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Report Prepared by the Special Senate Committee on Merit Equity
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ANALYSIS OF THE EFFECTS OF GENDER AND MINORITY STATUS ON SALARIES OF LADDER FACULTY AT UCSC

EXECUTIVE SUMMARY

The Special Committee on Merit Equity was constituted by the UCSC academic senate to determine whether there was evidence that salary inequities exist for women and minority faculty members on campus. To answer this question, the committee examined personnel records on senate faculty who were on campus in July 1997, including data on starting step, salary, and progress through the ranks. Because the data set was relatively small and the numbers of women and minorities at the various professorial steps likewise modest, the analysis could only recognize major effects, though other smaller, consistent trends are present in the data. Highlights of the findings are as follows:

-       In the aggregate, female and minority faculty members receive salaries $4,903 - $10,740 lower than non-minority male faculty, the amount depending on how the data are grouped.

-       The salary differences are successfully explained by differences in the seniority (rank/step) of the positions held by the various faculty members, their age, time on   the academic ladder and the academic division of the appointment..

-       "Under-representation" of women and minority faculty in the divisions that have better salary opportunities appears to be an important cause of the pay differences.

                         - Proportionately small numbers of women and minority faculty are found in the division with a separate and higher pay scale.

                         - Proportionately low numbers of women and minority faculty are found in   the division that hires at slightly higher initial steps and advances its faculty   slightly more rapidly through the academic ladder, though that division   uses the normal pay scale for steps/ranks.

- The data show a slightly lower average advancement rates of women and minority faculty relative to non-minority men faculty.
- Women, both minority and non-minority hired as assistant professors, enter at slightly, but significantly, lower steps (0.3 and 0.7 respectively) than non-minority men, though their starting salaries does not differ from them significantly.

- A set of 4 recommendations is provided to address the factors that underlie the pattern of lower salaries for women and minority faculty.

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INTRODUCTION

In January, 1997, the UCSC Committee on Academic Personnel requested that a special senate committee be formed to advise on issues of merit equity in professorial rank, step and salary. That resolution was brought before the senate and passed, and a committee was formed to carry out the mission:

> "..to review whether there is evidence that inequities exist in rank and
> step for faculty with comparable length of service and time since degree.
> *That*, if such evidence is found, the Special Senate Committee will recommend
> procedures to be used to identify cases of possible inequity and procedures for
> review of these cases to determine whether, based on academic performance,
> amelioration is justified."

The UCSC senate request followed upon discussions within the University-wide Academic Senate that had been concerned whether significant inequities in rank and step exist within the UC system. The issue is of particular importance because recent reports from UC Davis and UC Berkeley both have found evidence of salary inequity. The UCD survey was focused on issues related to the status of women, whereas the UCB report was concerned with both women and minorities. In both cases, evidence for salary inequities were shown through statistical treatments of salary data. In both cases, the inequities appeared to be greatest for the most senior appointments and evidence was presented that both the starting salaries and advancement pattern contributed to the problem. After the UC Davis report, recommendations were made on that campus involving special considerations that were to be given at initial appointments. Furthermore all those involved in the personnel process were asked to become more sensitive to the problems, including departments, deans and CAP. Recommendations were made that special merit equity adjustments be available if inequities could be demonstrated. A number of faculty reviews were instituted as a result of the report and faculty either nominated themselves for review or faculty or administrators involved in the personnel process made those nominations. Gender equity pay increases ensued in a number of cases at UCD, most of which were for women, but several also for men.

The UCSC special senate committee on Merit Equity Review was constituted and met for the first time approximately one year after the senate request . It now brings forward its report, based on an extensive analysis of campus salary and appointment records. Like the merit equity committees on other UC campuses, it has no way of judging a faculty's performance, which is the basis for academic rank and step. The questions it seeks to answer are whether there are salary disparities between women and men or between minorities and non-minorities for faculty who otherwise appear similar in their time on campus, period of service or other reasonable criteria. If evidence of a disparity arises from the statistical treatment of the campus data set, then the campus has an obligation to seek to determine the underlying causes of these disparities. If a case can be

made that any such disparity represents an injustice, then the disparity needs to be redressed.

METHODS

Data for this study were made available from the UCSC office of academic human resources, formerly called the academic personnel office.[1] Numerical data were provided on senate faculty who held positions on campus in the 1997-98 academic year (i.e. the 7/1/97 data base), including a few in the lecturer series with security of employment (SOE). The analyses were conducted using the records of faculty with complete data sets, at least with respect to the particular analysis of interest. Faculty names were removed from the records to retain confidentiality. Data that were available in most cases included time of entry onto the academic ladder at UCSC, salary level and step/rank at hire, current salary level and step/rank, age, division, ethnicity, gender, and academic division. Data that were not available were the time an advanced degree was awarded (e.g. Ph.D.), the university or institution granting the degree, or the prior history of professional activity. Furthermore, no information was available to assess the scholarly quality of the work of the faculty member.

Data were treated in two ways. First, there were simple descriptive treatments of the data to determine average characteristics of different groups of faculty. Second, there were more in-depth treatments which sought to establish a link between faculty salaries and possible causal or correlated factors. For this second set of treatments, data were entered into standard parametric regression analyses to assess the relationship of various factors (such as age, rank) in predicting a faculty's salary or step on the academic ladder. Various models (up to 7) were run to determine which best explained the salary or step of faculty, with the various models incorporating different sets of factors. The regression models are particularly helpful, as they allow a quantitative estimate of the extent to which the independent variables (e.g. age and rank) explain the dependent variable (e.g. salary). The exact suites of variables used, the various models, and other relevant data on these analyses are presented below in the Results section, along with the outcome of these analyses.

RESULTS

Gender and Salary

Table 1A summarizes data by gender and other characteristics on salaries for all of the 421 senate faculty at UCSC in the 1997-98 academic year. These include faculty hired at any time since the founding of the campus (i.e. the 1960s). Averages are shown for 4 key variables by gender, and averages and standard errors (SE) for the male-female differences. The 4 variables are age, years at UCSC, step in the rank, and annual salary, all determined for the '97-98 year. All salaries were converted to a 9-month basis (i.e. any salary of an 11 month appointment was converted to a 9 month salary by multiplying by 9/11.)

Table 1A shows that male faculty member receives an average salary significantly higher by $10,054 than does a female faculty member. Viewing salary by rank, the difference becomes smaller, with female salaries lower, but not significantly so, for assistant and associate professors, but significantly less for female full professors ($6,466). (When the term "significant" is used in this report, it connotes statistical significance, i.e. $p<.0.05$) Some of the differences in the salaries appear to be related to the somewhat more junior status of the women. Women are significantly younger than men on the average (3.2 years). However, within the assistant and associate professor ranks, the average age of women and men does not differ significantly, though women are significantly younger (2.5 years) in the full professor ranks. Likewise, women have spent significantly less time on the academic ladder (4.3 years) on the average than men, though assistant and associate professors do not differ significantly in this respect from their male counterparts, whereas full professors who are women have been on the ladder for significantly less time (3.8 years). Within the 3 ranks, differences in the average step of men and women is significant only for full professors, where women are 1.1 steps behind.

Table 1B summarizes the same data on salaries for the 295 senate faculty hired after 1980 who are still on campus in the 1997-98 academic year. These more recently hired faculty, constituting 70% of the faculty on campus in 1997-1998, represent a more diverse population than the remaining faculty from earlier hires: 83 % of the women and minorities on campus in the 1997-l998 year were hired after 1980. The faculty pre-1980 who were still on campus in 1997 were likewise more senior (as expected) than the more recently hired pool:

Hiring Dates	*Pre-1980*	*1980 or later*
Professors	116	108
Assoc. Prof.	8	103
Act Prof.	0	80
Lecturers with SOE	2	4

The proportion of faculty in the different ranks has changed over the campus history, with a particularly large change in the early 1990s, when VERIP-motivated retirements induced many senior faculty to retire early.

Table 1B shows the same type of data as presented in Table 1A, but only the faculty hired in 1980 and subsequent years are considered. The average salary difference between women and men is smaller in this subgroup, though women still receive significantly lower pay than men by $4,903. The average differences in age and years at UCSC between men and women are now small and statistically insignificant. Within the ranks, all significant differences between males and females have disappeared except one: female associate professors are on the average 2.3 years older than men. The fact that a significant salary difference remains when only the more recent hires are considered (i.e. Table 1A versus Table 1B), even though age, time on campus, and step differences between men and women are no longer significant, suggests that other factors must be contributing to gender disparity in salary. (These factors are explored in the analyses described below.)

Ethnicity and Salary

Table 2A shows the same type of data as presented in Table 1A, except that comparisons are between minority and non-minority faculty (both genders included). Thus the table shows average salaries and the salary differences and their standard errors for all faculty still on campus in 1997-1998 who were hired since the inception of the campus. Overall, 21.9% of the faculty are minority, and their proportional contribution decreases from the assistant to the full professor ranks.

Average salary differences are highly significant and minority faculty are paid $10,740 less than non-minority faculty on a 9 month salary base. Differences between non-minority and minority faculty in the assistant and associate professor ranks are not significant, but minority full professors have significantly lower salaries than non-minorities by $6,687. Some of the overall salary differences may be due to the minorities' significantly younger average age and fewer years at UCSC: 4.7 years younger and 4.5 years less on campus. Comparing faculty within the 3 different ranks, only full professors are significantly younger (by 3.0 years), have fewer years at UCSC (by 3.3 years) and occupy lower steps (by 1.4 steps). Thus the data indicate that some of the differences are due to the dominance of minorities in the more junior faculty levels expected of younger faculty

Table 2B shows the same calculations for minority versus non-minority faculty among those hired from 1980 onwards. Minorities comprise 26.1% of the recently hired faculty . As for the data on women faculty shown in Table 1B, the salary disparities drop in the pool of more recent hires, but minority salaries are still a highly significantly behind those of non-minorities by $6,669. In part, these differences may reflect their significantly younger ages (by 3.2 years) and fewer years (1.1 years) on the academic ladder. Within the individual ranks, there are only one statistically significant difference between minority and non-minority faculty: minority full professors occupy lower steps (by 1.6 steps). Average salaries within the ranks are significantly lower only for full professors (by $7,299).

Ethnic group composition and salaries of UCSC faculty are shown in Table 3 for the faculty still on campus in the 1997-1998 academic year and hired any time since the inception of the campus. Because 83% of the minority faculty at that time were hired from 1980 onwards, the data mostly reflect those later hires. Minority faculty are more equally balanced by gender than the overall campus mix, with 44% women (41 out of 92) and 56% men. The gender mix is almost evenly divided for all of the ethnic groups except the Asians, where there are somewhat higher proportions of men (60%: 29 out of 48). The major ethnic groups are Asian (52%: 48 out of 92 minority faculty) and Hispanics (27%: 25 out of 92). Because the numbers of some of the groups are relatively small, it is difficult to interpret comparisons among faculty of different ethnicities with confidence, and thus subsequent analyses have pooled the various ethnic groups and designated them the minority faculty. However, among the ethnic groups, the Asian and American Indian faculty appear to have the lowest salaries, and these groups are the ones with the highest proportions of assistant professors. The African American group is the highest paid, and these have the highest proportions of full professors. However, all the groups have lower average salaries than non-minority faculty, which has higher proportions of faculty at the more senior ranks (see also Tables 2A and 2B). The relatively small numbers of faculty in the various ethnic groups makes a more detailed analysis difficult, and there is a danger that salaries of particular individuals could be revealed by such analysis. Thus no further analysis of salary differences by ethnic groups was attempted.

Factors Associated with Salary Differences

The salary differences between men and women faculty and between minority and non-minority faculty have been shown in Tables 1 through 3. The causes of these differences are the issues that should concern the faculty and administration. To determine whether these differences have reasonable underlying explanations, some factors that differ among the individual faculty can be examined. If factors that appear neutral (e.g. time on the academic ladder) can account for salary differences, then inequities may not play a systematic role, on the average. However, individual cases of pay inequity may be hidden within the averages, and thus sizable deviations from the average can identify potentially troublesome situations.

The factors that we used to help explain salary differences include easily quantifiable variables, including the age of the faculty, the time on the ladder, rank and step. The effect of possible differences associated with residence in academic division was addressed directly in the basic design of the analysis by using separate models that evaluated individual division effects (see below). Additional factors of interest were addressed indirectly through the sequential addition of variables in the analysis, factors such as possible differences in the use of off-scale salaries (i.e. salaries higher than the base level for that step) by different divisions, or the use of salaries above full professor step 5. In these more in-depth analyses, we separated the faculty into 4 mutually exclusive groups: non-minority men, non-minority women, minority men and minority women. Thus the effect of gender and minority status on salary could be addressed directly and simultaneously.

Tables 4A and 4B shows the results of regression analyses, where the effect of various factors is considered in predicting the difference in salary levels between all groups and non-minority males. (That is, salaries of non-minority males were considered the reference point against which differences are measured.) The higher the R^2 value, the better the ability of the regression in explaining salary differences: a value of 1.0 indicates the relationship completely predicts all salary outcomes, and a value of 0 means it has no explanatory power. The R^2 value can be converted to a %, which represents the amount of the variability attributed to that combination of factors in the regression by simply moving the decimal point 2 steps to the right: a R^2 of 0.50 means that 50% of the variability in the dependent variable (salary) is explained by the regression. The factors we chose were quantifiable ones readily available to us and their relationship to salary differences is not necessarily causal. That is, a significant relationship could result from a factor related to the parameter we chose, and not to the one we selected. The R^2 values at the bottom of the table reflect the ability of the model to explain salary across the entire faculty.

Tables 4A and 4B present an analysis of the percentage differences in salaries between non-minority males and the 3 interest groups - non-minority females, minority females, and non-minority males. A regression model was used to test the possible relationship between salary differences and the 5 factors possibly related to the differences. The logarithm of the annual (9-month) salary was considered the dependent variable (value to be explained) and the 5 factors as the independent variables (factors to explain salary differences). The "age"/ "age^2" variable shows the age or an augmented age effect (i.e. age^2) for the faculty in 1997, when the salary difference was calculated. The "years"/ "years^2" variable indicates the years the faculty has spent on the academic ladder at UCSC from hiring until 1997. The "rank" variable considers which of the 4 ranks a faculty occupied: lecturer (senate faculty with security of employment = SOE), assistant, associate, or full professor. (The lecturers numbered 4-6 in the various analyses and separate calculations, not shown here, indicate that their presence in the data basis does not significantly influence the results.) The step within rank factor has 16 levels (4 for assistant, 3 for associate, 9 for full professors). Values shown in the table represent the average percentage differences (with SE in parenthesis) for the 3 faculty groups relative to the non-minority males..

The regression provides a way of examining the factors possibly related to salary differences either singly or in combination. Whether a factor is used in one of the models is indicated under "Other Controls" at the bottom of the tables. The effect of residence within a particular division is factored into some of the models as well, since the different divisions seem to have systematically higher or lower salaries, and these differences affect the mean salaries of men versus women, or minorities versus non-minorities, since women and minorities make up different proportions of the faculty in the different divisions. Shown here is the pattern of faculty distribution among the divisions and some important characteristics that will be discussed later:

Characteristics of Faculty by Division

Division	#Faculty	#Full Prof	%Fem	%Min	%Min Fem	%Min Male
Arts	41	21	12.0	24.0	0.0	24.0
Humanities	100	50	46.0	27.0	19.0	8.0
Soc. Sci.	117	60	41.9	24.8	13.7	11.1
Nat. Sci.	138	84	16.7	15.9	2.2	13.8
Engineering	25	9	12.0	24.0	0.0	24.0

In determining the divisional effect, we chose social sciences as the reference division, because of its intermediate characteristics in the features we were using in our analyses (see below). We calculated differences from social sciences for the 4 remaining divisions: engineering, natural sciences, humanities, and arts. Whether the models include divisional controls or not is easily recognized by noting whether numerical coefficients are listed in the rows with names of the divisions (i.e. the bottom 4 rows of the tables, above the "Other Controls" section of the table). That is, columns with dashes instead of numbers indicate the model did not calculate a division effect.

Table 4 A shows 7 possible regression models, using none (model 1) or up to all of the 5 variables to explain the salary difference from non-minority males for faculty still on campus in 1997 and hired anytime since the campus founding. These models show the progressive "disappearance" of the salary difference relative to non-minority men, as more factors are considered. Divisional effects are shown in models 3, 6, and 7. For example, when age and years alone were considered (Table 4A, model 2), 60.4% (i.e. R^2 = 0.604) of the overall dispersion in salary differences across the UCSC faculty are "explained." For non-minority women, an original salary difference of 14.4% (model 1) drops to 7.2% by adding the age and year controls (model 2), and in both models the women's salaries are significantly lower than that of non-minority males. For minority women, a large original salary difference of 25.6% (Table 4A, model 1) drops to 11.0% when age and year controls are added (Model 2), and both represent significantly lower salaries than those of non-minority males. The average salary of minority males, originally significant lower by 15.8% (model 1), now drops to a non significant 5% when age and year controls are added (model 2).

Table 4A can also be read from left to right to show how many factors need to be included before there is no remaining significant difference between female or minority faculty and non-minority males. Basically, this progressive addition of factors answers the question whether a factor (or some combination) affects the salary difference between faculty of different gender and minority status. Mostly the addition of factors continues to reduce the salary gap relative to non-minority males, even after the difference in pay is no longer significant. For non-minority women, the difference in salary from non-minority males becomes non-significant only when their academic division is considered together with at least 3 controls: age, years, and rank (i.e. models 6 and 7). The average salary of minority women, initially 25.6% lower without any controls, no longer significantly differs from that of non-minority men when age, years on campus, and rank are

considered (model 5). When both academic division and step within rank are considered, there is a small but significant difference in pay, with the minority women receiving 2.8% more than their non-minority male counterparts (model 7). Without other controls, minority males have significantly lower pay (by 15.8%), but salary differences relative to non-minority males become non significant with all of the combinations of controls shown in models 2-8. Interestingly, when all controls, including divisional status are considered, the pay of minority men, like that of minority women, becomes slightly higher (model 7) than non-minority males, but not significantly so.

There is a significant divisional effect on salaries shown by the coefficients reported for models 6 and 7 of Tables 4A and 4B. These divisional effects represent % salary differences that can be attributed to a faculty's appointment in the stated division as compared with the social sciences (the reference division, see above). In model 7, which controls for age, years on campus, rank and step, a faculty member in the engineering division earns a significantly higher salary by 18.8%, whereas faculty in the other divisions have relatively small (i.e. 2.2 -2.8%) but significantly negative salary differences relative to social sciences. The difference between models 6 and 7 reflect the addition of step information in the regression, and the change in R^2 value between the two - from 0.810 to 0.974 - suggests step information has important explanatory power. In the engineering and natural science division, the addition of step information reduces the positive salary gap (it actually becomes significantly negative in natural sciences), whereas in the humanities and arts divisions, the step information makes the gap less negative. These effects could be explained as follows. The social sciences appears to have slightly, but statistically higher salaries at step than the other divisions (1.9 to 2.8 %), presumably due to its use of higher-than baseline salaries for its faculty. The natural sciences apparently has more of its faculty at higher steps, than social sciences (producing significantly higher salary at rank), whereas the arts division has significantly more of its faculty at lower steps than social sciences and hence its lower average salary (-6.4%) at rank, explaining the rise in salary (i.e. salary gap less negative: -2.2%) when step controls are added (Table 4A, model 6 and 7 comparisons).

Table 4B shows data in the same format as 4A, but for faculty hired from 1980 onward. Average salaries of non-minority women, minority women and minority men, in these more recently hired faculty are lower than those of non-minority men, but the pattern shown in Table 4 A largely remains. Likewise the factors that reduce the differences remain largely the same and adding these sequentially results in reducing most of the salary differences. Without any other controls, salaries of non-minority women are 7.9% lower, but their salary differences from non-minority males become statistically insignificant when either their age, years on campus and division are controlled (model 3), or when either division or rank is included in the model (models 3-7). Minority women hired from 1980 onwards have 14.6% lower salaries, on the average, but the differences from non-minority men become non-significant when combinations of rank and division are used in the model (models 2-7).   When step within rank is added to the set of controls (model 7), minority women's salary is slightly, but significantly higher (by 2.5%) than non-minority males. For minority males, their initially 11.0% lower salary (model 1), no longer differs significantly from non-minority

males when any of the controls or divisional status is considered (models 2-7). Overall, as for the regression in 4A, above, the full set of controls in the regression shown in 4B is remarkably successful in reducing the salary differences by gender and minority status, with 96.3% of the variability in salary differences between these faculty and non-minority males being explained. Of course, in a system like the University of California were salaries are largely determined by rank and step, this result should not be too surprising.

The data in Table 4 A and B show the importance of various factors in contributing to the differences in salary from non-minority males. In all cases, the average salaries of women and minorities are lower than non-minority males and they remain negative in all but 5 of the 30 model calculations, though the negative values are significant for only 16 of the coefficients. One intriguing exception to the overall negative pattern is shown for minority women and men, whose salaries show no difference or a positive differences from non-minority males in 5 of the 6 regressions with step, rank, and divisional controls (models 6 and 7, Tables 4A and 4B). These data appear to indicate that the minorities receive the same or slightly higher salaries than the non-minority counterparts at the same step in their division. Since there is a suggestion that minorities progress more slowly through the steps (see below: advancement gap calculations), this pattern may represent a compensation for faculty who remain at the same step for longer periods of time than non-minority male faculty.

Starting Step and Salary of Faculty

A possible explanation for some of the differences in the salaries of women and minorities could be that they begin their career at UCSC at a lower step and/or with lower salaries. Such factors could be masked to a degree in the analysis described for Table 4A and 4B, above. Thus, we conducted separate analyses of the starting step and the starting salaries of women and minority faculty members on campus in 1997 who were hired as assistant professors any time since the founding of the campus. Data for the analyses are shown in Table 5a (for step) and 5b (for salaries) and expressed as the % differences from non-minority faculty. Regressions such as those described in Tables 4A and 4B, above, were run and variables added to determine to what extent the variables could explain the salary differences, as in Tables 4A and 4B. An important complication of this analysis is that different faculty started at UCSC at different times, and salary scales have changed over time. To adjust for this effect, we include in the models a full set of control variables indicating the year of initial hiring.

The starting step of 2 of the 3 groups of interest were significantly lower than that of non-minority males: non-minority females and minority females (Table 5A). For the non-minority women, initial steps were 0.33 lower (model 1), and remained significantly lower than those of non-minority males, even after all controls and academic division were included (models 2,3). Likewise, for minority females the disparities were highly significant and even higher: initially 0.67 step lower (model 1), and remaining significantly lower after controls were added (models 2, 3). For minority males, their initially slightly lower (0.07) step was not significantly different from non-minority

males, and the small disparities remained about the same as age and divisional controls were added. By considering the division in which a faculty member resided (model 7), the salary disparities dropped, especially for non-minority and minority women, and there was a better ability to predict salary disparities (R^2 rose to 0.40). The largest and only significant coefficient for an individual division was that for natural sciences: residence in the division significantly enhanced the starting step of faculty by an average of 0.42 steps.

The pattern for starting salaries of assistant professors by minority and gender status offers an interesting contrast to the results shown in the step analysis, above. In this salary analysis, the year of hire was controlled, so that salary differences do not include inflationary effects over the survey period. In contrast to the results from the step analysis shown in Table 5A, there is no significant difference in the salaries of either minority or non minority women, or minority men, as compared with non-minority men (Table 5B). The regression is remarkably powerful even without accounting for step or age ($R^2 = 0.944$: model 1); however this is a reflection of the importance of the year-of-hire controls in explaining the overall variation in starting salaries for a group of faculty who were hired and minority over a nearly 40 year period. The salaries of non-minority women and minority women are 1.4% and 1.2 % lower than that of non-minority men, respectively,
whereas the minority men's salaries average 4.0% higher, and none of these differences are statistically significant. Divisional effects are significant, in the case of the engineering division, with salaries being higher by 14.1% for faculty hired into that division, a not surprising effect because of the different pay scale. Effects on starting salaries for the other 3 divisions are not significant, but differences related to the addition of step controls (difference between model 3 and 4 in Table 5B) appear to produce the same effect as noted in the analyses displayed in Tables 4A and 4B. That is, the higher salaries of natural scientists drop to levels more similar to social scientists salaries when step information is included, whereas the lower salaries of humanities and arts faculty come closer to those of social science faculty when their step is considered. This supports the hypothesis, suggested above, that there is a different use of off-scale salaries across the divisions. Furthermore, considering the results for the natural sciences in Table 5A, these results indicate that natural scientists have slightly higher entry level steps but are paid equivalently to social science faculty for those steps.

For the women and minority faculty, average starting salaries are slightly higher than non-minority men when their age, starting step, and division are controlled (Table 5B, model 4:1.1-4.1%), but these differences are not statistically significant,. Given the fact that all have lower steps at hire (significantly so for minority and non-minority women but not for minority men: Table 5A), these patterns imply that some compensatory mechanism makes up for the slightly lower steps to produce a slightly higher salary than non-minority men. The most reasonable suggestion is that the 3 groups are receiving higher pay at step, i.e. off-scale salaries at step when hired. Several factors likewise explain why the overall average starting salaries of both minority and non-minority women are lower than those of non minority men (model 1, Table 5A). The data show that natural science faculty have slightly higher average starting steps (0.42: Table 5A,

model 3) and the engineering faculty has considerably higher starting salaries (by 14.1%: Table 5B, models 3 and 4) as compared with the other divisions; lower proportions of women and minorities are in these divisions than in the others, where the step and salary advantages are not present. (In this data set, the arts division, which is relatively small, has the same proportions of women and minorities as does engineering.)

Advancement through the Faculty Ladder

Another possible contributor to the lower salaries of women and minority faculty is that they advance more slowly through the steps and ranks than do their non-minority male counterparts. Other things being equal, this would produce a lower step at rank or a lower rank for minorities and women, both factors that would cause salary differences like those shown in Tables 1 and 2. Such an "advancement gap" (a difference between the advancement rate of the group of interest relative to non-minority males) could account for some of the differences noted in the analysis shown in Tables 4A and 4B. In view of this possibility, we conducted a separate analysis to determine the speed at which the faculty move through the system. The tracking system was based on the expectation that a faculty member spends a "standard" amount of time at each step and progresses through successive steps and ranks in the academic ladder at the rate described in the APM. Thus, a typical faculty member spends 2 years at each of the 4 assistant professor steps, followed by 2 years at each of the 3 steps in the associate professor series , followed by 3 years at each of the full professor steps, progressing to step 5, the "normal" end-point on the faculty ladder. A faculty can enter at any step and rank on the ladder and his/her overall rate from there is captured by the salary information in the 1997-98 data set. We constructed a matrix showing the expected normal progress of a faculty through the system. This matrix is shown in Appendix 1. Knowing the faculty member's entry level step and rank of the faculty, and knowing their step at rank in the 1997-98 year, we then could measure their advancement rate on the academic ladder.

Although the advancement to full professor 5 is often considered the highest step on the ladder, a series of higher steps is available with commensurably higher salaries. The advancement to these steps normally requires an external evaluation and is thus is equivalent to a promotion, i.e. progression to a higher "rank." In this study we recognized that salaries at these higher steps could influence relative salaries of different faculty groups, especially if applied unevenly. This influence could occur if faculty in some divisions infrequently advance beyond full professor 5, whereas others move onwards. Faculty who remain at step 5 for long periods could show slower average progress through the ranks than those who move (or are allowed to move) on to step 6 and above. When we pooled the data by division, we discovered that differences in the proportion of full professors above step 5 indeed occurred among the divisions (see table, p 5). The fraction of such professors was 0% in the arts, 11% in engineering, 20% in both the humanities and social sciences, and 44% in the natural sciences in our 1997-98 data base. Thus we show two sets of results: one that counts all promotions and merit increases, including those beyond full professor step (Table 6), and another that only considers advancement through full professor 5 (Table 7).

To test the rate at which different groups of faculty move through the academic ladder, we determined the number of steps ahead or behind each faculty member was, as of 7/1/97, relative to expectations based on his or her initial rank and step at hiring and the number of intervening years since first being hired. We refer to this difference between the actual and expected number of promotions since initial hiring as the *advancement gap*. On average over the 403 faculty for whom we could make a determination, the relative advancement rate is positive, showing that UCSC faculty as a whole tend to progress faster than indicated by the academic personnel manual (APM). Average advancement gaps, relative to APM expectations, for the overall faculty and the different subgroups are as follows:

Faculty Group	*Advancement Gap in Steps*:
All faculty	+0.60
Females	+0.42
Males	+0.69
Minorities	+0.31
Non-minorities	+0.61
Natural sciences	+1.17
Other divisions	+0.32

Table 6 presents an analysis of the advancement gap by gender and minority status for faculty at all steps from assistant professor 1 through all steps of the full professor series, including those above full professor step 5[2]. This table presents data in the format of Tables 4A and 4B, explained above, although here the dependent variable for each faculty member is his or her advancement gap. Non-minority women progressed more slowly than non-minority males, but the difference was significant only when the age of the women was controlled (Table 6, model 2). The difference by gender and minority status

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[2] When a faculty moves beyond full professor step 5, each additional step is counted as an advancement, but the "expected" step remains step 5. Thus a faculty who progresses in the standard time to full professor step 5 and then moves on to higher step will appear to be somewhat "ahead" and have a positive advancement gap

dropped to lower levels when the academic division was considered (models 4, 5). Minority females likewise have negative advancement gaps, but these were only significant when age and years on campus were controlled, suggesting older minority women and those who spent longer on campus were slightly more disadvantaged (a maximum disparity of 0.58 steps (Table 6, model 2). Minority males progressed significantly more slowly, by 0.46 steps (Table 6, model 1), and their progress remained slower, though not significantly so, when other controls and divisional status were added (Table 6, models 2-5).

The advancement rate for faculty is calculated again in Table 7, but this time advancements above full professor step 5 are not considered. (Faculty above full professor step 5 are considered to be at step 5.) The differences in advancement gaps for women and minorities are now smaller than those shown in Table 6. Non-minority females always have negative advancement gaps (overall they are 0.18 steps behind: model 1), but these are significant only when age (model 2) or age and years (model 3) on the ladder are considered, but are insignificant when divisional status (models 4 and 5) is included. Minority women likewise have negative gaps (overall 0.24 steps behind), but these are only significantly different from non-minority males when age (model 2) or age and years (model 3) are considered. Like non-minority women, minority women show salary gaps that are non-significant when divisional status is included (models 4 and 5). The advancement rate of minority men is similarly always slower than that of non-minority men, but only significantly so when either age alone (model 2) or age and division (model 5) are added as control variables.

A small but apparently consistent effect on the advancement gap appears when the effect of age and time on the academic ladder are examined in the promotion rates of women and minority faculty. This effect applies to both steps and salaries. When models with age and year controls (models 3 and 5 in Table 6 and 7) are compared with their counterparts lacking age and year controls (models 1 and 4 in Tables 6 and 7), the salary differences or gaps become more negative. The drops are small, ranging from -0.03 steps for non-minority females (Table 6, model 1 versus 3) to -0.25 steps for minority females (Table 7, model 4 versus 5). These results suggest that the longer minorities and women faculty remain on campus and the older they become, the greater the salary gap grows, as compared with non-minority males, even though the average salary disadvantage is relatively small (i.e. 0.25 steps or less). Results of comparisons between models 1, 2, and 3, which add the factors "age" and "time on campus" sequentially, suggest that age is the factor most strongly related to these results. That is, the difference between model 1 and model 2 shows advancement gaps are always larger for women and minorities when we control for age. By comparison, adding controls for years on the ladder has a relatively small effect: compare model 3 to model 2 in Table 6 and 7. The causes of these effects are worth considering, even though they are small, because the effect is evident for all the women and minority groups; the effect exists even when adjustments for division are considered and when highly paid faculty (i.e. those above full professor step 5: Table 7) are removed from the analysis.

The evidence presented in Tables 6 and 7 show advancement gaps through the ladder for woman and minority faculty. The gaps point to a small, usually statistically insignificantly, lower advancement rate of 0.04 - 0.47 steps for women, including minority women, relative to non-minority men. The data in the 2 tables shows somewhat large and statistically significant differences of 0.29 - 0.54 steps for minority men relative to non-minority men. If a more restrictive model is fitted to the same data, but treats minorities and women as all one "disadvantaged group" relative to non-minority men (results not shown), then the coefficient for a model 6 regression is -0.28 (SE = 0.15, t=1.89, p = 0/059), which is at the margin of statistical significance. Given this result,

and the evidence salary data shown in model 3 (age and time on the ladder controls),
Table 4A, a small salary gap appears likely for women and minority faculty, caused
largely by a promotion gap. The salary differences is a relatively modest 4.2 - 6.8% and
the promotion gap a modest one of 0.3 -0.5 steps (Tables 6 and 7, model 3).

　　Interestingly, one of the divisions showed a significant acceleration of its faculty.
This result is evidenced by a highly positive and significant coefficient in the natural
sciences faculty in Table 6 models 4 and 5 with positive step gaps of .80 and .78
respectively. Similarly, when only the step patterns of faculty hired in 1980s onward
were examined, they likewise showed significant positive gaps of 0.56 and 0.54 steps
using the same models 4 and 5, respectively (Table 7). No statistically significant effects
for other divisions were noted, though there were small differences in both direction from
the social sciences pattern. Thus, the lower proportions of women and minorities in the
division that advances its faculty most rapidly, the natural sciences, must contribute to
overall reduction in advancement rates (i.e. the increased advancement gap) of women
and minorities as compared with non-minority males.

Table 1a: Characteristics of Current Faculty, By Gender

By Rank:

	All Ranks (1)	Assistant (2)	Associate (3)	Full (4)
All Faculty:				
Number of Faculty	421	80	111	224
Percent Female	33.3	45.0	43.2	23.7
Females Only:				
Average Age	45.5	37.0	45.0	50.8
Years at UCSC	9.9	3.0	9.3	15.1
Average "Step"	--	3.1	2.4	3.7
Average Salary	60,501	46,072	54,974	75,351
Males Only:				
Average Age	48.6	36.8	43.9	53.3
Years at UCSC	14.2	2.7	9.4	19.9
Average "Step"	--	3.4	2.3	4.8
Average Salary	70,555	46,227	57,002	81,817
Female-Male Difference:				
Average Age	-3.2	0.2	1.6	-2.5
	(0.8)	(1.0)	(1.1)	(0.9)
Years at UCSC	-4.3	0.2	-0.1	-3.8
	(0.8)	(0.5)	(0.9)	(1.3)
Average "Step"	--	-0.3	0.1	-1.1
		(0.2)	(0.2)	(0.3)
Average Salary	-10,054	-155	-2,027	-6,466
	(1,671)	(765)	(1,078)	(2,118)

Notes: Numbers in parentheses represent standard errors.
Column 1 includes 4 lecturers who are not included in columns 2-4.
Faculty with unreported race are treated as nonminorities.
Salaries are 9-month salaries for 1997-98 academic year.

Table 1b: Characteristics of Current Faculty Hired After January 1, 1980,
          By Gender

By Rank:

	All Ranks (1)	Assistant (2)	Associate (3)	Full (4)
All Faculty (Hired 1980 or Later):				
Number of Faculty	295	80	103	108
Percent Female	39.3	45.0	43.7	30.6
Females Only:				
Average Age	43.7	37.0	45.0	48.9
Years at UCSC	7.1	3.0	8.4	9.9
Average "Step"	--	3.1	2.3	3.5
Average Salary	57,809	46,072	54,784	74,573
Males Only:				
Average Age	44.3	36.8	42.8	49.5
Years at UCSC	7.5	2.7	8.2	9.6
Average "Step"	--	3.4	2.2	3.8
Average Salary	62,712	46,227	57,098	76,428
Female-Male Difference:				
Average Age	-0.5	0.2	2.3	-0.6
	(1.0)	(1.0)	(1.0)	(1.2)
Years at UCSC	-0.4	0.2	0.3	0.3
	(0.5)	(0.5)	(0.5)	(0.9)
Average "Step"	--	-0.3	0.1	-0.3
		(0.2)	(0.2)	(0.5)
Average Salary	-4,903	-155	-2,315	-1,855
	(1,764)	(765)	(1,154)	(2,931)

Notes: Numbers in parentheses represent standard errors.
       Column 1 includes 4 lecturers who are not included in columns 2-4.
       Faculty with unreported race are treated as nonminorities.
       Salaries are 9-month salaries for 1997-98 academic year.

Table 2a: Characteristics of Current Faculty Hired, By Minority Status

By Rank:

	All Ranks (1)	Assistant (2)	Associate (3)	Full (4)
All Faculty:				
Number of Faculty	421	80	111	224
Percent Minority	21.9	37.5	28.8	12.5
Minorities Only:				
Average Age	43.9	36.2	45.4	50.1
Years at UCSC	9.3	2.9	10.0	15.1
Average "Step"	--	3.2	2.3	3.3
Average Salary	58,819	46,354	59,963	74,436
Nonminorities Only:				
Average Age	48.6	37.4	44.3	53.1
Years at UCSC	13.7	2.8	9.0	18.4
Average "Step"	--	3.3	2.4	4.7
Average Salary	69,559	46,040	55,786	81,123
Minority-Nonminority Difference:				
Average Age	-4.7 (0.9)	-1.2 (1.0)	1.1 (1.3)	-3.0 (1.2)
Years at UCSC	-4.5 (0.9)	0.2 (0.5)	1.0 (1.1)	-3.3 (1.6)
Average "Step"	--	-0.1 (0.2)	-0.1 (0.2)	-1.4 (0.4)
Average Salary	-10,740 (1,740)	314 (839)	1,117 (1,234)	-6,687 (2,473)

Notes: Numbers in parentheses represent standard errors.
Column 1 includes 4 lecturers who are not included in columns 2-4.
Faculty with unreported race are treated as nonminorities.
Salaries are 9-month salaries for 1997-98 academic year.

Table 2b: Characteristics of Current Faculty Hired After January 1 1980,
          By Minority Status

By Rank:

	All Ranks (1)	Assistant (2)	Associate (3)	Full (4)
All Faculty (Hired 1980 or Later):				
Number of Faculty	295	80	103	108
Percent Minority	26.1	37.5	27.2	16.7
Minorities Only:				
Average Age	41.7	36.2	43.8	47.4
Years at UCSC	6.6	2.9	8.3	10.1
Average "Step"	--	3.2	2.2	2.4
Average Salary	55,856	46,354	57,096	69,778
Nonminorities Only:				
Average Age	44.9	37.4	43.8	49.7
Years at UCSC	7.6	2.8	8.3	9.6
Average "Step"	--	3.3	2.3	3.9
Average Salary	62,525	46,040	55,710	77,076
Minority-Nonminority Difference:				
Average Age	-3.2	-1.2	0.0	-2.3
	(0.9)	(1.0)	(1.1)	(1.4)
Years at UCSC	-1.1	0.2	0.0	0.4
	(0.5)	(0.5)	(0.6)	(1.0)
Average "Step"	--	-0.1	-0.1	-1.6
		(0.2)	(0.2)	(0.4)
Average Salary	-6,669	314	1,386	-7,299
	(1,674)	(839)	(1,372)	(2,689)

Notes: Numbers in parentheses represent standard errors.
       Column 1 includes 4 lecturers who are not included in columns 2-4.
       Faculty with unreported race are treated as nonminorities.
       Salaries are 9-month salaries for 1997-98 academic year

Table 3: Characteristics of UCSC Faculty by Ethnic Group

Ethnicity/ Gender	Number	Asst.	Assoc.	Full	Avg. Age	Time	Avg. Salary
1. All minorities	92	32.60%	34.80%	30.40%	43.9	9.3	58,819
a. Women	41	41.50%	31.70%	22%	43.2	7.9	55,364
b. Men	51	25.50%	37.30%				
2. Asian	48	35.40%	37.50%				
a. Women	19	47.40%	26.30%				
b. Men	29	27.60%	44.80%				
3. Hispanic	25	24%	48%				
a. Women	13	23.10%	53.80%				
b. Men	12	25%	41.70%				
4. African-American	15	26.70%	13.30%				
a. Women	7	42.90%	14.30%				
b. Men	8	12.50%	12.50%				
5. American Indian	4	75%	0%				

Table 4a: Alternative Salary Determination Models for all Faculty

Model:

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nonminority Female	-14.4**	-7.2**	-4.2*	-6.0**	-4.4**	-1.7	-0.5
	(3.0)	(2.0)	(2.0)	(1.7)	(1.6)	(1.5)	(0.6)
Minority Female	-25.6**	-11.0**	-6.8**	-6.0**	-4.2	-0.7	2.8**
	(4.2)	(2.9)	(2.9)	(2.4)	(2.3)	(2.1)	(0.8)
Minority Male	-15.8**	-5.0	-5.0	-3.6	-2.2	-2.3	1.5
	(3.8)	(2.6)	(2.5)	(2.1)	(2.0)	(1.8)	(0.7)
Engineering	--	--	16.6**	--	--	19.5**	18.8**
			(3.6)			(2.7)	(1.0)
Natural Sciences	--	--	4.8*	--	--	3.8*	-2.8**
			(2.0)			(1.5)	(0.6)
Humanities	--	--	-3.4	--	--	-2.1	-1.8**
			(2.1)			(1.6)	(0.6)
Arts	--	--	-9.1**	--	--	-6.4**	-2.2**
			(2.9)			(2.1)	(0.8)

Other Controls:

Age, Age^2	no	yes	yes	no	yes	yes	yes
Years, Years^2	no	yes	yes	no	yes	yes	yes
Rank	no	no	no	yes	yes	yes	yes
Step Within Rank	no	no	no	no	no	no	yes
R-squared	0.121	0.604	0.648	0.736	0.771	0.810	0.974

Notes: Coefficients are percentage differences in salary for gender/minority groups (relative to male nonminority faculty). Standard errors in parentheses.

A single star indicates statistical significance at the 5 percent level; a double star indicates statistical significance at the 1 percent level (for a two tailed test of the hypothesis of a zero coefficient). Dependent variable in all models is the logarithm of annual (9-month) salary for 1997-98 academic year for 421 observations. Models in columns 3, 6, and 7 include controls for Division relative to Social Sciences. Other models exclude controls for Division. The other control variables are defined as follows: age is age in 1997; years represents the number of years on the UCSC faculty; rank represents a set of indicators for rank (lecturer, assistant professor, associate professor, professor); step within rank represents a set of indicators for rank and step (a total of 16 possible categories).

Table 4b: Alternative Salary Determination Models for Faculty Hired After January 1, 1980

Model:

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nonminority Female	-7.9** (3.2)	-5.8* (1.4)	-3.1 (1.9)	-3.3 (1.9)	-3.1 (1.8)	-0.5 (1.6)	-0.7 (0.7)
Minority Female	-14.6** (4.2)	-8.5** (3.1)	-5.5 (3.1)	-3.3 (2.4)	-2.9 (2.3)	0.0 (2.2)	2.5** (1.0)
Minority Male	-11.0** (4.2)	-2.2 (3.1)	-2.4 (2.9)	-2.7 (2.4)	-1.1 (2.3)	-1.7 (2.1)	1.1 (0.9)
Engineering	--	--	15.0** (3.9)	--	--	18.7** (2.7)	19.2** (1.9)
Natural Sciences	--	--	1.5 (2.5)	--	--	0.8 (1.8)	-3.7** (0.8)
Humanities	--	--	-2.9 (2.6)	--	--	-2.7 (1.8)	-3.0** (0.9)
Arts	--	--	-12.2** (3.3)	--	--	-8.3** (2.4)	-3.0** (1.1)

Other Controls:

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age, Age^2	no	yes	yes	no	yes	yes	yes
Years, Years^2	no	yes	yes	no	yes	yes	yes
Rank	no	no	no	yes	yes	yes	yes
Step Within Rank	no	no	no	no	no	no	yes
R-squared	0.055	0.505	0.564	0.701	0.731	0.789	0.963

Notes: Coefficients are percentage differences in salary for gender/minority groups (relative to male nonminority faculty). Standard errors in parentheses. A single star indicates statistical significance at the 5 percent level; a double star indicates statistical significance at the 1 percent level (for a two tailed test of the hypothesis of a zero coefficient). Dependent variable in all models is the logarithm of annual (9-month) salary for 1997-98 academic year for 295 observations on faculty hired after 1980. Models in columns 3, 6, and 7 include controls for Division relative to Social Sciences. Other models exclude controls for Division. The other control variables are defined as follows: age is age in 1997; years represents the number of years on the UCSC faculty; rank represents a set of indicators for rank (lecturer, assistant professor, associate professor, professor); step within rank represents a set of indicators for rank and step (a total of 16 possible categories)

Table 5a: Alternative Models for the Starting Step of Newly-Hired
Assistant Professors

Model:

	(1)	(2)	(3)
Nonminority Female	-0.33** (0.12)	-0.34** (0.11)	-0.22* (0.11)
Minority Female	-0.67** (0.17)	-0.69** (0.16)	-0.48** (0.16)
Minority Male	-0.07 (0.15)	-0.11 (0.14)	-0.10 (0.13)
Engineering	--	--	-0.07 (0.20)
Natural Sciences	--	--	0.42** (0.12)
Humanities	--	--	-0.15 (0.12)
Arts	--	--	-0.21 (0.17)
Other Controls:			
Age, Age^2	no	yes	yes
Year of Hire	yes	yes	yes
R-squared	0.25	0.34	0.40

Notes: Dependent variable for all models is the starting step for
newly-hired assistant professors. Sample consists of 326 observations
on individuals who were on the faculty in academic year 1997-98 and
were initially hired as an assistant professor. Coefficients in rows 1-3
are the differences in the initial step for gender/minority status groups
relative to male nonminority faculty. Standard errors in
parentheses. A single star indicates statistical significance at the 5
percent level (for a two-tailed test of the hypothesis of a zero coefficient).
All models include a complete set of controls for the year first hired.

Table 5b: Alternative Models for the Starting Salary of Newly-Hired Assistant Professors

Model:

	(1)	(2)	(3)	(4)
Nonminority Female	-1.4 (2.1)	-1.4 (2.1)	-0.1 (2.2)	1.1 (2.0)
Minority Female	-1.2 (3.0)	-1.2 (3.0)	0.8 (2.1)	3.5 (3.0)
Minority Male	4.0 (2.6)	4.0 (2.6)	3.2 (2.6)	4.1 (2.5)
Engineering	--	--	14.1** (3.9)	14.1 (3.7)
Natural Sciences	--	--	1.4 (3.9)	0.0 (2.3)
Humanities	--	--	-1.8 (2.3)	-0.7 (2.3)
Arts	--	--	-1.1 (3.2)	0.3 (3.1)
Other Controls:				
Age, Age^2	no	yes	yes	yes
Year of Hire	yes	yes	yes	yes
R-squared	0.944	0.944	0.947	0.952

Notes: Dependent variable for all models is the logarithm of annual (9 month) salary in first year hired. Sample consists of 326 observations on individuals who were on the faculty in academic year 1997-98 and were initially hired as an assistant professor. Coefficients in rows 1-3 are the differences in the initial salary for gender/minority status groups relative to male nonminority faculty. Standard errors in parentheses. A single star indicates statistical significance at the 5 percent level (for a two-tailed test of the hypothesis of a zero coefficient). All models include a complete set of controls for the year first hired.

Table 6: Alternative Models for the Advancement Gap

Model:

	(1)	(2)	(3)	(4)	(5)
Nonminority Female	-0.31 (0.18)	-0.40* (0.18)	-0.34 (0.18)	-0.12 (0.18)	-0.18 (0.17)
Minority Female	-0.47 (0.25)	-0.58* (0.26)	-0.52* (0.26)	-0.20 (0.25)	-0.27 (0.26)
Minority Male	-0.46* (0.22)	-0.54 (0.23)	-0.51 (0.23)	-0.42 (0.22)	-0.46 (0.22)
Engineering	--	--	--	0.00 (0.32)	-0.12 (0.32)
Natural Sciences	--	--	--	0.80** (0.19)	0.78** (0.19)
Humanities	--	--	--	0.01 (0.20)	0.03 (0.19)
Arts	--	--	--	-0.20 (0.26)	-0.09 (0.26)
Other Controls:					
Age, Age^2	no	yes	yes	no	yes
Years, Years^2	no	no	yes	no	yes
R-squared	0.019	0.036	0.048	0.088	0.108

Notes: Dependent variable for all models is the "advancement gap", defined as the difference between the actual and expected number of promotions received since first joining the UCSC faculty. Sample includes 403 faculty whose rank and step at first hiring were known, and who held assistant, associate, or Fullessor rank as of September 1997. Coefficients are the differences in the advancement gap for gender/minority status faculty (relative to male nonminority faculty). Standard errors in parentheses. A single star indicates statistical significance at the 5 percent level (for a two-tailed test of the hypothesis of a zero coefficient). Expected number of promotions is assigned on the basis of rank and step at hiring, and number of years since hiring. See notes to Table 4a for description of control variables.

Table 7: Alternative Models for the Advancement Gap, Ingoring
Promotions Beyond Fullessor Step 5

Model:

	(1)	(2)	(3)	(4)	(5)
Nonminority Female	-0.18 (0.15)	-0.32* (0.15)	-0.32* (0.15)	-0.04 (0.15)	-0.21 (0.15)
Minority Female	-0.24 (0.22)	-0.46* (0.22)	-0.46* (0.22)	-0.04 (0.22)	-0.29 (0.22)
Minority Male	-0.32 (0.19)	-0.47* (0.19)	-0.47 (0.19)	-0.29 (0.19)	-0.43* (0.19)
Engineering	--	--	--	0.09 (0.28)	-0.14 (0.28)
Natural Sciences	--	--	--	0.56** (0.16)	0.54** (0.16)
Humanities	--	--	--	-0.02 (0.17)	0.04 (0.17)
Arts	--	--	--	-0.12 (0.23)	-0.04 (0.22)
<u>Other Controls:</u>					
Age, Age^2	no	yes	yes	no	yes
Years, Years^2	no	no	yes	no	yes
R-squared	0.009	0.071	0.076	0.054	0.115

Notes: Dependent variable for all models is the "advancement gap",
defined as the difference between the actual and expected number of
promotions received since first joining the UCSC faculty. Promotions
beyond Fullessor step 5 are ignored. See notes to Table 6 for
sample and other notes.

Appendix 2: APM Description of Advancement through the Academic Ladder

APM - 220-18 Salary 1/1/98Academic Personnel Manual Professor Series

220-18 **Salary** a. Authorized salary scales established for this series are issued by the Office of the President b. Normal Periods of Service The normal periods of service at rank and step in this series are shown in the published salary scales and are described below. Although these time periods indicate the usual intervals between advancements, they do not preclude more rapid advancement in the case of exceptional merit, or more gradual advancement when warranted. (1) Instructor: Service in the rank of Instructor is limited to two years. (2) Assistant Professor: The total period of University service in the title Assistant Professor, or in this and certain other titles (see APM - 133-0) shall not exceed eight years, except as provided in APM - 133-12. The normal period of service at a given step in this rank is two years. The first four steps in rank and corresponding salary levels are for normal use. Steps V and VI may be used in exceptional situations and with proper justification. Service at Assistant Professor, Step V, may be in lieu of service at Associate Professor, Step I, for which the published salary is slightly higher. Likewise, service at Assistant Professor, Step VI, may be in lieu of service at Associate Professor, Step II. In those instances of service at Assistant Professor, Step V, followed by service at Associate Professor, Step I, the normal period of combined service with both titles at the steps indicated is two years. The same normal two-year period of combined service applies when service at Assistant Professor, Step VI, is followed by service at Associate Professor, Step II. (3) Associate Professor: The normal period of service in the rank of Associate Professor is six years. The normal period of service at any one of the first three steps of the rank is two years. Steps IV and V may be used in exceptional situations and with proper justification. Service at Associate Professor, Step IV, may be partly or entirely in lieu of service at Professor, Step I, for which the published salary is slightly higher. Likewise, service at Associate Professor, Step V, may be partly or entirely in lieu of service at Professor, Step II. The normal period of service at Associate Professor, Step IV, is three years if such service is fully in lieu of service as Professor, Step I. In those instances of service at Associate Professor, Step IV, followed by service at Professor, Step I, the normal period of combined service is three years. The situation for Associate Professor, Step V, and Professor, Step II, is exactly analogous to that for Associate Professor, Step IV, and Professor, Step I. (4) Professor: The normal period of service at step is three years in each of the first four steps. Service at Step V may be of indefinite duration. Advancement to Step VI usually will not occur after less than three years of service at Step V, and will be granted on evidence of highly distinguished scholarship, highly meritorious service, and evidence of excellent University teaching. In interpreting these criteria, reviewers should require evidence of excellence and high merit in original scholarship or creative achievement, teaching and service; and, in addition, great distinction, recognized nationally or internationally, in scholarly or creative achievement or in teaching. Service at Professor, Steps VI, VII, or VIII may be of indefinite duration. Advancement from Professor, Step VI to Step VII and from Step VII to Step VIII, usually will not occur after less than three years of service at the lower step, and will only be granted on evidence of continuing achievement at the level required for advancement to Step VI. Those Professors who are paid on the special Law School scale which has eight steps for the range are subject to the same criteria as Professors outlined above. Advancement to an above-scale salary is reserved for scholars and teachers of the highest distinction whose work has been internationally recognized and acclaimed and whose teaching performance is excellent. Except in rare and compelling cases, advancement will not occur after less than four years at Step VIII. Moreover, mere length of service and continued good performance at Step VIII is not a justification for further salary advancement. There must be demonstration of additional merit and distinction beyond the performance on which advancement to Step VIII was based. A further merit increase in salary for a person already serving at an above-scale salary level must be justified by new evidence of merit and distinction. Continued good service is not an adequate justification. Intervals between such salary increases may be indefinite, and only in the most superior cases where there is strong and compelling evidence will increase at intervals shorter than four years be approved.

DISCUSSION

This report documents significant differences in the average salaries of women and minority faculty as compared with the salaries of non-minority males at the University of California, Santa Cruz. Such differences have been reported at UC Berkeley and UC Davis and are widespread in academia[3]. On the other 2 UC campuses, the observed salary differences were associated with differences in promotion rates and starting rank and step of the faculty. Beyond documenting the salary differences at UCSC, we also attempted to link the salary differences to factors that could explain the differences. The factors that we selected do, in combination, predict almost all the salary disparities, but are themselves not entirely without controversy. Furthermore, the factors may not be causal themselves, but correlated with other more fundamental parameters not in the data base.

Our analysis first presents descriptive data which examines average characteristics of female and minority faculty as compared with male and non-minority faculty, respectively (Tables 1-3). Simple descriptors of these faculty are presented, including their age, time on the academic ladder, and rank (i.e. whether assistant, associate, or full professor), and step within rank. From these initial descriptions of the faculty, we progressed to analyses that sought to uncover the factors with which salary differences were associated. For the analysis of factors associated with, or responsible for the disparities, we chose a statistical approach that allowed us to consider possible factors individually or in combination (Tables 4-7). For this more analytical approach, we chose regression analyses that could estimate how much of the observed salary differences by gender and minority status were associated with a number of factors: faculty age, time on the ladder, rank, step, and academic division. In these more analytical treatments, we separated the faculty into non-minority males, who were used as the comparison group, and 3 other groups that included the non-minority women, minority women, and minority males. We also examined the hypothesis that some of differences in rank and step were due to differences in advancement rate between non-minority males and the 3 other faculty groups. Additionally we examined the possibility that the 3 faculty groups enter the university with different starting salaries and positions than non-minority males. In these later analyses (Tables 4-7) we likewise investigated the possible effect on salaries due to residing in different academic divisions.

After viewing the initial analyses of the data, the committee decided to present results for not only the full range of faculty, but also a smaller subset that represented those hired in the last two decades who were on campus in July 1997. The separate treatment recognizes the more recent academic policies of the campus may result in different characteristics of the more newly hired group and that the original data set might be biased

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by the presence of more senior faculty who had progressed to their positions through policies differing from those operating presently. Thus the data were examined as a total faculty (i.e. all those hired since the inception of the campus in the 1960s) and those hired from 1980 onwards.

The Salary Differences

As a group, women receive significantly lower pay then men, and minorities receive lower pay than non-minorities. These were differences of $10,.054 for the women and $10,740 for the minorities, for faculty on campus in the 1997-98 academic year and hired any time from the 1960s on. For the more recent hires from 1980 onwards, the salary differences were still highly significant but smaller, being $4,903 less for women than men, and $6,669 less for minorities than non-minorities. The most disadvantaged group were the female minorities, who had salaries 25.6% lower than non-minority males (Table 4A, Model 1). As described above (Results), some of the salary differences appeared to be associated with the more junior status of the average woman and minority faculty member on campus. Thus, averages showed a slightly younger population (by 3.2 years) of women and one that had spent less time on the ladder (by 4.3 years) than the entire faculty pool (i.e. those hired since the 1960's). However, the fact that salaries remain sizably and significantly lower in the pool of more recent hires (those from 1980s onward), when the age and time on campus no longer differs from those of non-minority males, suggests the salary disparities require other explanations. When salaries are considered by rank (i.e. (assistant, associate or full professor), disparities are smaller but significant in 1/3 of the comparisons. The greatest differences were seen for full professors: a $6,466 for women in the full (post 1960) data and a $7,299 differences for minorities in the more recent hires (1980s onward). Within ranks, minorities and women were almost always slightly behind, though rarely significantly so. Differences exist in the step faculty hold within each of the 3 ranks, though these differences are mostly not significant. The descriptive data leave the overall impression that women and minorities receive lower salaries because they are found in the lower ranks of the faculty than their male and minority counterparts. The data also indicate the women and minorities occupy lower steps within each of the ranks.

The data base also provided some descriptive information about the minority pool and their salaries. Minorities on campus (both men and women) were found to represent about 22% of the faculty in the 1997-98 year, and most (83%) were hired from 1980 onwards. Because the minority faculty pool is relatively small (92) and some of the ethnic groups very small (4 in the American Indian group), detailed analysis by ethnic group was not possible. However there are noteworthy features. First the minorities are more gender balanced than the total faculty pool, with 55% being women. The gender mix is almost evenly divided except for the Asian faculty, which is 60% male. The average salary of all groups is lower than that of their non-minority women or male

counterparts (Table 3). The 2 lowest paid groups are those that have the highest proportions of assistant professors: the Asians and the American Indian faculty. The African American group receives the highest salaries, but these have the highest proportion of full professors.

Factors Associated with the Salary Differences

The initial descriptive analyses of salary differences suggest that some of the contributing factors are associated with the faculty member's age, length of time spent on campus, rank and step. The last two variables, namely rank and step, appear potentially problematic, because lower rank or step could result from factors such as slower movement through the academic ladder or lower initial appointment levels. Another possible contributor appeared to be the distribution of faculty within the divisions, because one of the divisions (engineering) has a higher salary scale typical of professional schools within the UC system. Furthermore, it appeared possible that hiring, promotion or other factors varied among the divisions, even if they used the same basic salary scales, and thus that a possible division effect should be considered. Thus we chose a more analytical treatment of the data that measured the effects of possible contributing factors for non-minority women, the minority women, and the minority males separately. The non-minority males were the comparison pool for these analyses.

To examine the various factors contributing to salary differences, we constructed various regression models that contained combinations of the factors that might contribute to salary differences. The models that used all the factors were remarkably successful, with 97.4% of disparities for women and minorities being explained in the entire faculty pool (those hired from the 1960s onwards) and 97.4% in the more recent hires (1980 onwards). The regression models also provide information about the importance of various factors in contributing to the salary differences. The first regression (Table 4A) considered the entire faculty pool (those hired since the 1960s) who were still on campus in July 1997. Considering all the non-minority women on campus, there was a highly significant salary difference of 14.4%, as compared with non-minority males. Differences declined to only 0.5%, when all controls were added. For the minority women, a 25.5% lower overall salary, as compared with non-minority males, required age, years on campus, and rank to be controlled before salary differences were no longer significant, though salaries were still 4.2% lower than for non-minority males. Surprisingly, when the regression included a factor for the academic division and the step at rank, minority women are paid slightly but significantly (statistically) more than non-minority males by 2.8%. Thus the large differences in average salaries for minority women and relative to non-minority men appear mostly due to their younger age, fewer years on campus and more junior ranks, but when compared with their non-minority male counterparts in the same division at the same step, their salary is slightly higher. For the minority males, their salaries are initially 15.8% lower than non-minority males, but no longer differ from them significantly when their age and years of service are considered.

When the more recently hired pool of faculty are considered, the factors explaining salary disparities remain mostly the same (Table 4B) as for the entire faculty group (Table 4A). The smaller initial salary difference for non-minority women (7.9%) now requires only age and years on campus to reduce the disparities to statistical insignificance, but the disparities become even smaller if all factors are considered. The 14.6% difference for minority women likewise requires only age and years on campus before reaching non-significance, and again controls for rank, step, and division indicate that minority females are paid slightly but significantly (2.5%) more than their non-minority males. The initially 11.0% lower salaries of minority males no longer differ significantly from those of non-minority males after controls for age and years are applied.

The salary disparities for women and minorities appear to be related partly to their relatively low numbers in the divisions with the most favorable salary arrangements (see text table "Characteristics of Faculty by Division" in Results, above). In the regression analyses examining salary disparities, an important divisional pattern emerged (. For comparison sake, the differences among divisions are calculated using the salaries in the social sciences as the standard, thus allowing 4 comparisons with each of the remaining divisions: engineering, natural sciences, humanities, and arts. The analyses indicate that salaries for the full faculty pool of hires (1960s and later) is 18.8% higher for engineering faculty, when their rank and step (model 7) is considered. This salary difference becomes 19.2% for the later pool of hires from 1980 onwards (Table 4B, model 7). All the other divisions have slightly (2.2-2.8%) lower salaries than social scientists, suggesting that that division might be using more off-scale step salaries. It appears likely that the various divisions are capable of adjusting their step salaries to various degrees, though these involve relatively small differences in the aggregate.

Factors Associated with Initial Hiring

Because the analytical models presented in Tables 4A and B showed that rank and step were of critical importance in explaining salary differences, we examined the possibility that disparities occur in the initial hire, and that the later differences are thus a residual from an original disadvantage. We explored the initial hires by examining both faculty step and salary at hire. We considered the records of people who were hired as assistant professors only, because patterns for this group are more straightforward and easy to interpret than those entering at higher ranks with considerable experience (We have no basis for independently assessing the scholarly performance of any faculty member, an assessment that would be required to decide the justice of a particular entry level of a more experienced faculty)[4]. The results (Table 5A) show that indeed non-minority women, minority women and minority males enter at lower steps by 0.33, 0.676, and 0.07 respectively, with the first 2 values being statistically significant. Controlling for age and
division, both non-minority and minority women still average significantly lower steps than non-minority men at hire (effects ranging from 0.22 to 0.69 steps). In contrast,

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the starting salaries of non-minority females, minority females and minority males do not differ significantly from non-minority males though they average slightly lower for the women (1.4 and 1.2%, respectively) and slightly higher for the non-minority males (4%). Surprisingly, as division controls are added, especially together with controls for the step at entry, the salaries of the 3 groups all become higher than their non-minority male counterparts by from 1.1-4.1%, though these differences are not significant (Table 5, Model 4),

Thus the initial hire appears to show two counter-balancing factors. Women and minorities are brought in at lower steps. However, their initial salaries do not differ significantly in spite of this because they receive slightly higher pay (but not significantly different) for the same step as their non-minority male counterparts. An interesting divisional trend becomes evident in the analysis, too. It appears newly hired faculty in the natural sciences are entering at a slightly, but statistically significantly significantly, higher (0.42) step than those in other divisions (Model 3, Table 5A). Furthermore, faculty in engineering are entering at the same step but with higher salaries at step, expected of the augmented salaries for this division. The lower salaries of minorities and women can thus be partly explained by their relatively small numbers in the two divisions that either have initially higher salaries (engineering) or that place their initial hires at higher steps (natural sciences).

Factors Associated with Advancement Rate

Another possible contributor to the lower salaries of women and minorities at UCSC could be a lower advancement rate through the academic ladder. This would be evidenced by their holding lower ranks and steps for the length of time on campus, as compared with a reference group (non-minority males). Thus we examined directly the hypothesis that women and minorities advance through the system more slowly than the reference group, non-minority males.

For this analysis, we determined the advancement rate of all senate faculty for which we had data (1960s appointments and onwards) by comparing them with the progress of a faculty member who spent the normal number of years at rank and step, as expressed in the Academic Personnel Manual (APM). The standard rate is shown in Appendix and basically assumes a faculty spends 2 years at each of the assistant and associate ranks and 3 years at each of the full professor steps up to step 5. It assumes a faculty receives promotions to the next rank at the usual time (i.e. after assistant step 4 and associate step 3). The variable that we call "*advancement gap*" is the number of steps progressed in the faculty member's time on campus, minus the expected number of steps, given the faculty's entry level and time on the academic ladder. (Overlapping steps in the assistant and associate series are treated as off-scale appointments of the normal "endpoint" for

that series: e.g. Associate professor 5 would be treated as an off-scale 4.)   Interestingly, the advancement rate for all groups is positive, indicating that UCSC faculty average slightly less time in each step than would be expected on the basis of the APM (Appendix 1 and 2). The gap is 0.69 for men, 0.42 for women, 0.61 for non-minorities (men and women), 0.31 for minorities of both gender, and also varies by division, being higher in the natural sciences (1.17) than other divisions (0.32).

Because of a concern over how to treat faculty at very high steps in the full professor series, we devised two estimates of advancement gap. The data show that the divisions have different proportions of faculty above full professor step 5 (the highest normal rung on the academic ladder), and we were concerned that those divisions without such faculty would appear to have slower advancement rates[5] even though they progressed quickly to that step and rank. Thus we did a full analysis considering the advancement rates for faculty from the entry point to their position in 1997-98 (up to a possible full professor step 8 or even an additional above-scale step) and a separate analysis for faculty advancement up until they reached full professor step 5.

Advancement gap profiles generally showed women and minorities moving more slowly through the academic ladder (Tables 6 and 7). As in the other analyses, we looked at the overall rates and then controlled for factors that could reasonably be expected to affect the rate. Non-minority women progressed more slowly than their non-minority male counterparts, having gaps of 0.31 steps when all steps and ranks are surveyed (Table 6), or 0.18, when advancement only up to full professor step 5 (Table 7) is measured. The lower rates only become statistically significant when age or age and years on the ladder is controlled. For the minority women, the gap is more negative, being 0.47 steps when all ranks and steps are considered (Table 6), a value not significantly different from the non-minority males, but the gap becomes significant as age (0.58 steps Table 6) or age and time on campus (0.46 steps) is controlled. Minority men as a group are a significant 0.47 steps behind, when faculty at all steps and ranks are considered, and these differences change slightly depending on which data set is used and the particular controls applied, (maximum of 0.51 steps behind, Table 6).

These advancement gap data show a consistently slower progression rate for women and minorities, as compared with non-minority males. Minority males show a significant gap as compared with non-minority males. Considered separately, minority women and non-minority women advance more slowly also, but these differences are not significantly different from non-minority men. Then the 3 groups are pooled, however (minorities and women) the difference from non-minority men becomes marginally significant. The step-based analyses are less powerful, using discrete data, than our salary analyses, and given the relatively small differences that appear in our advancement gap results, it is understandable that the differences, if real, lie at the margin of statistical significance.

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[5] Faculty at steps above full professor 5 usually have external reviews similar to those required for rank promotions.) There are important differences among the divisions, with some having no

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full professors above this level and others with a sizable proportion (see Results) The pattern of higher level appointments in the different divisions may result from academic traditions, attempts by divisions to retain faculty who might otherwise leave campus for other positions (i.e. market forces), or other factors.

A surprising but small effect appears to be related to the age and time a woman or minority faculty spends on the ladder: as these faculty become older and spend more time on the ladder, the salary and step disparities become greater. Further analyses of the data suggest that the age of the faculty, in particular, is the factor that most explains the reductions, with women and minority faculty progressing more slowly as they age than their non-minority male counterparts (the effect is small, however, ranging from -.03 to -.25 steps).

A divisional pattern again emerges in the data. The engineering, humanities and arts divisions show promotion rates (i.e. "advancement gaps') that do not differ significantly from those in the social sciences (Table 6 and 7). However, the natural sciences division is significantly ahead by 0.54 to 0.80 steps, with the value depending on various controls for age or seniority of the pool (i.e. Table 6 or 7). Thus it appears that women and minorities in the natural science division, by virtue of being in this division, will be accelerated more rapidly. Furthermore, this division has higher numbers of its full professor moving above full professor step 5, thus providing greater access to the higher salaries associated with those steps. However since the proportions of women and minorities are comparatively lower in that division, their overall campus pattern will more reflect the advancement pattern in the remaining divisions, which is slightly slower.

The Overall Patterns

From the overall analysis, with its combination of descriptive data and use of more complex analytical models to explain the observed patterns, several broad patterns emerge. The first is that there is clear evidence that minority and women faculty have lower average salaries than their non-minority or male counterparts, respectively, with salaries differences ranging from $4,903 to $10,740, depending on which data set is used. On a percentage basis, minority women have the largest gap and non-minority women the smallest, on the average. The differences "disappear" almost entirely when comparisons with non-minority males of the same age, years on campus, rank and step, and division are made. Indeed faculty salaries can be predicted almost completely ($R^2 >$ 0.96) when these descriptors are known. Significant divisional patterns also emerged, with faculty in engineering having the highest salaries, because they use a separate salary scale like those found in business and engineering schools in the UC system.

The use of rank and step in the analyses, however, may be problematic. If minorities and women progress more slowly than non-minority males, their salary may be predictable if their rank and step is known, but these faculty should possibly be at higher rank and step. Thus we investigated the possibility that women and minorities enter at lower steps and with lower salaries or that they advance more slowly through the

academic ladder. The results of these analyses indicate that both of these effects appear to explain some of the salary differences.

   To examine potential differences in entry level positions, we reviewed the records of assistant professors, as explained above. The entry level step indeed is significantly lower for women, both minority and non-minority, but not for minority men. However, the salaries of all three groups at entry does not differ from non-minority males, suggesting that off-scale salaries are being offered to negate the effect of lower starting step. This practice could represent attempts to bring onto campus highly competent, more junior faculty to help increase the diversity of the faculty at UCSC. Alternatively it could represent a less laudable practice of hiring these faculty at lower steps, but partly compensating for this by offering higher salaries at step. (Salaries at the time of hire are mostly lower than those of non-minority males, though not significantly so). Thus the conclusion is that women and minority faculty are starting at a slightly lower rung on the academic ladder, but that they are not significantly disadvantaged in their initial salary, in spite of this.

   The second concern was that women and minorities are disadvantaged by moving more slowly through the academic ladder. This appears to be the case, though it emerges as an aggregate pattern, rather than one that shows significant differences for particular groups under specific situations: on the average, all groups progress more slowly, with minority males being the slowest and non-minority females being the least slow, though still behind non-minority males on the average. Again there were important divisional patterns and the small pool size of women and minorities in the natural sciences exacerbates the average disparity, as described below.

   The reasons for the lower pay of women and minorities should be of concern to the campus, even though such a pattern is often found in other academic institutions. As we have shown, some of the difference in the average salary is attributable simply to these faculty being more junior than the average non-minority faculty on campus. But the remaining factors are more problematic or not readily explained. Women and minorities move through the steps more slowly than non-minority males. They also start at lower steps, though not significantly lower salaries. They seem to advance through the ranks and steps more slowly than non-minority men, likely causing the disparities that show up most clearly at the full professor ranks. The advancements gaps increase, though to a small degree, as the women and minority faculty become older. The minority males appear to be the slowest of the pools, and it appears likely that their slightly higher pay at step contributes to their lack of a significant salary gap. The reasons for the slowing of the faculty through the steps should be a major concern for both women and minorities, because it can cause the type of salary discrepancies observed in this study: a 1 -2 step salary difference for full professor (as noted in the full professor data) largely accounts for the salary disparities. (See Appendix 3)

   The presence of differences between the science and engineering divisions, and the remaining campus divisions is perhaps both predictable and somewhat controversial. The fact that engineering has a separate pay scale is expected to contribute to salary

differences at any rank and step. However, the fact that relatively few women and minorities are in this division, which is itself small, contributes to the campus effect of lower average salaries for women and minority faculty. The natural science division also appears to affect the salary balance and has a lower proportion of both women and minorities than the other divisions. Its tradition of hiring at a slightly higher step, and the more rapid progression of its faculty through the ranks favors women and minorities, along with other faculty in the division. Furthermore sizable numbers of the full professors move on to the higher full professor steps (i.e. above 5), likewise helping to augment salaries of faculty in that division. However, the relatively small proportions of the women and minorities in the natural sciences means that they do not proportionately benefit from that division's practices. Thus, the lower representation of women and minority faculty in these divisions, relative to their proportions in the other divisions, also contributes to disparities in their average salary across the UCSC campus.

RECOMMENDATIONS

1. That departments and deans assure that initial faculty appointments reflect the appointee's overall record of scholarly achievement at the time of hire. The Committee on Academic Personnel (CAP) should be aggressive in reviewing the initial step at which an appointee is hired, especially in the hiring of minority and women faculty members.

2. That all involved in the personnel process (including department chairs, deans, CAP, and the EVC) be especially watchful in assessing the rate of advancement of women and minority faculty during normal review processes, both for merit (step) and for promotions (rank) cases. If the advancement rate falls significantly behind the norm described in the APM and shown in Appendix 1, then the faculty member's overall rate of progress should be re-evaluated. If evidence is found that the progression through the ladder has been unduly slow, given the scholarly quality and contributions of the candidate, a merit equity review should be conducted to consider an acceleration to a more appropriate step/rank.

3. That individual faculty members be supported in requesting a merit equity review of their own case, as well as the department chairs or deans encouraged to identify individuals appropriate for such reviews, in order to re-evaluate the faculty member's entire record, including initial appointment and progress through the academic ladder.

4. That the senate help to develop a more effective mechanism to assure that a diverse pool of qualified applicants, including women and minorities, are considered for new hires on the campus. Deans and CAP already have in place the directive to seek diversity in the various disciplines, but creative new approaches are needed to assure that existing efforts are more consistent and effective across the departments and divisions.