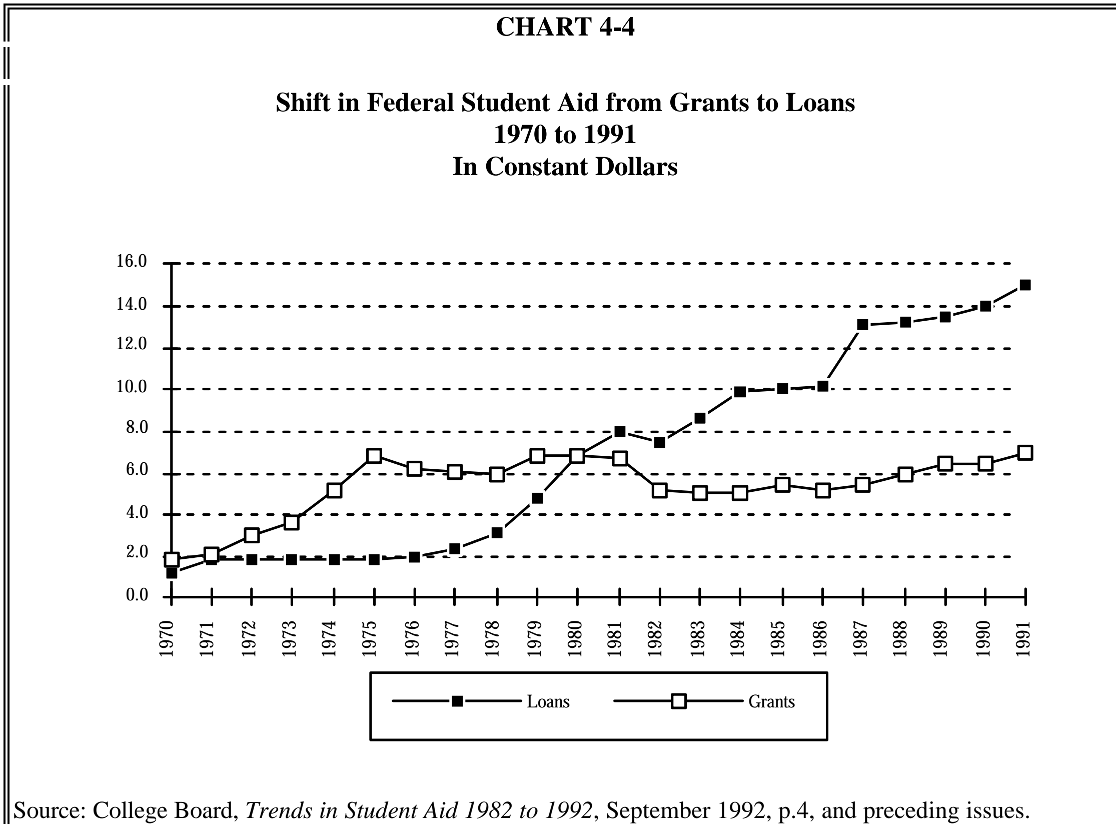
University consuming a greater proportion of DPI, but families' ability to finance college, as measured by the savings rate relative to DPI, suggests Californians are less able to finance those costs from their savings.

Financial Aid

Changes in federal financial aid policies over the last decade have effectively driven up the real costs of college attendance. While the federal government increased outlays for student aid over the decade of the 1980s, an increase from $14.4 billion in 1980-81 to $22.8 billion in 1991-92 (unadjusted for inflation), most of the increase came in the form of loans. This is very different from what happened in the 1970s when federal outlays of financial aid increased from $3.4 billion in 1970-71 to $14.4 billion in 1980-81. Most of the increase in the 1970s was in the form of grants, but since 1980-81 virtually all of the increase has been in the form of loans. Federal grant aid actually decreased in the 1980s as a result of large decreases in education benefits provided under veterans' and Social Security programs. Virtually all of the increase in grant aid awarded to students in the 1980s came from states and individual colleges. The decline in the value of grant aid over the 1980s occurred even when measured in current dollars (see Chart 4-4). Trends in the dollars of grant aid need also be examined in light of the increasing number of students seeking aid. Considering both the increase in the number of students seeking aid and the increase in costs for colleges, student aid funding did not keep up with the growing need and as a result, unmet need increased in the 1980s. At the University of California, unmet need increased from 36.8 percent of total educational costs in 1980-81 to 41.8 percent in 1992-93 (see Table 4-2). At the same time, scholarships and grants decreased as a proportion of the educational costs from 39.2 percent in 1980-81 to 34.5 percent in 1992-93. Nationally, Pell grants, which on average covered 32 percent of the share of costs to attend public universities in 1980-81, covered only about 27 percent of the costs in 1990-91.

CHART 4-4

Shift in Federal Student Aid from Grants to Loans
1970 to 1991
In Constant Dollars



Source: College Board, *Trends in Student Aid 1982 to 1992*, September 1992, p.4, and preceding issues.

TABLE 4-2

Amount of Undergraduate Educational Costs Covered by Need-Based Financial Support and Family Resources at the University of California
1980-81 to 1992-93
(1992 Constant Dollars)

	Academic Year				
Budget/Source of Funds	1980-81	1987-88	1989-90	1991-92	1992-93
Student Budget	$7,293	$9,150	$9,330	$10,548	$11,104
Need-based Financial Support					
Scholarships and Grants	$2,862	$3,108	$3,463	$3,794	$3,835
Loans	$1,316	$1,753	$1,823	$2,193	$2,318
Work -Study	$433	$329	$312	$281	$305
Subtotal	$4,611	$5,190	$5,598	$6,268	$6,458
Family and Other Resources	$2,682	$3,960	$3,732	$4,280	$4,646
Family/Other as percent of Total Budget	36.8%	43.3%	40.0%	40.6%	41.8%

Note: For 1980-81, non-need-based aid awarded to needy aid recipients is included with family resources.

While it is common practice to lump grants, loans, and work study together when discussing financial aid, there is a pronounced difference in their effects. Loans do not have the same effects on students' educational decisions. Astin established that grants have a more positive affect on achievement of student's educational goals than do loans. After controlling for different student characteristics, Astin found that students with loans were more likely to drop out of college than students with grants[34]. More recently, Thomas Mortensen concluded that "low income students face inherently higher risk of not completing college. When they encounter student loans in their financial aid package, this risk imposes cost-like considerations that reduce the prospects of net benefits of college enrollment for them."[35]

Loans have to be paid back with interest, in effect, increasing the cost of college. Loans, particularly for students who have uncertain job prospects, and no assurance of income after college that is high enough to pay of the loans, add much greater risk to students' calculations of the costs of their education.[36] Loans can affect students' choices of whether to enroll in college, whether to go to a public or independent institution, and whether to start at a two-year or four-year college. The prospect of having to pay back large loans can keep students from majoring in fields that prepare them for lower-paying professions (teaching, nursing, social work). Considerations of debt influence students to seek academic majors which are more likely to offer an immediate pay-off in terms of readily available jobs or higher salaries. Large debts also are clearly a factor in students' decisions about the utility of preparing for a graduate education or about going to graduate school. An additional consideration is that after paying back their loans, students who had to borrow find themselves considerably behind their non-borrowing peers in terms of accumulating savings to invest in a small business or a home. Extensive borrowing has the potential to re-introduce the economic inequality that low income students sought to overcome by attending college.

The Future of Federal Financial Aid

There is a link between funds made available for federal financial aid, the rising federal deficit, and budget entitlements that warrants some discussion. Throughout most of the 1960s, the federal budget was in balance. It began to slip out of balance in the mid-1970s and then plummeted into deeper deficit in the 1980s. By Fiscal Year 1991, the deficit had reached well over $300 billion

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[34]Astin, Alexander, *The Impact of Student Aid Programs on Student Choice*. 1978.
[35]Mortensen, Thomas, *The Impact of Increased Loan Utilization Among Low family Income Students.*
[36]A recent survey of non-matriculating SAA applicants found that assessments of cost and financial aid played a major role in affecting applicant's decisions on where to enroll. See Caloss and Non-Matriculant

and the FY 1992 budget exceeded $400 billion. A large increase in the deficit occurred following the passage of the Economic Recovery and Tax Act in 1981. Derived from "supply-side economics," the tax cuts contained in this legislation were intended to stimulate private investment, accelerate economic growth, and thus ultimately increase revenues in spite of the tax cuts. At the same time, reductions in domestic programs were proposed to slow spending. Many of these proposals did not pass the Congress and there was no significant reduction in domestic spending. At the same time, there were large increases in defense spending. Thus the federal deficit grew as did federal debt. In the late 1980s, the savings and loan bail-out increased federal debt still further.

Contemporaneous with these budgetary developments was the tax revolt that began in California in the early 1980s. Governments have been unwilling or unable to raise taxes to levels sufficient to pay for existing programs and retire the federal debt. Compounding this have been the tax cuts and exemptions extended as part of the revolt, thus lowering revenues and shifting the sources of federal revenues away from such things as corporate income tax to individual and social insurance taxes.

The largest increases in federal spending, aside from defense and debt service, have occurred in entitlements. Entitlements are benefits awarded as a matter of right created by law, with eligibility for the benefits determined by status. Entitlements have a prior claim on budget revenues, and are not subject to constraints imposed by limited appropriations. As can be seen in Chart 4-5, entitlement programs such as social security, Medicare, income security and health grew dramatically from 1980 to 1990 as did outlays for defense and debt service. The net result is that a growth in entitlements and payments on the federal debt together with an unwillingness of Congress to either increase revenues (taxes) or slow spending for entitlements, have reduced the funds available to spend on higher education. Outlays for education rose by only 6.7 percent from 1980 to 1990. Unless federal revenues are increased dramatically or spending on entitlements is significantly slowed, the funds available for higher education and financial aid in particular, will only increase slowly or possibly decline. With the expansion of entitlements in the form of universal health care looming on the political horizon, the hope for increased spending on education looks bleak.

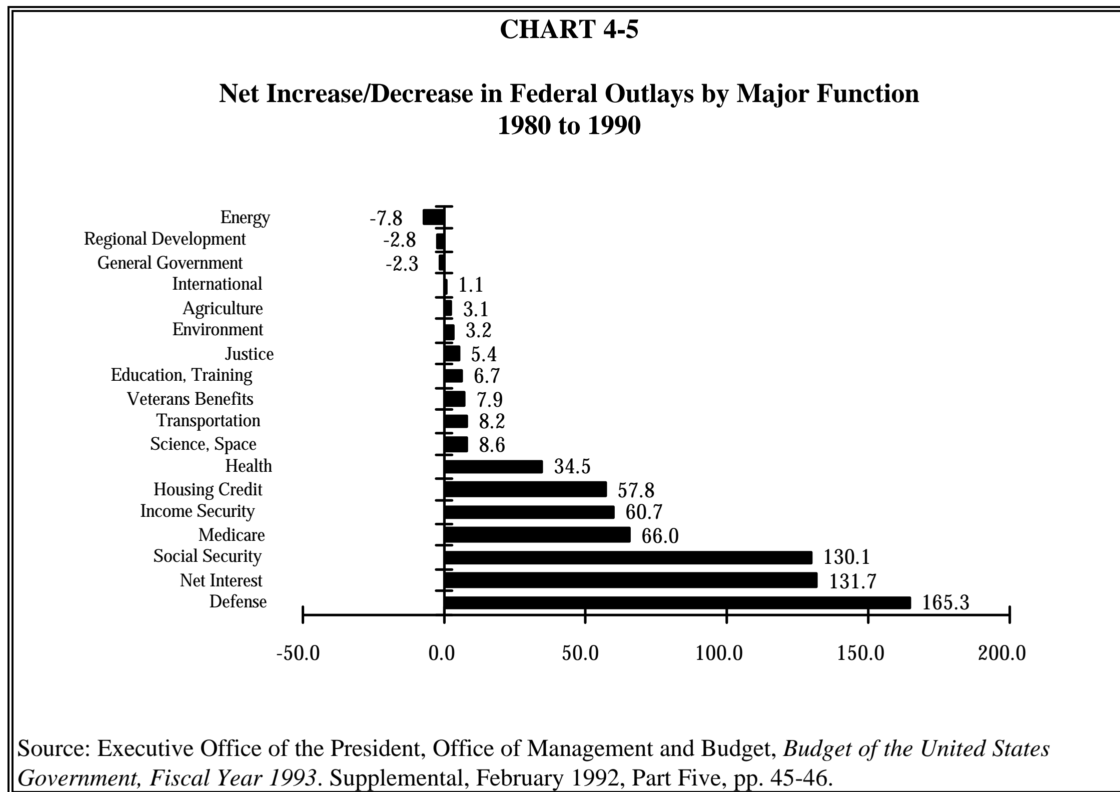


CHART 4-5

Net Increase/Decrease in Federal Outlays by Major Function 1980 to 1990

Source: Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, Fiscal Year 1993*. Supplemental, February 1992, Part Five, pp. 45-46.

Conclusion

We have identified three major developments which should exert a downward pressure on undergraduate demand, both in the short-term and long-term. These include rising cost relative to academically comparable independent institutions, rising costs relative to DPI, and a continued erosion of financial aid, especially grant aid, for needy students. As has been shown, since 1990, the total costs to attend the University of California have risen relative to the total costs to attend academically comparable independent institutions in California. The decrease in UC's costs relative to these independent institutions helped push demand up at the University during the 1980s. A continued rise in UC's cost relative to these institutions should, all else being equal, have a downward affect on undergraduate demand at the University. Likewise, undergraduate demand should decrease as UC's costs rise relative to Californians' ability to pay (as measured by DPI). The relatively flat proportion of DPI that total costs to attend the University maintained during the 1980s helped to push demand at the University upward. A continuing rise in total cost as a percent of DPI should put downward pressures on demand. Finally, continuing erosion of federal financial aid together with rising numbers of needy students should dampen demand.

Section V

The California Economy

California is experiencing a recession unparalleled since the Great Depression of the 1930s. The most recent recessions of 1969-70 and 1981-82 pale in comparison (see Chart 5-1). In previous recessions, California's job losses continued until 12 or 14 months after the onset of the recession. Job growth then returned, and by the time 24 months had elapsed, employment had returned to pre-recession levels. Since May 1990, when employment in California peaked, the state has lost 868,000 jobs, representing nearly seven percent of pre-recession employment. While other states are beginning to show signs of recovery, California remains mired in recession. Since January 1992, the United States has added 3 million new jobs. During this same time, California lost an additional 300,000 jobs.

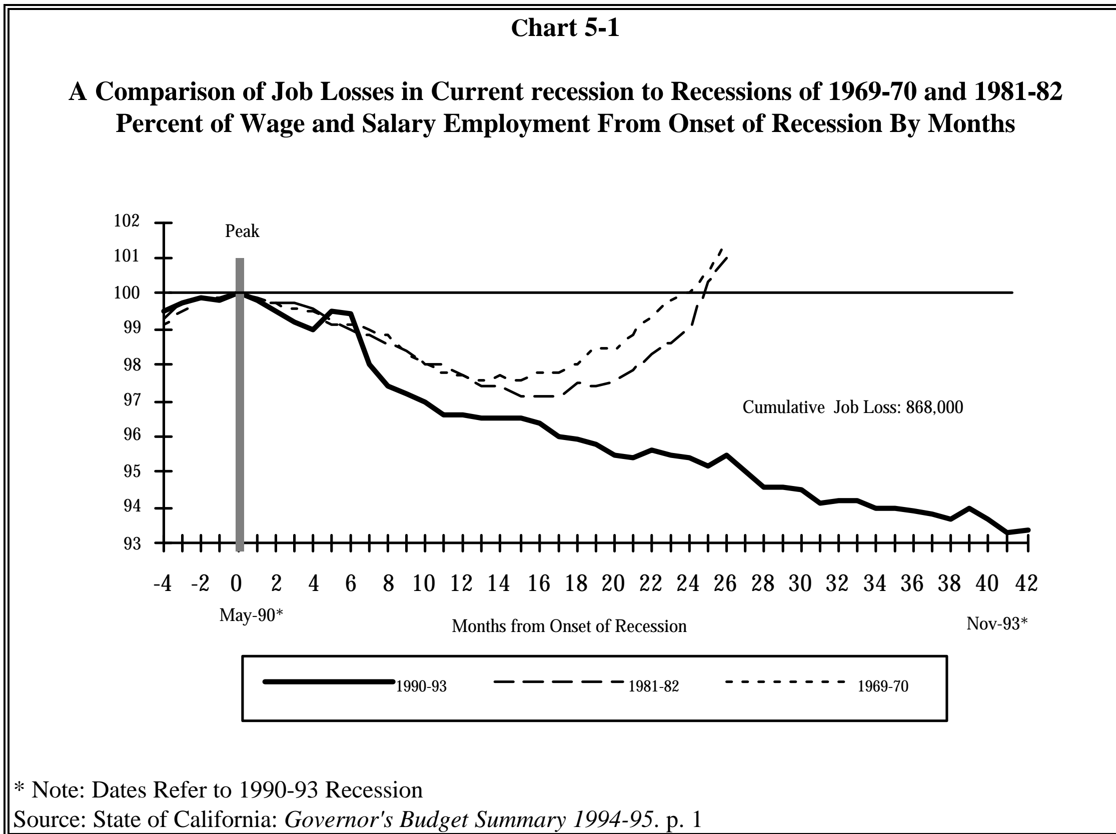
California's economy is in the midst of a major restructuring. Virtually no sector has escaped employment losses as part of this restructuring. The bulk of the job losses have occurred in three areas: manufacturing, wholesale and retail trade, and construction (see Chart 5-2). Unlike previous recessions, where workers were laid-off and then re-hired when factory orders returned to pre-recession levels, most of the job losses in this recession are permanent. Even in those sectors where demand for goods has strengthened, many businesses are extremely reluctant to hire back workers on a permanent basis, and consequently have relied to a great extent on increased overtime for workers.

Gross employment figures tend to mask changes that are occurring in job quality within the state. In many cases where new jobs have been created, average wages and benefits have generally been lower than the high wage and benefit jobs that have been eliminated from industries like aerospace and electronics.

By far, the largest factor in California's economic performance over the last several years has been the massive cuts in federal defense spending and California's disproportionate share of those cuts. Since 1988, the state has lost 162,000 aerospace manufacturing jobs representing 43 percent of the industry (see Chart 5-3). These losses have been mainly due to defense cuts. In addition, a significant proportion of the 72,000 jobs lost in the electronics industry can be traced to reductions in defense contracts which fell from a peak of $30 billion in the mid-1980s to $20 billion in 1992. Adjusted for inflation, contracts have been cut in half since 1984.

Chart 5-1

A Comparison of Job Losses in Current recession to Recessions of 1969-70 and 1981-82
Percent of Wage and Salary Employment From Onset of Recession By Months

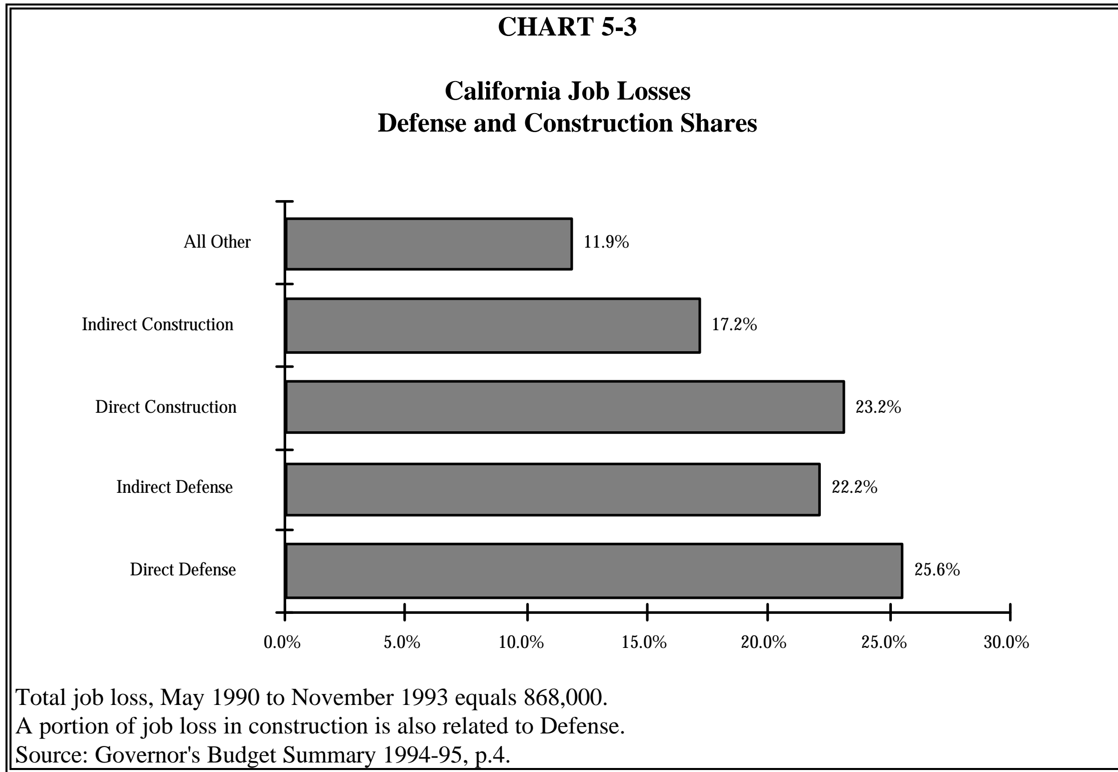


* Note: Dates Refer to 1990-93 Recession
Source: State of California: *Governor's Budget Summary 1994-95*. p. 1

Chart 5-2
Job Losses By Industry
May 1990 to November 1993

	Academic Year				
Budget/Source of Funds	1980-81	1987-88	1989-90	1991-92	1992-93
Student Budget	$7,293	$9,150	$9,330	$10,548	$11,104
Need-based Financial Support					
Scholarships and Grants	$2,862	$3,108	$3,463	$3,794	$3,835
Loans	$1,316	$1,753	$1,823	$2,193	$2,318
Work -Study	$433	$329	$312	$281	$305
Subtotal	$4,611	$5,190	$5,598	$6,268	$6,458
Family and Other Resources	$2,682	$3,960	$3,732	$4,280	$4,646
Family/Other as percent of Total Budget	36.8%	43.3%	40.0%	40.6%	41.8%

Source: Governor's Budget Summary 1993-94. p. 2.



Total job loss, May 1990 to November 1993 equals 868,000.
A portion of job loss in construction is also related to Defense.
Source: Governor's Budget Summary 1994-95, p.4.

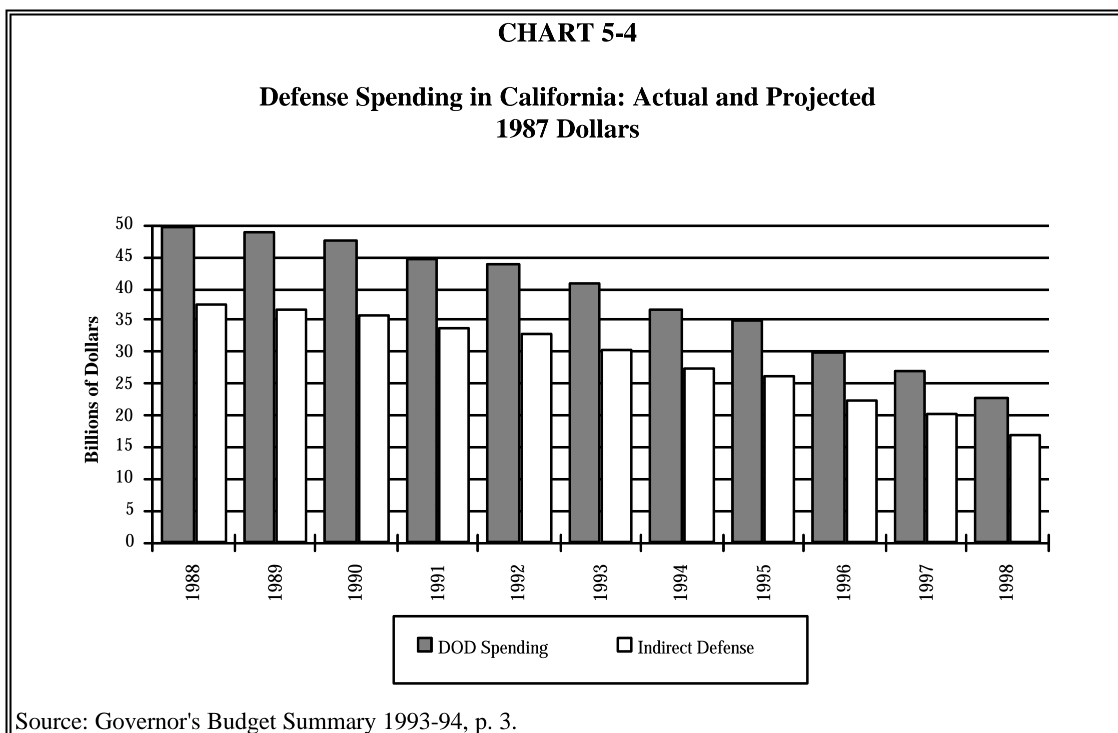
The Department of Defense has reduced its civilian payrolls in the State by 26,000, while military personnel have been cut by more than 35,000. California will bear 62 percent of nationwide job losses from base closings, including nearly 90 percent of the reductions in the 1993 round of announcements. The majority of the base closings will occur in the 1995-97 period and will hit the San Francisco and Monterey Bay areas especially hard.

Overall, defense spending in California has dropped by 20 percent in real terms, from a peak of over $50 billion in 1988 to about $40 billion in 1993 (expressed in constant 1987 dollars). Moreover, proposed future defense cuts are far larger than any since the end of World War II. As adopted by Congress in 1993, the five-year budget plan will, by 1998, cut real national defense outlays by 40 percent from peak 1987-88 levels. The cuts will fall disproportionately on equipment purchases, which are slated to drop twice as much as payroll costs. These cuts in high-tech equipment programs will hit California's aerospace and electronics industries especially hard. Roughly half of the State's 868,000 recession job losses can be traced to the direct and indirect effects of defense cuts. The direct and indirect effects of defense cuts account for at least 60 percent of the decline in real economic activity

With California singled out for the majority of base closure job losses, and given the substantial cuts in equipment purchases, it is likely that California will bear 30 to 33 percent of the cuts in U.S. defense spending. Compared to the nation's 40 percent cut in real defense outlays, California will see real spending slashed by as much as 60 percent by 1998. Defense spending in California , both direct and indirect, is expected to decline even further (see Chart 5-4). By 1998, direct spending by the Department of Defense in California is expected to be less than half of what it was in 1988. In 1988, DOD direct expenditures in California totaled $50 billion. By 1998, direct DOD expenditures are projected to fall to just under $25 billion.

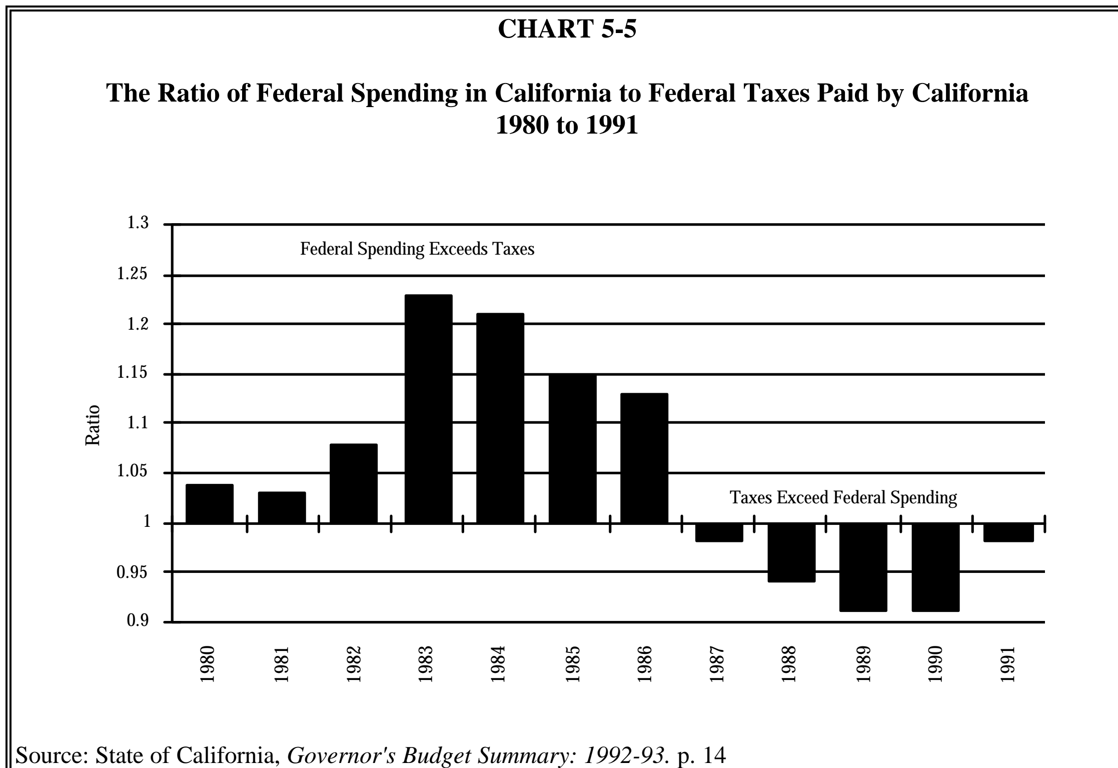
CHART 5-4

Defense Spending in California: Actual and Projected
1987 Dollars



Source: Governor's Budget Summary 1993-94, p. 3.

Federal policies are likely to exacerbate the deteriorating "balance of payments" between California and the U.S. government. Historically, California has received more in federal expenditures than Californians paid in federal taxes (see Chart 5-5). From a recent peak of $1.22 in spending for every $1 in federal taxes paid, by 1989 and 1990, California received only 91 cents for every dollar contributed to the federal coffers. However, as defense cuts began in the 1980s, California's payment surplus with the federal government decreased. Increasing defense cuts will surely exacerbate this dilemma. The mix of federal spending and tax policies is unlikely to improve California's prospects relative to the rest of the nation.



Source: State of California, *Governor's Budget Summary: 1992-93*. p. 14

Conclusion

It will take a very long time for the California economy to return to its pre-recession level. The recovery, which may already be underway, is very different from past cyclical recoveries. While construction has received a boost as a result of the Northridge earthquake, this will not be sufficient to revive the economy. Only through a long-term restructuring of the economy can California hope to return to its pre-recession prosperity.

The effect the continuing recession will have on higher education is significant. State revenues may begin to increase as the economy slowly climbs out of recession, but it will take a number of years before revenues reach pre-recession levels. Since the onset of the recession, state revenues for higher education have plummeted. At the same time, the demand upon the state budget by entitlement programs have increased. Even when state revenues return to pre-recession levels, there seems little hope for higher education to reclaim its share of state expenditures.

The California economy is not expected to create large numbers of high paying jobs in the next three to five years. The jobs which are created will be lower paying and offer fewer benefits than the jobs that have been lost. This will result in even fewer families who can afford the costs of a college education for their children. As we have demonstrated in Section II, there is a strong relationship between family income and the likelihood children will attend college.

Section VI

Managing New Undergraduate Enrollment

The prevailing assumptions on enrollment demand at the University of California for the future have been based almost exclusively upon demographic considerations. Certainly demographics play a key role, although it must be kept in mind that University enrollment projections based upon demographics at the end of the 1970's proved to be inaccurate and unreliable. Predictions of a sharp decline in undergraduate enrollments due to a decline in the number of high school graduates proved untrue. A rising participation-rate stimulated by shifts in the college-going population, rising prices at the University's major independent competitors, together with overt actions on the part of the newer campuses to increase undergraduate enrollments, resulted in a rise in University enrollments in the face of a reduced pool of high school graduates.

In this section we will catalogue the mechanisms available to manage new undergraduate enrollments at the University of California. There are four primary mechanisms which the University can use to control consumption, and to some degree, affect demand. The mechanisms include:

1. Eligibility Requirements
2. Selection Criteria
3. Outreach and Recruitment Efforts
4. Price and Financial Aid Policy

Eligibility Requirements

At the broadest level, the University can control enrollment consumption by expanding or contracting its eligibility criteria. The criteria, established under provisions of the Master Plan, are intended to result in a consistent eligibility rate of 12.5 percent for each year's class of high school

graduates.[37] No such target exists in relationship to community college transfer students, who qualify for University admission currently on the basis of their college grade point average and courses completed while enrolled in community college.[38]

While the University is charged with maintaining the eligibility criteria so that no more and no fewer than 12.5 percent of high school graduates are eligible for admission, the number of high school graduates potentially eligible for admission, including both fully eligible and potentially eligible students, has always exceeded the established threshold (see Table 6-1)[39].

TABLE 6-1

Estimated Eligibility Rates for the University of California 1955 to 1990

Year	Study Source	Fully Eligible	Potentially Eligible	Total
1955	Committee on the Restudy of Needs of California for Higher Education	NA	NA	15.0%
1961	Master Plan Technical Committee on Selection and Retention of Students	NA	NA	14.8%
1966	Coordinating Council for Higher Education	NA	NA	14.6%
1976	California Postsecondary Education Commission	NA	NA	14.8%
1983	California Postsecondary Education Commission	7.0%	6.2%	13.2%
1986	California Postsecondary Education Commission	9.1%	5.0%	14.1%
1990	California Postsecondary Education Commission	12.3%	6.5%	18.1%

Source: California Postsecondary Education Commission, "Eligibility of California's 1986 High School Graduates for Admission to its Public Universities." Commission Report 88-10, March 1988, p 19. California Postsecondary Education Commission, "Eligibility of California's 1990 High School Graduates for Admission to its Public Universities." Commission Report 92-14, June 1992, p 30.

[37]Under the provisions of the Master Plan, The Regents are vested with the authority to establish and modify the University's eligibility standards.
[38]Transfer applicants from Community College must have attained a minimum GPA of 2.4 while enrolled in college level courses. This GPA minimum was established following analysis which demonstrated that the GPA's of Community College transfer students were 0.4 points lower at the University. A student who earned a 2.4 GPA in Community College could be expected to earn a 2.0 GPA in University courses.
[39]"Fully Eligible" refers to those students who have met the three eligibility requirements: subject requirement, scholarship requirement, and examination requirement. "Potentially Eligible" refers to students who have met the subject and scholarship requirements but have not taken the SAT tests and hence have not met the examination requirement.

Rising eligibility rates, especially in 1983 and 1986 suggest that a portion of the participation-rate rise in the 1980s was facilitated by the expanded pool of fully eligible applicants. By adjustments to the eligibility criteria, the University should be able to depress or expand consumption proportional to the change in the number of high school graduates who meet the eligibility criteria.

The eligibility criteria for new freshmen are not easy to manipulate and cannot be controlled with precision. There are a number of reason for this. First, there is always some degree of uncertainty on the actual effects changes in eligibility requirements will produce. Second, some changes, such as changes in the subject requirement, often have no effect on eligibility-rates. In the case of the subject requirement, it has been found that most students simply complete the additional required course(s). Third, there is a long lead time required to give students adequate notice before change can occur. Finally, changes in high school eligibility requirements can be highly contentious. Changes in high school eligibility requirements affect various student populations differentially. Underrepresented populations have lower eligibility rates and changes in minimum eligibility requirements tend to affect them disproportionately. In addition, eligibility has been understood as an "entitlement." Although the Master Plan does not speak to eligibility as an entitlement, it has been generally understood as UC's obligation to enroll all eligible applicants who apply.[40] It would be much easier to lower the eligibility requirements (or allow the proportion of eligible high school student to increase naturally) than it would be to restrict eligibility. Although it should be pointed out that since current eligibility-rates exceed the Master Plan threshold, there are grounds for restricting eligibility to comply with the Master Plan directive.

Eligibility for Community College transfers is very different in both form and substance from eligibility for new freshmen. Unlike eligibility for high school students which is set at 12.5 percent, there is no fixed proportional eligibility target for community college transfers. While the transfer from Community College also is viewed as an entitlement, the lack of any fixed proportional target leaves certain points in this area unclear.[41] There is general, although not unanimous support among the faculty to revise the transfer requirements both to require certain course work that would set in place solid lower division preparation and to bring them better into line with campus practice.[42] There also is a question of equity between the very high eligibility requirements set for

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[40]The Master Plan states that UC should admit from "within" the top 12.5 percent.
[41]Eligibility for transfer students included a subject requirement in that consideration was given to their high school transcript and courses taken while enrolled in college.
[42]A number of internal UC studies have concluded that while many community college transfers perform well at the University, those who were ineligible for admission from high school and/or who have GPA's below 3.0, do not perform as well as "native" freshmen. Studies from the 1960s into the academic

new freshmen and the relatively lower requirements set for community college transfer students which might strengthen a case for changing transfer requirements.

Selection Criteria

Beyond the minimum eligibility standard which limits enrollment demand are campus selection criteria. At some campuses, such as Berkeley and UCLA, the minimum selection criteria are set much higher than the minimum eligibility criteria. At campuses such as Riverside, Santa Barbara, and Santa Cruz, the minimum selection criteria and minimum eligibility criteria are in greater concordance. The campuses use their selection criteria to manage demand, bringing consumption and capacity into equilibrium. The minimum selection criteria are set relative to the degree that demand exceeds capacity. The fact that minimum selection criteria are quite demanding at certain campuses and the level of competition for admission high means that students who feel strongly about admission to one or more campuses, but are not competitive in the applicant pool, may leave the system to enroll at another institutions if not admitted to their campus of choice. Thus, individual campus selection procedures act, along with eligibility criteria, to control consumption and inhibit demand.

Selection criteria are a flexible and efficient means to control consumption. Provided there is excess demand within the system (or at a particular campus), an easing of selection criteria will increase consumption. Similarly, raising minimum selection criteria will depress demand. Selection criteria are not without their drawbacks. Some portion of applicants who are not admitted will question either the criteria or the application of the criteria to their particular case. In addition, challenges to the University's affirmative action policies often get drawn into the discussion making the use of selection criteria to balance consumption and capacity a politically charged subject. Every campus, regardless of the absolute selectivity of their admission criteria, confronts these problems. Using selection criteria to depress consumption in the face of strong demand, will tend to accentuate such problems.

Outreach and Recruitment

The University currently fields from all campuses and from its central office programs for outreach and recruitment of new students. These include programs directed to specific groups of students by grade level, by ethnicity, by geographic location, and by academic achievement level. While

performance of community college transfers concluded that their GPA's at UC were, on average, 0.6 points lower than the GPA they earned in community college.

their effect cannot be documented precisely, it is reasonable to assume that they have a pronounced effect upon the quantity and quality of applications received and the rate at which admitted applicants enroll. These programs might be selectively extended or pruned so that contacts and services are made in certain targeted areas. One negative result of a decrease in efforts within this area would be to reduce overall public support for the University, since access to undergraduate programs, and information for gaining access, are powerful public assets. A reduction in outreach and recruitment also might affect affirmative action efforts, unless carefully and selectively applied. Finally, reduced outreach and recruitment efforts would probably result in a greater proportion of the higher academic ability students enrolling at UC comparable independent institutions.

Price and Financial Aid

Price and financial aid packages, which represent a form of "cost discounting," can have an effect on demand as well as capacity. A redistribution of freshmen demand away from those campuses located outside the major metropolitan areas, most notable at Santa Barbara and Santa Cruz, has already been detected. In addition, there appears to be a slight drop in college aspiration among high school graduates as measured by a smaller proportion of high school students taking standardized tests and a smaller proportion of high school graduates applying for admission to the University.[43] There are partial, but important data emerging which suggest that students enrolled at the University are moving more quickly through to graduation thereby reducing time-to-degree and more rapidly opening additional enrollment capacity[44]. To the degree that the University can adjust the costs to attend (including cost discounting financial aid) determines the degree to which price can be used to either increase or depress demand and consumption.

Alternative Admission Priorities and Programs

A variety of mechanisms exist within the admissions process for increasing available spaces for the top one-eighth of California high schools graduates and for eligible community college transfers.

[43]See Caloss, D. and Lee, J. "Estimating the Effects of Fee Increases on the Demand for Undergraduate Enrollment by New California Resident Freshmen: An Exploratory Analysis," University of California, Office of the President, Student Academic Services, October 1993.

[44]A comparison of total units attempted and completed by UC undergraduates between 1992 and 1993 indicates that UC undergraduates are attempting and completing more units. Time-to-degree measures at UCLA (which uses a retrospective analysis) indicate that the average number of quarters students were enrolled to graduate dropped from 13.44 for those graduating in 1989-90 to 13.32 for those graduating in 1991-92. There is general agreement that increasing costs to attend UC have served as a catalyst for this acceleration.

Some of these are: reduction or elimination of nonresident undergraduate enrollment and the elimination or reduction of lower division transfers and transfers at all levels from non-community college sources. In addition, the stringency of admission deadlines could be intensified for a minimal effect. All these options could have some effect on enrollments. For example, in Fall 1993, 4.1 percent of new freshmen and 4.3 percent of new transfer students were nonresidents (see Table 1-4). Although it should be noted that due to changes in policy on residency and increasing nonresident tuition, there may not be sufficient demand to support a large expansion of nonresident students. As noted in Section I, approximately 80 percent of transfer students are upper division students from community college. This proportion could be changed in order to manage enrollments from community college.

There are other admission alternatives that could be used to manage enrollments. Among them are the referral program and what is known as "deferral" or "alternative" admission offers. Currently demand at some campuses exceeds their enrollment capacity. Applicants who are denied admission by all the UC campuses where they applied are currently guaranteed admission at another campus which, following the deadline by which applicants must accept the University's offer of admission, has the capacity to accommodate them. This process is know as "referral." Since only a portion of the applicants who are offered referral take advantage of the University's offer of admission to another campus, consumption is considerably decreased. In effect, this permits the University to honor its pledge to admit all eligible applicants with very little risk of exceeding capacity.[45]

Deferral refers to Fall term applicants who are offered admission in either the Winter or Spring terms. Since students drop-out or graduate following each term, space opens up at each campus.[46] Deferred admission is one way campuses can more efficiently utilize existing capacity. Alternative admission programs are like deferrals in that students are offered admission at some later time. In this instance however, applicants are "guaranteed" admission following enrollment at a community college for an agreed upon time and following the successful completion of an agreed upon number of courses. Referral, Deferral, and alternative admission programs can provide some enrollment

[45]As an example of the minimal risk this involves, for Fall 1992, there were 1,966 freshmen applicants reviewed for referral. Of this group, 644 were invited to participate in the referral program. Only 89 eventually accepted referral and enrolled.

[46]In Fall 1993, 122 students across all the campuses participated in deferral programs. This was down significantly from the 650 who participated in Fall 1991.

flexibility for campuses, however, the magnitude of their impact is relatively constrained and their effects are diffused the longer they are in use.[47]

[47]The problem with these programs, from an enrollment management standpoint, is that while they allow a campus to accommodate a greater number of students in a given year, they necessarily reduce the number of students needed to replace enrolled students who do not persist or graduate in subsequent years. Hence the effects of these programs are short-lived.

Conclusion

This brief outline of the means available to manage new undergraduate enrollment demonstrates that there are a number of alternative available, short of changing the present nature of the University, to stimulate or depress demand as well as to increase or decrease consumption. The effects the various strategies can have on consumption range from marginal and temporary, as in the case of alternative admission offers, to significant and long-lasting, as in the case of changes to minimum eligibility requirements. Some alternatives may only be exercised by the campuses, as in the case of minimum admission criteria, while others can be undertaken at the systemwide level, as in the case of some outreach and recruitment efforts. Some alternatives will be highly contentious and disruptive to the University, as in the case of reducing admission by exception, while others would be less so, as in the case of a selected reduction in outreach and recruitment efforts.

Erratum

TABLE 1-6

A Comparison Between the Number of New Students Projected for Fall 2005 Under Various Estimates for Total High School Graduates/UC Participation Rates and Actual New Students Enrolled in Fall 1989 and Fall 1993
[Total Advanced Standing Transfer Students Held Constant at 9,864]

HS Graduate	Comparison	Freshmen Participation Rates						
Estimate	Fall Term	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%
DOF High	Fall 1993	7,793	5,978	4,163	2,349	534	-1,281	-3,095
	Fall 1989	6,919	5,104	3,289	1,475	-340	-2,155	-3,969
DOF Middle	Fall 1993	6,341	4,617	2,893	1,169	-555	-2,279	-4,003
	Fall 1989	5,467	3,743	2,019	295	-1,429	-3,153	-4,877
DOF Low	Fall 1993	4,889	3,256	1,623	-10	-1,644	-3,277	-4,910
	Fall 1989	4,015	2,382	749	-884	-2,518	-4,151	-5,784

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