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California Postsecondary Education Commission

Review of a Proposal to Establish a School of Law at the University of California, Irvine

Pursuant to Education Code Section 66903, the California Postsecondary Education Commission is charged with reviewing and commenting on the need for new academic programs at California’s public colleges and universities and making recommendations to the Governor and the Legislature.

Based on an extensive program review, the Commission finds that the University of California’s proposal to establish a school of law at the Irvine campus does not fully meet three of the Commission’s Guidelines for Approval of New Programs. Therefore, the Commission is unable to concur with this proposal.

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The Commission advises the Governor and Legislature on higher education policy and fiscal issues. Its primary focus is to ensure that the state’s educational resources are used effectively to provide Californians with postsecondary education opportunities. More information about the Commission is available at www.cpec.ca.gov.

Background

This report reviews a proposal by the University of California, Irvine to establish a school of law that would offer legal education programs leading to the Juris Doctor (J.D.) degree, the Master of Law (LL.M.) degree, and the Doctor of the Science of Law (J.S.D.) degree. The campus also intends to establish a select number of joint degree programs between the law school and relevant campus graduate and professional programs.

The proposal responds to a perceived need of the University to expand access to public legal education programs on a regional and statewide basis in order to increase the number of legal professionals qualified to practice law in California, and qualified to assume leadership roles in law, public service, government, and business. Presently, there is one public law school and ten private/independent law schools located in Southern California. These schools accounted for 53% of the graduates of California American Bar Association (ABA) schools who passed the bar examination in July 2005.

To enhance access to public legal education, the Irvine campus proposes to build a new facility, consisting of 92,000 assignable square feet, to eventually accommodate 600 students, of which 201 would be first-year students. The University believes that the proposed physical space would be sufficient to support research-related functions, faculty offices, student support activities, and a law library. Instructional costs are projected to total \$19.6 million annually, while capital costs are anticipated to total roughly \$70 million. The campus intends to fund at least half of the capital costs and a portion of the operational costs through private

resources, with the remainder coming from the State's capital outlay program, general fund FTES allocations, and student fee revenue.

Statutory and Administrative Requirements

Assembly Resolution 770, Statutes of 1974, established the California Postsecondary Education Commission as the statewide planning and coordinating agency for higher education, with major responsibility for academic and occupational program review. *Education Code Sections 66903 through 66904* express the intent of the Legislature that the Commission have the following specific academic and vocational program review responsibilities:

- Review and comment on the long-range plans developed by public higher education governing boards and make recommendations to the Governor and the Legislature.
- Review and comment on the need for new academic, vocational, and certificate programs proposed by the public higher education systems and make recommendations to the Governor and the Legislature.
- Evaluate and comment on the program review process of the public higher education systems.
- Identify societal educational needs and encourage institutional adaptability to change.
- Review periodically the availability of continuing education programs for adults and make appropriate recommendations.

In consultation with the systems, the Commission developed a set of principles to guide the program review process. The principles are intended to: (a) safeguard the state against inefficiencies in the allocation of state resources; (b) help ensure that new programs will meet student and societal needs; and (c) ensure that programs are well conceived and that they will have desired educational and social consequences. As defined in statute, the Commission's role in the review process is primarily advisory. However, in the case of joint doctoral programs involving public and private institutions, the Commission has approval authority.

The Commission's guidelines for reviewing new undergraduate and graduate programs include the following seven criteria:

- Societal Needs
- Student Demand
- Appropriateness to the Institutional and System Mission
- Number of Existing and Proposed Programs in the Field
- Total Costs of the Program
- Maintenance and Improvement of Quality
- Advancement of Knowledge

Recommendation

After an extensive review of all relevant materials and documents, the California Postsecondary Education Commission concludes that the UC Irvine proposal, at the present time, does not fully meet three of the seven Commission guidelines. Those three guidelines are related to (1) Societal Need, (2) Number of Existing Programs Currently in the Field, and (3) Total Costs of the Program.

Although the State could benefit from a higher proportion of law school graduates pursuing careers in public interest law, as outlined in the proposal, the Commission believes that there are cost-effective alternatives for addressing this problem other than establishing a new public law school.

Commission staff, therefore, recommends that the Commission not concur with the University of California, Irvine's proposal to establish a law school on that campus.

Analysis of the Proposal

This section provides a comprehensive analysis of the information contained in the University's proposal in relation to each specific review criterion outlined in the Commission's program review principles and guidelines.

Societal Needs and Institutional Capacity

Postsecondary education institutions bear a responsibility for preparing students to meet the State's workforce and knowledge needs. Workforce demand projections serve as one indication of the need for a proposed program. Although achieving and maintaining a perfect balance between supply and demand in any given career field is impossible, it is important nevertheless that the number of persons trained in a field and the number of job openings in that field remain in reasonable balance.

Introduction

A public university proposing a new degree program must provide sufficient empirical information confirming a societal need to expand an academic or professional degree program. The Commission carefully reviews information contained in the proposal regarding the level of instructional and physical capacity deemed necessary to meet societal needs in the most cost-effective manner possible so that California taxpayers are not unduly burdened. The principal evaluative question considered by the Commission is whether or not the current annual increases in *high-quality* law school degree production will be sufficient to meet California's workforce needs over the next ten years in the areas of private, business, government, and public interest/advocacy law services. (The Commission recognizes that legal professionals support other occupational and industry areas, however, this proposal addresses only the areas mentioned here.) The UC proposal asserts that a new public law school would address four critical societal needs, among others.

1. Analysis of Need Regarding the Quality of Law School Degree Production

The proposal asserts that because the three UC law schools (excluding Hastings) are operating at maximum capacity in terms of physical space and the number of instructional faculty, a new public law school is needed so that as California's population and economy expand, the current ratio of private to public law schools will remain reasonably balanced. Fundamental to this argument is the assertion that aside from the Stanford Law School and the USC School of Law, the quality of UC law school instruction is generally far superior to the quality of instruction offered by the other independent law schools. Without question, UC law schools are central to California's ability to deliver an exemplary level of legal education to its residents. The quality of UC law schools is evident by: (a) high admission selectivity; (b) a highly acclaimed visionary law school dean; (c) exceptionally talented faculty; (d) first-time California bar-passage rates that exceed the statewide July 2005 mean rate of 64%; and (e) overall job placement rates generally in excess of 90%.

In reviewing the attributes of the state's 14 ABA-accredited independent law schools, the Commission found at least seven, in addition to Stanford and the USC School of Law, that provide California resi-

dents with an exceptionally high level of legal instruction and public service. Each of these law schools compares favorably with respect to the dimensions of quality specified above. These schools are Loyola Law School, McGeorge School of Law, Pepperdine University School of Law, Santa Clara University School of Law, University of San Francisco School of Law, Southwestern School of Law, and the University of San Diego School of Law. Two of these independent schools post bar-passage rates that exceeded the 2005 bar-passage rate for one of the UC law schools.

2. Analysis of Need Regarding Location of a New Public Law School

The proposal discusses the need to establish an additional public law school in Southern California so that promising prospective law students of the region will have greater access to public legal training and instruction at a more affordable cost than that offered by independent law schools located in the area. The proposal claims that a UC Irvine law school would be positioned to meet emerging regional industry needs in the area of *patent law, intellectual property law, international law, environmental law, and public interest law*.

It is recognized that UC law schools are nationally-known schools that draw from both national and statewide applicant pools, much more so than from a regional pool. The proposal did not provide any evidence indicating that Southern California applicants are in any way disadvantaged in the selection pool at northern California public law schools. More specifically, such information would need to demonstrate that the probability of a resident of Southern California being admitted to a northern California public law school is statistically lower than the probability of an equally qualified northern California applicant.

With regard to Southern California regional industry needs, the proposal included data that highlight a strong economic outlook for Orange County, where the UC Irvine Law School would be located. It is asserted that the dynamic regional economy, which is built in part on emerging technologies and globalization, will create opportunities for interaction between the law school and the business-industry community, and that the strong economy will provide employment opportunities for graduates of the law school. The following statistics were included in the proposal:

- Orange County's gross metro product (GMP) grew faster between 2002 and 2003 than any of the other top-20 California metro economies and the growth was the eleventh largest in the U.S.
- Exports from Orange County were \$14.9 billion in 2004, an increase of more than \$3 billion from the previous year.

Commission staff does not dispute the data cited regarding the economic outlook for Orange County. Recent findings from a RAND study (2003) noted that demand for legal services is associated with both population growth and economic productivity and expansion. It is reasonable to assume, therefore, that the labor market demand for legal professions will likely remain strong throughout the decade.

With regard to supply, UC Irvine's case for a new public law school might have been stronger if it had developed evidence of an inability of existing law schools to meet regional needs. UC Irvine could have held supply-demand discussions with the public and independent law schools, which include the UCLA Law School, Pepperdine Law School, Southwestern Law School, Loyola Law School, University of Southern California School of Law, and Chapman University School of Law, to assess their capacity to meet supply needs. Absent such discussions, the Commission has no basis for concluding that the UC Irvine Law School would meet key regional needs not currently being addressed by the combination of public and private law schools located in the region. Such a discussion would have been beneficial, given a key finding of the 2003 RAND study that "the number of bar-certified lawyers is likely to keep

pace with or exceed the growth in demand between now and 2015, for the state as a whole and for each region in the state as well.”

Display 1 shows that the projections of supply for the state and for the regions comprising Southern California will likely be sufficient for meeting demand through year 2015. The technical documentation explaining these projections can be found in Appendix A.

DISPLAY 1 RAND Study of Projected Supply and Demand of Attorneys in California, by Region, 2015

Region	Supply Indicator	Demand Indicator	
	Projected Bar Membership (Total)	Projected Employment (Method 1)	Projected Employment (Method 2)
Los Angeles	73,200	36,900	42,800
Orange County	19,400	11,400	13,900
Inland Empire	6,300	6,100	6,400
San Diego	19,400	12,800	14,900
Santa Barbara	6,300	9,500	10,300
San Joaquin Valley	7,200	5,700	5,800
Sacramento Valley	14,200	21,000	23,900
Bay Area	67,000	51,200	57,800
Residual	2,700	1,900	1,600
Out-of-state	39,000		
California	254,700	156,500	177,400

Commission staff is cognizant of an important cautionary comment expressed by RAND regarding the interpretation of its forecast. RAND noted that projections about future supply and demand in any type of labor market is a difficult task because it is not possible to observe supply and demand directly. That is, “the number of lawyers qualified to practice law and the number currently employed can be observed, but these observed quantities do not represent supply and demand, per se, but rather the choices of individuals and employers that result from the interaction of the forces governing supply and demand in the labor market.” To the extent that the relation between demand for legal services in any given year and selected demographic and economic factors in any given year remains reasonably reliable over the projection period, the projections developed by RAND provide useful information and give a general indication of the direction in which supply and demand are likely to be moving. If UC Irvine disagrees with the findings of the RAND report, the University might consider collaborating with the public and private law schools in Orange and Los Angeles Counties to develop an alternative regional demand and supply projection forecast.

3. Analysis of Need Regarding Affordability

Current student registration and related fees at UC law schools average about \$25,000 per year, while fees average about \$30,000 per year among all bar-certified independent law schools, excluding Stanford and USC. The \$5,000 difference in fees means that UC law school fees are within 83% of student fees of all private law schools except Stanford and USC. The difference in annual average tuition fees between the UC law schools and the seven comparable independent law schools is about \$8,000, a total of \$24,000 over a three-year period. It should be noted that with the exception of public interest law and

government services law, the average starting salary for law school graduates is approaching \$90,000, which reflects an economically-sound return-on-investment for highly qualified prospective California residents who elect to enroll in those private law schools.

Commission staff recognizes that the high cost of tuition at the USC and Stanford law schools, which averages about \$37,000, precludes some promising students from considering these schools, even with the loans and scholarships made available to them. However, the combination of existing public law schools and comparable independent law schools collectively offer a reasonable level of access for students seeking a high quality legal education with annual tuition costs of less than \$37,000. All selective California law schools tend to admit a relatively small entering first-year class; hence some highly deserving students might have to pursue other options. Currently about 30% of the applicants that are admitted to UC law schools accept the offer and enroll, so it is possible that many highly qualified students might choose to pay higher tuition for the opportunity to attend a private law school.

4. Analysis of Need Regarding Public Interest Lawyers

Presently, less than 15% of law school graduates pursue careers in government, legal services, or public interest advocacy. The UC Irvine proposal emphasizes the school's intention to graduate students who pursue careers in public interest law, an area of law that has a well documented shortage. The proposal outlines a curriculum-based method for achieving this goal, in addition to implementing a program similar to a UC Irvine Medical School program, which functions to recruit students who have an interest in serving underrepresented populations. The proposal also expresses intent to develop a loan repayment program for students who pursue public interest careers.

Commission staff conducted a content analysis of the brochures of all UC law schools and found that each has a comprehensive public interest law option, complete with internships for second- and third-year students. All seven comparable independent law schools noted that they also offer public interest law programs. Thus, the small percentage of law graduates entering public service does not appear to be the result of limited access to public interest law programs. Rather, anecdotal information suggests that the cost of pursuing a law degree at private and public schools, coupled with low average starting salaries for public interest positions, precludes many interested students from selecting public interest law as a viable career option that would yield an adequate return on investment. As an example, the UC Davis Law School notes that its law students should expect to incur an average cost of attendance—including student fees, books, room and board—in excess of \$100,000 over a three-year period. The average starting salary for the 2004 UC Davis Law School graduates who elected public interest careers was \$43,100, compared with a starting salary of \$88,800 for its 2004 law school graduates who opted for private practice.

Commission staff does not believe that establishing a new law school in Southern California would substantially increase the number of public interest lawyers in California. What appears to be needed are more viable loan forgiveness and incentive programs along with increases in the average starting salaries for government legal services and public interest advocacy positions. The Commission recommends funding the *Public Interest Loan Repayment Program*, which was established by Assembly Bill 935 (Chapter 881, Statutes of 2001). That legislation provides for a loan repayment program for licensed attorneys that practice or agree to practice public interest law. The program, administered by the California Student Aid Commission, has never been funded.

Student Demand

Within reasonable limits, students should have the opportunity to enroll in programs of study for which they are interested in and for which they are qualified. Therefore, student demand for programs, indi-

cated primarily by current and projected enrollments, is an important consideration in determining need for a new program.

DISPLAY 2 Projected UC Irvine Annual Enrollments Fall 2015 as a Percentage of Total UC Law School Enrollments

Campus	First-Year Students		Total	
	Number	Percentage	Number	Percentage
UC Berkeley	264	27.0	826	28.1
UC Davis	194	19.8	576	19.6
UCLA	320	32.7	933	31.8
UC Irvine (Projected)	200	20.4	600	20.4
UC Total	978	100.0	2,935	100.0

The UC Irvine proposal estimates a cost of approximately \$70 million in capital outlay funds to build a law school that would be adequate to serve about 600 students annually. In fall 2005, UC law schools served 2,335 students annually, of which 778 (33.3%) were first-year students. With the addition of the proposed UC Irvine Law School, UC annual enrollments would total 2,935, of which 978 would be first-year students.

It seems reasonable to Commission staff that the number of students currently served by the Davis campus would be slightly lower than the projected number of students served by the proposed Irvine law school, with the Berkeley and UCLA campuses continuing to account for a larger proportion of UC legal education. As noted in the proposal, the UC Irvine Law School is not likely to experience difficulty in meeting its enrollment targets, given that UC law schools tend to be highly selective, offering admission to fewer than 16% of their law school applicants.

Appropriateness to Institutional Mission

Programs offered by a public institution within a given system must comply with the delineation of function for that system, as set forth in the California Master Plan for Higher Education. Proposed new programs must also be consistent with the institution’s own statement of mission and must be approved by the system’s statewide governing body.

The California Master Plan for Higher Education accords the University of California exclusive public responsibility for professional education in law, medicine, dentistry, and veterinary medicine. Thus, the establishment of a UC Irvine law school is clearly consistent with the Master Plan for Higher Education, given a demonstrated need. The proposal notes that a law school was designated in the original layout for the Irvine campus by former UC President, Clark Kerr. In 1965, founding Chancellor Dan Aldrich described a law school as part of a long-range vision for the Irvine campus. Presently, establishing a public law school is the top program priority for the campus, as identified in Appendix B, which shows the most recent long-range plan for new academic programs for UC Irvine. Although the 2006 proposal for an Irvine law school has not been considered by the UC Regents as of the writing of this report, it has the support of the UC Office of the President. Shown below is an excerpt from a UC Irvine Academic Senate Newsletter, dated January 10, 2005, which recalls the history of the movement to bring a law school to the Irvine campus.

The idea of creating a School of Law at the University of California, Irvine, is, as some report, “as old as the campus itself.” In a mid-1960s videotaped tour of the campus, Chancellor Dan

Aldrich points out the future sites for professional schools, including a school of law. . . Several task forces were formed, with members from the Senate and from the legal community. In 1967, the Senate Advisory Committee on Preliminary Planning for a Law School met; in the late 1970s a group of UCI faculty pursued the idea; in November 1988 the Committee on Planning and Budget discussed bridging areas for additional extended consideration, including a law school; and in November 1989 the Senate appointed a Task Force to Study the Feasibility of a Law School at UCI. In June 1990, the Representative Assembly approved the Task Force's recommendation to establish a law school at UCI. President Gardner asked Chancellor Peltason to hold the proposal because of budgetary constraints facing the whole UC system; Chancellor Peltason agreed, with the understanding that UCI would take up the issue again when the budget outlook improved. In anticipation of a formal submittal in the future, in 1991-92, the UCI Law School Founders' Committee was formed, composed of a distinguished group of judges, lawyers, and others interested in a UCI law school. The Committee acknowledged a pledge of \$1 million for the anticipated school.

The Number of Existing and Proposed Programs in the Field

An inventory of existing and proposed programs provides an initial indication of the extent to which apparent duplication or undue proliferation of programs exists, both within and among the higher education systems. However, the number of programs alone cannot be regarded as an indication of unnecessary duplication. This is because (a) programs with similar titles may have varying course objectives or content, (b) there may be a demonstrated need for the program in a particular region of the state, or (c) the program might be needed for an institution to achieve academic comparability within a given system.

Institutional collaboration in program planning is desirable so that the combination of public and independent programs meet the state's educational and training needs in the most cost-effective manner possible. The proposal provided no evidence that UC Irvine had consulted with independent law schools in the region to determine the extent to which the current level of law school degree production is not meeting statewide and regional employment needs in key areas, including *patent law, intellectual property law, international law, and environmental law*. Absent projection data to the contrary, the Commission must rely on the 2003 RAND study that indicated that the current level of law school degree production is adequate to meet overall statewide and regional labor market and industry needs through year 2015.

Commission staff recognizes that a UC Irvine law school has been part of the campus academic plan since it was established in 1964. Commission staff is also aware that UC Irvine executives believe that a law school, along with the existing medical school, is needed for the Irvine campus to reach a level of national prominence, consistent with other nationally recognized universities that have both law and medical schools. However, within the UC system, the concept of *comparability* has always been more of a concern at the undergraduate level than at the graduate level. That is, as UC campuses have developed over the past century, there has been a strategic effort to develop and expand undergraduate academic programs so that prospective California high school graduates that place within the top 12.5% of their respective class would receive a comparable level of undergraduate instruction, regardless of the specific UC campus they might elect to attend. The Commission has supported such efforts through its program review process and its statewide planning and coordinating responsibilities.

The development of UC graduate programs has followed a somewhat different path. During the early years of development, UC Berkeley graduate programs emerged to meet state and national needs in agriculture and mining prior to the turn of the century. The UCLA campus was established in 1919 principally as an undergraduate institution, with no immediate goals to offer graduate instruction. It was only

after the emergence of clear, demonstrated state and national needs that graduate programs began to emerge at the UCLA campus.

The graduate plans of the University of California continue to be informed by the research and development needs of the state and nation, and by the labor market and industry needs of the state. There is no evidence that UC system-wide officials and the UC Board of Regents would ever conclude that every UC campus should establish a law school and a medical school in order to achieve comparability in graduate program offerings, especially in the absence of clearly identified state needs. At the graduate level, *program comparability* should be considered when there is a perceived need to expand an existing program. For example, several years ago the Commission concurred with the plans of UC Davis to expand and reconstitute its Division of Education as a School of Education to meet emerging regional educational needs and to achieve program comparability with other UC Education Schools. Given these observations, and the analysis contained in this section, the Commission finds that the UC Irvine proposal does not fully meet the program review criteria regarding *institutional collaboration* and *unnecessary program duplication*.

Total Costs of the Program

The relative costs of a program, when compared with the costs of other programs in the same area, constitute another criterion in the Commission's program review process. Included in the consideration of costs are the number of new faculty required based on desired student-faculty ratios, as well as costs associated with equipment, library resources, and facilities necessary to deliver the program. For a new program, it is necessary to know the source of the funds required for program delivery, both initially and in the long run.

This criterion requires that a program proposal clearly identify all immediate and long-term costs. In the long-term, UC Irvine proposes to build a new facility, consisting of 92,000 assignable square feet, to eventually accommodate about 600 students, of which 201 would be first-year students. The University believes that the proposed physical space would be sufficient to support research-related functions, faculty offices, student support activities, and a law library. Capital costs in the long-term are estimated at about \$70 million. UC Irvine intends to raise half of the capital costs through private sources, with the remainder derived through the normal competitive process for state capital outlay funds.

Instructional costs are projected to total \$19.6 million annually. A portion of the operational costs would be obtained from private resources, with the remainder coming from general fund FTES allocations, student fee revenue, and student professional fee revenue. The proposed law school, if approved, anticipates \$4.6 million in state funds, based on projected state funding for enrollment growth. The proposal notes that this figure would rise to \$6 million annually, based on the 2006-07 agreed-upon marginal cost of \$9,900 per full-time equivalent student. Based on 2005-06 student fee levels, the proposal notes that the law school would generate \$3.7 million in educational and registration fees and \$9.5 million in professional school fees. Approximately one-third of the student fee revenue, or about \$4.2 million, would be set aside for student financial support.

Commission staff found that the proposal contains sufficient information describing many of the fund sources required for operating a school of law. However, a number of questions remain unanswered. Principally, the proposal notes that in the first year of development, UC Irvine intends to lease instructional space in the amount of about \$438,750, with the estimate increasing to \$1.7 million in year three. It is unclear why the lease dollar amount increases by nearly 300% over a three-year period. The proposal notes that no state funds would be involved, but it is unclear on the precise source of funding. Second, the Commission has recently received conflicting information on the capital costs expected to be funded from the state. At this point, it is unclear what the anticipated state obligation might be regarding capital costs. Given these unanswered questions, the Commission finds that the information

contained in the proposal does not completely satisfy the program review criterion regarding anticipated costs.

The Maintenance and Improvement of Quality

Protecting the public interest and trust requires that educational programs at all levels be high quality. Although the primary responsibility for the quality of programs rests with the institution and its system, the Commission, for its part, considers pertinent information to verify that high standards have been established for the operation and evaluation of the program.

Commission staff recognizes a number of dimensions of quality that tend to distinguish UC law schools and numerous California private law schools. Such schools are characterized by: (a) high admission selectivity; (b) a highly acclaimed visionary law school dean; (c) exceptionally talented faculty; (d) first-time California bar-passage rates that exceed the statewide July 2005 mean rate of 64%; and (e) overall job placement rates generally in excess of 90%.

Commission staff finds that considerable thought and effort has been devoted to the development of the proposed UC Irvine law school curricula. Similar to the existing UC law schools, UC Irvine intends to establish a number of interdisciplinary law programs, so its law students will have a rich opportunity to combine the study of law with the scholarly study of another substantive academic area. An additional feature is that UC Irvine law school students would have an opportunity to pursue legal education in a public research university ranked nationally within the top ten public research universities according to *U.S. News and World Report*. This ranking is tied in part to the campus faculty that includes three Nobel laureates, two recipients of the National Academy of Engineering, and five members of the National Academy of Sciences.

The Advancement of Knowledge

The program review process encourages the growth and development of intellectual and creative scholarship. When the advancement of knowledge seems to require establishing programs in new disciplines or in new combinations of existing disciplines, such considerations as costs, student demand, or employment opportunities may become secondary.

The opportunity for prospective law students to study on a campus that includes Nobel laureates and members of the Academy of Sciences will undoubtedly stimulate intellectual scholarship and curiosity. The proposed UC Irvine Law School is intended to challenge students to think more deeply and critically about a number of complex social issues regarding equal opportunity, racial and national identity, minority rights, civil and individual rights, and social justice. The proposed law school would provide opportunities for students to develop an in-depth understanding of complex issues related to *patent law, intellectual property law, international law, and administrative law*.

Appendix A Methodology Used by RAND to Derive Supply and Demand Projections for California Attorneys, 1999 to 2015

This appendix describes the forecasting methods employed in Section 4. We also, when appropriate, evaluate model fit and do sensitivity analyses based on alternative assumptions. The first part presents the forecasting methodology used to project active and total California Bar members. The second part overviews the projections of lawyer employment.

Forecasting California Bar Members (Supply)

We tested two forecasting methods. The first is Brown's linear exponential smoothing technique that is appropriate whenever there is a growth pattern or trend in time series observations (Bails and Peppers, 1982). The equations for this model are:

$$S_t^1 = \alpha Y_t + (1 - \alpha)S_{t-1}^1 \quad (\text{Eq. 1})$$

$$S_t^2 = \alpha S_t^1 + (1 - \alpha)S_{t-1}^2 \quad (\text{Eq. 2}),$$

where Y_t is the actual number of attorneys in year t , α is a smoothing constant that determines the extent to which the most recent observations of active or total Bar members are weighted more heavily than earlier observations, and S_t^1 is referred to as the single-smoothed statistic and S_t^2 to the double-smoothed statistic. The single- and double-smoothed statistics are weighted averages of $Y_t, Y_{t-1}, Y_{t-2}, \dots, Y_1$. The smoothing constant can range from .1 to .9. When $\alpha = .1$, the forecast behaves like a moving average model where past observations are weighted about equally with current observations. When $\alpha = .9$, the exponential model responds quickly to changes in the data pattern; i.e., the most recent observations most heavily influence projections. The appropriate value for the smoothing constant is empirically determined by evaluating the resulting fit of models after inserting different values of α .

Additional formulas used in Brown's linear exponential smoothing technique are:

$$\hat{Y}_{t+T} = a_t + b_t T \quad (\text{Eq. 3}),$$

where T is the number of time periods from the present period, t , to the future period being forecasted and \hat{Y} is the projected number of Bar members. The remaining terms provide the intercept and the slope for the formula in equation 3 and are defined as:

$$a_t = 2S_t^1 - S_t^2 \quad (\text{Eq. 4})$$

$$b_t = \frac{\alpha}{1 - \alpha} (S_t^1 - S_t^2) \quad (\text{Eq. 5}).$$

Tables B.1 and B.2 present the calculations used to forecast active and total California Bar members based on membership counts supplied by the California Bar Association. The projections are rounded off to reflect the lack of certainty in these numbers.

Because of potential nonlinear trends in active and total Bar members, we also applied a triple exponential smoothing technique (Bails and Peppers, 1982). An additional term can be added to Equation 1 to allow for a time series that is either increasing or decreasing over time.

To select between the Brown's and the triple exponential technique, we did simulations of the historical data. This simulation acts as if the values of the historical data are unknown. Then each forecasting technique is used to produce \hat{Y}_t of the historical data and compare these estimates with the observed values. The difference between \hat{Y}_t and the observed count is calculated (labeled Error). The square of the Errors for each year are summed and the mean calculated (yielding the mean square error, or MSE). This exercise also allowed us to identify the appropriate α , since α can vary from .1 to .9. The results of this exercise for active and total attorneys are presented in Table B.3. For example, the best fit of Brown's forecasting technique to the historical data on active California Bar members is associated with $\alpha = .64$ (MSE = 3,320,043). This fit is better than the best fit obtained when using the triple exponential forecasting technique (MSE = 6,181,394 when $\alpha = .41$). Therefore, we selected Brown's technique for these forecasts. Using the same process, Brown's technique is also selected for the forecast of total Bar members. For both active and total Bar members, the smoothing constant based on historical data is fairly high.

The 1990s witnessed many economic changes in California, raising the possibility that the trend in lawyers entering and/or exiting the pool of California Bar members may have changed in the last decade, and that the projections may not reflect these changes. To confirm that our results are robust, we carried out the same forecast starting with a more limited time frame as the base period. Table B.4 presents results restricted to 1990–1998 California Bar Association numbers of total Bar members. The projected number of lawyers in 2015 based on this projection is 257,200 versus 254,700 in the projection based on data since 1970. These projections are statistically indistinguishable and show that the net effect of entrances and exits from the pool of California Bar members has not changed substantially in the past decade. This is not a surprising result since, as described above, the smoothing constant is fairly high in both sets of projections and thus heavily weights the most recent observations.

As explained in the Section 4 text, for the 2015 regional breakdown of total and active Bar members, we applied the 1998 regional breakdown of total and active Bar members to the California total estimates and forecasts.

Forecasting Employment of Lawyers in California (Demand)

Two methods are used to forecast employment of lawyers in California. The first method is based entirely on the ratio of lawyers to population. The second method relies on a combination of population and the industry mix of local economies.

Method 1: In this method, we assume that the current number of attorneys per capita (as obtained in the CPS) in California and by region in 1998 remains constant through 2015. This ratio is applied to the statewide and region-specific projected population in 2015 to derive the projected number of attorneys that will be employed in 2015. Note that this method assumes that per-capita employment of lawyers statewide is constant across regions since, by definition, lawyer employment is determined entirely by population. Table B.5 shows the input and results of this method.

Method 2: The second method assumes that the demand for lawyers is a function of the changes in industry mix and population. Table B.6 shows the input and results of this method by region. Column (1) gives the 1998 EDD estimated employment by industry. We rolled up the EDD county-level estimates to get estimates by regions (as defined throughout the document). Column (2) provides the projected annual increase in employment for each industry. The projected increase is based on the annual rate of change obtained from the 1998 estimate and the 2002 EDD projected employment (see Appendix A for description of EDD projections). We assume that this annual rate of change applies through 2015.

Column (3) presents projected employment in 2015 by major industry. It is the product of the EDD estimated 1998 employment (column 1) and $[1 + \text{industry-specific projected annual rate of change in employment (column 2)}]$ to the seventeenth power (i.e., $(\text{column 1}) \times [1 + (\text{column 2})]^{17}$). The power represents the number of years in the future being projected forward ($2015 - 1998 = 17$).

Column (4) shows the lawyers per employee at the national level (averaged across the 1997 and 1998 CPS). To make the rates applicable to the EDD estimates and projections, self-employed persons are excluded from the denominator, but self-employed lawyers are included in the numerator. The rates reflect the number of self-employed and non-self-employed lawyers per non-self-employed worker by industry.

The projected number of lawyers employed by industry (5) is the product of columns (3) and (4). The total number of lawyers that are predicted to be employed in each region is the sum of lawyer employment across industries. The sum is multiplied by an adjustment factor. The adjustment factor is based on the assumption that each region has a specific level of employment of lawyers per employee that will remain constant from the present through 2015. An adjustment factor less than 1.0 indicates fewer lawyers than predicted by the model are employed in a region. An adjustment factor equal to 1.0 indicates that the model predicts the exact number of employed lawyers in a region in 1998. An adjustment factor greater than 1.0 means that there is a higher level of employment in the region than predicted by the model. The adjustment factor is the ratio of the number of employed lawyers in a region in 1998 (based on the CPS) divided by the number of lawyers the projection method predicts would have been employed in 1998. The three

regions for which the employment based model is greater than number of attorneys available in the region, Santa Barbara, Sacramento Valley, and the Bay Area have adjustment factors significantly above 1.0 (1.36, 1.56, and 1.30, respectively). The two regions with substantially lower levels of lawyer employment relative to that predicted by industry-mix and population are the Inland Empire, San Joaquin Valley, and Residual Regions (with adjustment factors of 0.43, 0.37, and 0.31, respectively). In other words, these regions employ fewer lawyers than predicted by the industry-based forecasting method.

These adjustment factors can change over time thus introducing possible (likely) error in the projections. In analyses not presented here, we found that the adjustment factors were stable over the past several years but we expect that they will change over longer periods of time. How they will change we cannot predict since unknown factors such as changes in the way that the profession is practiced and changes within specific industries will influence the outcomes.

Table B.1

Result of Brown's Linear Exponential Smoothing to All California State Bar Members

Year	Period	All Bar members (Y _t)	S _t ¹	S _t ²	a _t	b _t	Ŷ _{t+T}	Error
1970	1	28,083	28,597 ^a	28,597 ^a				
1971	2	29,111	28,977	28,878	29,076	281		
1972	3	32,956	31,922	31,130	32,713	2,252	29,400	3,556
1973	4	38,675	36,919	35,414	38,424	4,284	35,000	3,675
1974	5	42,235	40,853	39,439	42,267	4,025	42,700	(465)
1975	6	46,596	45,103	43,630	46,575	4,191	46,300	296
1976	7	52,658	50,694	48,857	52,530	5,227	50,800	1,858
1977	8	57,505	55,734	53,946	57,522	5,089	57,800	(295)
1978	9	62,652	60,853	59,057	62,649	5,111	62,600	52
1979	10	70,244	67,802	65,529	70,076	6,471	67,800	2,444
1980	11	75,247	73,311	71,288	75,335	5,759	76,500	(1,253)
1981	12	80,215	78,420	76,566	80,274	5,278	81,100	(885)
1982	13	84,643	83,025	81,346	84,704	4,780	85,600	(957)
1983	14	89,367	87,718	86,061	89,375	4,716	89,500	(133)
1984	15	95,051	93,144	91,303	94,986	5,242	94,100	951
1985	16	98,956	97,445	95,848	99,042	4,545	100,200	(1,244)
1986	17	101,995	100,812	99,521	102,103	3,673	103,600	(1,605)
1987	18	106,932	105,341	103,828	106,854	4,306	105,800	1,132
1988	19	111,942	110,226	108,562	111,889	4,734	111,200	742
1989	20	117,161	115,358	113,591	117,125	5,029	116,600	561
1990	21	125,863	123,132	120,651	125,612	7,060	122,200	3,663
1991	22	129,550	127,881	126,001	129,761	5,350	132,700	(3,150)
1992	23	134,983	133,137	131,281	134,992	5,280	135,100	(117)
1993	24	139,023	137,493	135,878	139,107	4,596	140,300	(1,277)
1994	25	144,672	142,805	141,004	144,607	5,127	143,700	972
1995	26	149,460	147,730	145,981	149,478	4,977	149,700	(240)
1996	27	154,547	152,775	151,008	154,541	5,027	154,500	47
1997	28	159,571	157,804	156,037	159,571	5,029	159,600	(29)
1998	29	165,046	163,163	161,310	165,016	5,273	164,600	446
2015	46						254,700	

^aThis value computed as (28,083+29,111)/2 = 28,597. We experimented with different values of α to identify the value that provides the lowest Mean Squared Error (MSE). These results use $\alpha = 0.74$. Note: Total Bar member numbers from 1970–1998 provided by California Bar Association. Eqs. 1–5 in Appendix B describe how S_t^1 , S_t^2 , a_t , b_t and \hat{Y}_{t+T} are computed. These parameters are rounded off to the nearest whole number. The 2015 projection is calculated as $\hat{Y}_{t+T} = a_t + b_t T$: $254,700 = 165,016 + 5,273*(46-29)$. All estimates and projections rounded off to the nearest hundred.

Table B.2

Result of Brown's Linear Exponential Smoothing to Active California State Bar Members^a

Year	Period	Active Bar members (Y _t)	S _t ¹	S _t ²	a _t	b _t	Ŷ _{t+T}	Error
1973	1	37,451	39,035	39,035				
1974	2	40,618	40,048	39,683	40,413	649		
1975	3	46,596	44,239	42,599	45,879	2,916	41,100	5,496
1976	4	48,281	46,826	45,304	48,348	2,705	48,800	(519)
1977	5	53,003	50,779	48,808	52,750	3,504	51,100	1,903
1978	6	57,677	55,194	52,895	57,493	4,087	56,300	1,377
1979	7	64,020	60,843	57,981	63,704	5,086	61,600	2,420
1980	8	68,538	65,768	62,965	68,571	4,983	68,800	(262)
1981	9	72,922	70,346	67,689	73,004	4,724	73,600	(678)
1982	10	76,477	74,270	71,901	76,639	4,212	77,700	(1,223)
1983	11	80,047	77,967	75,783	80,151	3,883	80,900	(853)
1984	12	83,882	81,753	79,604	83,902	3,820	84,000	(118)
1985	13	87,491	85,425	83,329	87,521	3,726	87,700	(209)
1986	14	89,594	88,093	86,378	89,808	3,049	91,200	(1,606)
1987	15	93,877	91,795	89,845	93,745	3,467	92,900	977
1988	16	98,201	95,895	93,717	98,073	3,872	97,200	1,001
1989	17	101,226	99,307	97,294	101,319	3,578	101,900	(674)
1990	18	108,531	105,210	102,361	108,060	5,066	104,900	3,631
1991	19	109,886	108,203	106,100	110,306	3,739	113,100	(3,214)
1992	20	113,716	111,731	109,704	113,759	3,604	114,000	(284)
1993	21	114,637	113,591	112,192	114,990	2,488	117,400	(2,763)
1994	22	118,201	116,541	114,975	118,107	2,784	117,500	701
1995	23	120,267	118,926	117,504	120,348	2,528	120,900	(633)
1996	24	123,212	121,669	120,169	123,168	2,666	122,900	312
1997	25	126,865	124,994	123,257	126,731	3,088	125,800	1,065
1998	26	133,972	130,740	128,046	133,434	4,789	129,800	4,172
2015	43						214,800	

^aThis value computed as (37,451+40,618)/2 = 39,035. We experimented with different values of α to identify the value that provides the lowest Mean Squared Error (MSE). These results use $\alpha = 0.64$.
 Note: Active Bar member numbers from 1973–1998 provided by California Bar Association. 1975 active number was missing in the source data. We impute this year as the average of the 1974 and 1976 number of active members.

Eqs. 1–5 in the text describe how S_t^1 , S_t^2 , a_t , b_t , and \hat{Y}_{t+T} are computed. These parameters are rounded off to the nearest whole number. The 2015 projection is calculated: $\hat{Y}_{t+T} = a_t + b_t T$; $214,800 = 133,434 + 4,789(43-26)$. All \hat{Y}_{t+T} 's are rounded off to the nearest hundred.

Table B.3

Mean Square Error (MSE) Based on Simulations Using Two Projection Techniques to Forecast Total and Active California State Bar Members

α	Active Attorneys		Total Attorneys	
	Brown's	Triple exponential	Brown's	Triple exponential
0.1	140,918,251	45,834,135	222,480,528	67,115,974
0.2	26,005,563	12,727,055	33,419,914	15,571,770
0.3	10,251,947	7,208,268	11,474,093	8,068,176
0.37	--	--	--	7,176,562
0.4	5,698,379	6,191,437	5,829,964	7,261,584
0.41	--	6,181,394	--	--
0.5	4,040,691	6,550,300	3,762,871	8,745,102
0.6	3,439,587	7,690,864	2,969,100	11,410,555
0.64	3,320,043	--	--	--
0.7	3,355,867	9,387,229	2,675,443	14,847,856
0.74	--	--	2,586,464	--
0.8	3,706,547	11,520,303	2,642,500	18,900,297
0.9	4,403,099	14,067,655	2,862,407	23,538,461

Note: Bold MSE's are associated with the α s to the second decimal point that yields the best fit of the model to the data.

Table B.4

Result of Brown's Linear Exponential Smoothing to All California State Bar Members (restricted to most recent observations)

Year	Period	All Bar members (Y_t)	S_t^1	S_t^2	a_t	b_t	\hat{Y}_{t+T}	Error
1990	1	125,863	127,707	127,707				
1991	2	129,550	129,439	129,335	129,543	1,629		
1992	3	134,983	134,650	134,331	134,969	4,996	131,200	3,783
1993	4	139,023	138,761	138,495	139,026	4,163	140,000	(977)
1994	5	144,672	144,317	143,968	144,667	5,473	143,200	1,472
1995	6	149,460	149,151	148,840	149,462	4,872	150,100	(640)
1996	7	154,547	154,223	153,900	154,546	5,060	154,300	247
1997	8	159,571	159,250	158,929	159,571	5,029	159,600	(29)
1998	9	165,046	164,698	164,352	165,044	5,423	164,600	446
2015	26						257,200	

Note: These results use $\alpha = .94$. This example uses the California Bar Association supplied number of active Bar members from 1990 to 1998 (same as in Table B.1). Eqs. 1-5 in the text describe how S_t^1 , S_t^2 , a_t , b_t , and \hat{Y}_{t+T} are computed. These parameters are rounded off to the nearest whole number. The 2015 projection is calculated as $\hat{Y}_{t+T} = a_t + b_t T$: $257,200 = 164,600 + 5,423(26-9)$. All estimates and projections rounded off to the nearest hundred.

Table B.5

Calculation of Population Method for Forecasting Employment of Lawyers in California, by Region: 2015

	1998 Population (1)	1998 Employed Lawyers (2)	Attorneys per capita (2)/(1) (3)	Projected population: 2015 (4)	Projected lawyers: 2015 (3) X (4) (5)
Los Angeles	9,649,800	32,414	0.0034	10,978,500	36,900
Orange	2,763,900	9,653	0.0035	3,278,000	11,400
Inland Empire	3,104,300	3,867	0.0012	4,859,800	6,100
San Diego	2,828,300	9,931	0.0035	3,644,100	12,800
Santa Barbara	1,381,300	7,417	0.0054	1,774,000	9,500
San Joaquin Valley	3,088,300	3,979	0.0013	4,432,100	5,700
Sacramento Valley	2,196,900	16,808	0.0077	2,747,900	21,000
Bay Area	7,386,000	42,854	0.0058	8,829,400	51,200
Residual	1,095,200	1,126	0.0010	1,827,100	1,900
California	33,494,000	128,048	0.0038	42,370,900	156,500

Source: 1998 and projected 2015 population estimates provided by state of California, Department of Finance, 1998. 1998 employed lawyers derived from 1998 CPS.

Appendix B University of California

UNIVERSITY OF CALIFORNIA
Proposed Degree Programs
2006 - 2011
IRVINE

Proposed Programs	Degree	Status
UNDERGRADUATE PROGRAMS		
Proposals added for 2006 update are shown in BOLD		
Biotechnology	B.S.	1
Chinese Studies	B.A.	2
Engineering Design Software	B.S.	2
Environmental Health	B.A.	2
Environmental Health Science	B.S.	2
Human Biology	B.S.	1
Information & Computer Science	B.A.	1
Japanese Studies	B.A.	2
Latin	B.A.	2
Nursing Science	B.S.	2
GRADUATE PROGRAMS		
Proposals added for 2006 update are shown in BOLD		
African American Studies	M.A.	2
Clinical Sciences	M.S./Ph.D.	2
Cognitive Neuroscience	Ph.D.	2
Computer Science	M.S./Ph.D.	1
Computer Science and Engineering	M.S./Ph.D.	1
Criminology, Law & Society	Ph.D.	2
Engineering Design Software	M.S./Ph.D.	2
Environmental Engineering	M.S./Ph.D.	1
Informatics	M.S./Ph.D.	2
Information & Computer Science & Business Administration	M.B.A./M.S.	2
International Studies	M.A.	2
Latino Community Health	M.A.	2
Molecular Medicine & Therapeutics	Ph.D.	2
Music	M.M.	2
Music	M.F.A.	discontinuance planned
Neuroscience	Ph.D.	2
Nursing Practice, Doctor of	D.N.P.	2
Nursing Science	M.S./Ph.D.	2
Pharmaceutical Sciences	M.S./Ph.D.	2
Political Science	M.A.	2
Psychology	M.A.	2
Public Health	M.S.P.H., Ph.D.	1
Public Policy	M.P.P.	1
Stem Cell Biology Concentration	M.S.	2
SCHOOLS & COLLEGES		
School of Design		3
School of Law		4

Status of proposal: 1 suggested for 5-year list; 2 undergoing department review; 3 undergoing campus review; 4 undergoing CCGA/CPEC review

