COMMITTEE ON FACULTY WELFARE
Faculty Salary Analysis, April 2018

To: Academic Senate, Santa Cruz Division

The Committee on Faculty Welfare (CFW) annually reviews faculty salary comparative data and recently finalized its analysis of faculty salaries on the most recent data available, comparing UCSC with the other UC Campuses. The committee's latest analysis was completed in spring 2018. The data used in the analysis correspond to the October 2016 payroll extract in the UC Office of the President Corporate Data Warehouse as provided to CFW on February 2, 2018 by the office of Assistant Vice Provost of Academic Personnel (AVP) McClintock. As in previous years, this data set does not include professional schools, and it does not reflect all 2016-17 personnel actions, nor the July 1, 2017 academic salary plan. The data contained salary information on 7,567 faculty members from all campuses except UC San Francisco, a primarily medical campus. Of these faculty, 1,593 were on the Business, Economics and Engineering (BEE) scale, and 5,974 were on the regular (REG) scale.

In addition to the comparative study across the UC system, this year a central focus of CFW's analysis is salary equity across gender, ethnicity, and academic affiliations within the UCSC campus (CFW did not receive any system-wide data which included gender, ethnicity, and academic affiliations). The data set we used for this analysis reflects UCSC salaries as of the academic year 2017-18, and it includes recent retention reviews data.

The remainder of this salary analysis is structured as follows: we start with a critical review of the Annual Report of Faculty Salary Competitiveness from the Academic Personnel Office[1] (APO), and make four recommendations for future APO salary competitiveness studies; we then present our equity study, which comprises three sections: (1) ethnicity and gender salary and salary growth gaps; (2) the role and equitability of retention actions as they impact salaries and salary growth; and (3) salary and salary growth equity across academic divisions and departments.

[1] https://apo.ucsc.edu/advancement/data-and-reports/index.html

EXECUTIVE SUMMARY

Finding 1: UCSC salaries continue to lag behind system-wide levels, up to 8.5% for Above-Scale professors on the REG scale. The gap between UCSC median salaries and UC system-wide salaries increased compared to last year, even though the (original, uncurtailed) Special Salary Practice (SSP) was still in place for 2016-17 personnel actions. CFW anticipates that with the drastic changes and reduction in scope for the SSP, salary gaps will continue to grow. The situation is dismal for the top 25% and even worse for the top 10% at a given rank/step, and, when considering cost of living, makes UCSC salaries largely non-competitive even just compared to our sister UC campuses. CFW advises future APO analyses to: (1) Eliminate the misleading and inappropriate use of and comparison to 7-campus medians; (2) Include Above Scale faculty salaries; (3) Factor in estimates of cost of living; (4) Include a comparison to past years' figures.

Finding 2: UCSC faculty salaries have a "gender gap" of -10.4%, or $14,648/yr and an "ethnicity gap" (non-white versus white) of -11.8%, or $16,683/yr. Faculty at higher ranks and steps and with longer tenure at UCSC are increasingly less "diverse" both in gender and ethnicity, which explains in part the aggregate salary gaps. CFW finds a significant and persistent gender gap at the Assistant Professor rank (5.7% or $5,655/yr) and at the Full Professor (6-9) rank (4.3%, or $7,710/yr). Salary growth did not show a significant gender or ethnic bias.

Finding 3: CFW's study indicates the highly significant role that retention actions play in affecting overall compensation. Faculty who had a retention review have significantly higher median salaries and annual median salary growth. Given the large gender, ethnicity, and academic affiliation variance in retention actions, salary growth is intrinsically inequitable, for instance disproportionately benefitting male over female faculty members and certain academic divisions and departments and not others. CFW reiterates the recommendation made last year to adopt salary strategies that better reward and compensate meritorious faculty within the normative personnel action path such as an enhanced version of the Special Salary Practice.

Finding 4: UCSC exhibits a strong correlation between low average salaries and the representation of female faculty in a given department, but no such correlation exists in salary growth or based on ethnicity (white versus non-white faculty fraction by department); CFW finds that the Arts division has a systematically low promotion rate, resulting in a low salary growth; CFW did not find evidence for promotion growth bias based on gender or ethnicity at UCSC.

COMPARISON OF UCSC MEDIAN SALARIES TO SYSTEM-WIDE SALARIES

The January 2018 "Annual Report of Faculty Salary Competitiveness", prepared by the UCSC Academic Personnel Office[2] serves "*to monitor progress toward the two goals outlined in the Joint Task Force Report[3], namely:*

1) *to raise the median off-scale dollar amount at UCSC to the median off-scale amount at the next lowest campus-- then UC Davis-- by July 1, 2009; and*
2) *to raise UCSC's median faculty salary to the UC systemwide (9-campus) median by July 1, 2011. "* The report subsequently indicates that "*Since the 2008 Task Force Report, "off-scale dollars" has become increasingly unreliable as a measure of salary competitiveness "* and that, as a consequence the report "*now focuses on overall faculty salary median, with the understanding that the variation between campuses is a result of differing practices and mechanisms to increase the off-scale components. "*

Additionally, the report specifically indicates (despite its title) that it "*does not address issues of faculty salary market competitiveness*", including not addressing the issue of cost of living, which was a core focus of CFW's analysis last year. The report separately considers the Regular scale (REG) and the Business, Engineering, Economics (BEE) Scale.

CFW respectfully advises future salary analysis to:

1. **Eliminate the misleading and inappropriate use of and comparison to 7-campus medians**. There is no rationale at all in excluding UCLA and UCB from salary comparison, as already emphasized in CFW's 2016-17 report. First, it is important to note (as also noted in CFW's Faculty Salary Analysis last year[4]) that both UCLA and UCB are coastal/city campuses, with cost of living similar (and, in fact, by all three measures considered by CFW's analysis last year, *lower*!) to Santa Cruz. Second, our campus systematically uses cross-campus equity (including UCB and UCLA) as metric for the UC-wide system to aspire to (e.g., non-resident student enrollments, re-benching, student aid, admissions standards, etc.). Third, Senate (Senate Executive Committee and CFW) reports commenting on and assessing the Special Salary Practice/Merit Boost Plan have since inception (Senate-Administration Task Force on Faculty Salaries Report, September 10, 2008) insisted on the need to pursue the 9-campus median as a necessary goal of the program. CFW reiterates that continuing to offer comparisons to 7-campus medians is misleading and inappropriate, and should be eliminated from future analysis and disregarded in evaluating the findings of this year's APO faculty salary study.

2. **Include Above Scale faculty salaries.** Approximately 8.5% of all Senate faculty are Above Scale, with similar numbers at other UC campuses. These faculty are obviously a very active and important component of our faculty. There is no rationale at all for factoring out these faculty members based on the fact that their salaries are Above Scale, especially in view of the fact that a very small fraction of salaries have no off-scale

[2] UCSC Academic Personnel Office Annual Report of Faculty Salary Competitiveness, January 2018
[3] Senate-Administrative Task Force on Faculty Salaries Report, September 10, 2008
[4] Committee on Faculty Welfare Faculty Salary Analysis Academic Senate Report, January 2016

compensation, making any reference to on-scale salaries fairly meaningless. We strongly urge future APO studies to include above-scale salaries.

3. **Include estimates of cost of living.** A study titled "Report of Faculty Salary Competitiveness" that explicitly mentions that it does not "address issues of faculty salary market competitiveness [and] cost of living" is of very limited use. CFW is of the opinion that any meaningful and useful (to both faculty members and the administration) faculty study must include an assessment of cost of living, as critical decisions such as new hires and retentions obviously do. There is no merit or usefulness in comparing dollar-to-dollar salaries across campuses where cost of living differs by up to around 30%, the difference between cost of living in Santa Cruz and Merced[5].

4. **Include a comparison to past years' figures**: the APO analysis fails to compare faculty salary gaps between UCSC and UC system-wide medians now versus past years.

CFW decided to address some of the shortcomings listed above in the present section of our salary analysis. Figure 1 focuses on the REG scales, and compares the median salary gaps at given ranks and steps between UCSC and UC-system medians. Unlike what the APO study states, gaps are larger than 3% (the gap for above-scale faculty is at 8.5%, or almost $17,000). Additionally, with the exception of Associate and Professor 6-9, the gap between UCSC and UC-wide median salaries is widening, even though the Special Salary Practice (SSP) was still in place for 2016-17 personnel actions. CFW anticipates that with the drastic changes and reduction in scope for the SSP, salary gaps will continue to grow (as CFW's study last year, comparing historical trends before and after the institution of the SSP at UCSC had predicted).

The situation is markedly worse with the high-end salaries (75th and 90th percentile, corresponding to the top 25% and 10% salaries at a given rank/step). We note that none of these salary comparisons include cost of living, and that our analysis last year indicated that including cost of living places UCSC salaries gaps at the 10% or greater level. UCSC salaries therefore continue to be not competitive with salaries at other UC campuses, and the drastic reduction of the scope of the SSP goes in the opposite direction to addressing this critical strategic issue.

Fig.2 shows the same analysis for the BEE scale. Here the trend compared to the previous year is not as bad, but salary gaps continue to exist, especially above scale and for the higher percentiles.

[5] Committee on Faculty Welfare Faculty Salary Analysis Academic Senate Report, January 2016

Figure 1: Comparison between 2015-16 (blue) and 2016-17 (orange) median salary gaps for UCSC versus UC system-wide medians at a given rank/step, for all salaries (top), the highest 25% salaries at a given rank/step (middle) and the highest 10% salaries (bottom) for the REG scale

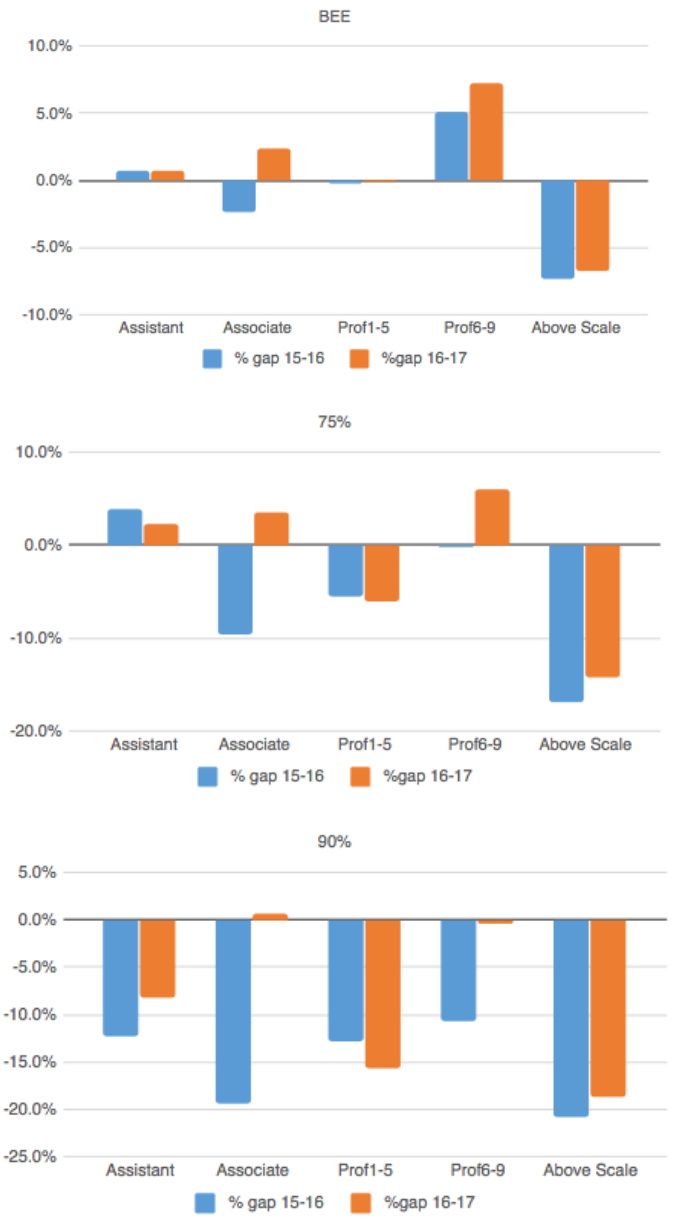

Figure 2: As in fig.1, but for the BEE scale

SALARY EQUITY STUDY: (1) ETHNICITY AND GENDER

CFW analyzed data provided by the APO on November 29, 2017[6], and December 7, 2017[7], which included data on ethnicity, gender (M/F), initial hire date and rank/step, initial hire salary, 2017-18 rank, step and salary, departmental affiliation, and an (incomplete) list of 141 successful-only retention reviews, limited to retentions from 2000-01 onward. The data referred to a total of 580 faculty members.

With the intent of analyzing possible salary inequities on the basis of ethnicity, CFW simplified the ethnicities to six categories: Unknown (16), Native American (9), Black (18), Latino (53), Asian (140), and White (380); CFW also considered the breakdown of White (380) versus non-White (the remaining 200) faculty members.

Considering all salaries, thus the aggregate of REG and BEE salary scales, CFW finds that as of 2017-18 UCSC faculty salaries have a "gender gap" (defined as the difference between the average salary of female faculty members minus the average salary of male faculty members) of -10.4%, or $14,648/yr; CFW also finds that UCSC faculty salaries have an "ethnicity gap" (defined as the difference between the average salary of non-white faculty members minus the average salary of white faculty members) of -11.8%, or $16,683/yr (see figure 3).

Aggregate salary gaps do not compare faculty salaries for faculty members with the same length of appointment or rank/step. The demographics of UCSC faculty is highly skewed, as we illustrate in figures 4 and 5. Figure 4 illustrates the fraction, at a given rank/step, of non-white (blue columns) and of female (red columns) faculty members. Figure 5 shows the fraction, at a given rank/step, of white male faculty members. The figures portray the fact that faculty at higher ranks and steps and with longer tenure at UCSC are increasingly less "diverse" both in gender and ethnicity. This explains in part the aggregate salary gaps. The trend of growing diversity at lower faculty ranks indicates that campus efforts to increase diversity are delivering statistically significant results.

Breaking down the ethnicity and gender gap by rank/step, CFW found that there is no significant ethnicity salary gap (with the possible exception of the Associate professor rank), while there is a significant, persistent gender gap, especially, and worrisomely, at the Assistant Professor rank (5.7% or $5,655/yr) and at the Full Professor (6-9) rank (4.3%, or $7,710/yr). CFW strongly suggests further study of this gender gap, especially at junior ranks.

A critical measure of salary equity is salary growth. CFW studied (figures 8 and 9) the average annualized salary growth at a given rank/step for, again, white versus non-white faculty (fig. 8) and for female versus male faculty (fig. 9). CFW finds that salary growth is lower for the Assistant, Associate, and Full (5-9) Professor ranks for non-whites compared to whites; CFW also finds that female faculty salaries, on average, grow on par with male faculty salaries, with the possible exceptions of the Associate and Above Scale Professor ranks.

Finally, fig. 10 and 11 break down average salaries and average salary growth at given ranks and

[6] McClintock to Profumo, 11/29/17, Re: CFW: Data Request
[7] De La Garza to Profumo, 12/07/17, Re: CFW Data Request – Additional Info

steps by ethnicity. CFW did not identify statistically significant correlations between ethnicity and either salary or salary growth at a given rank/step.

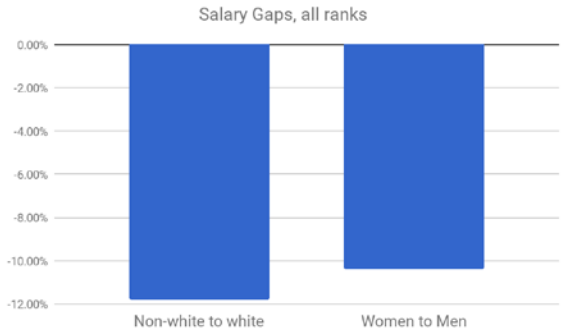

Figure 3: Aggregate faculty salary "gaps" by ethnicity (average non-white minus white faculty salaries at all ranks and steps) and by gender (average female minus male faculty salaries at all ranks and steps)

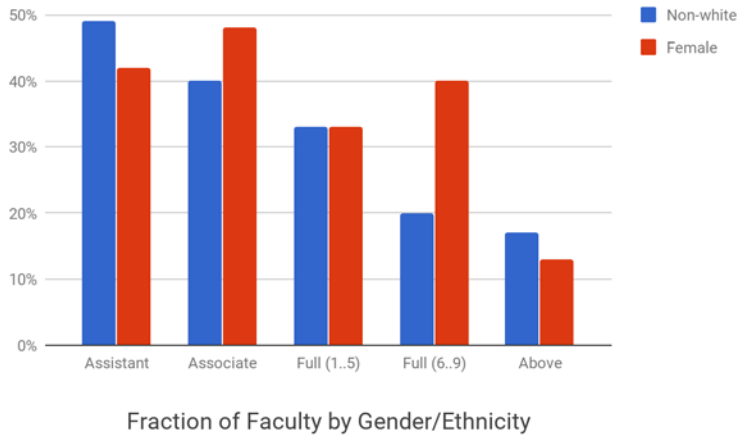

Figure 4: Fraction of non-white (blue columns) and of female (red columns) faculty members at a given rank/step (UCSC, 2017-18)

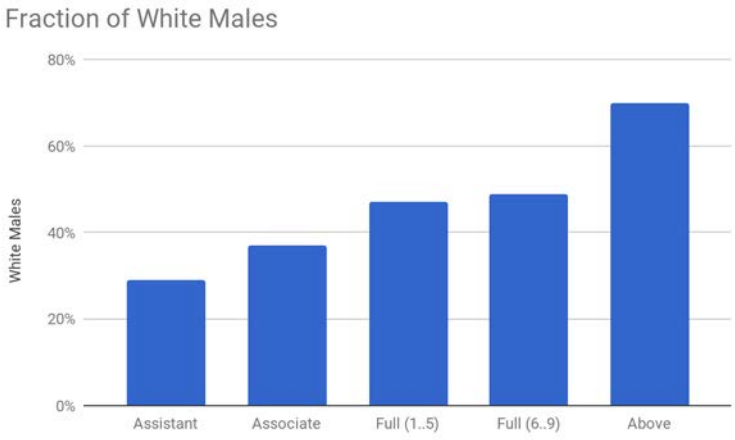

Figure 5: Fraction of white male faculty members at a given rank/step (UCSC, 2017-18)

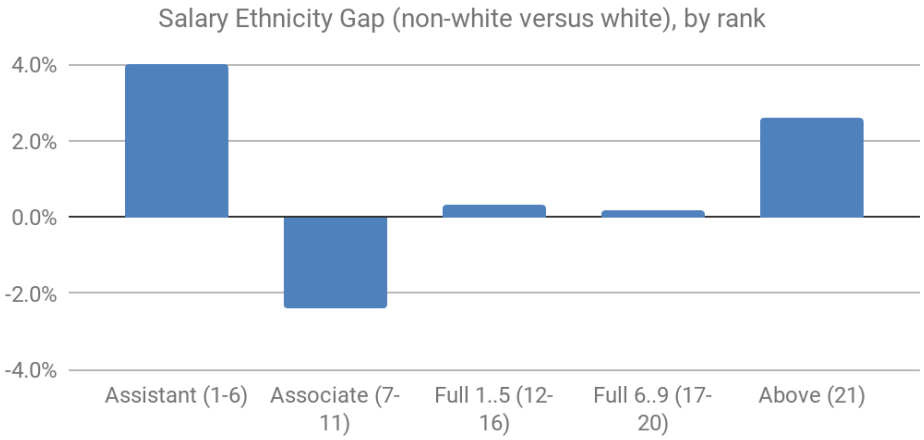

Figure 6: Salary "ethnicity gap" (non-white versus white faculty members) at a given rank/step (UCSC, 2017-18)

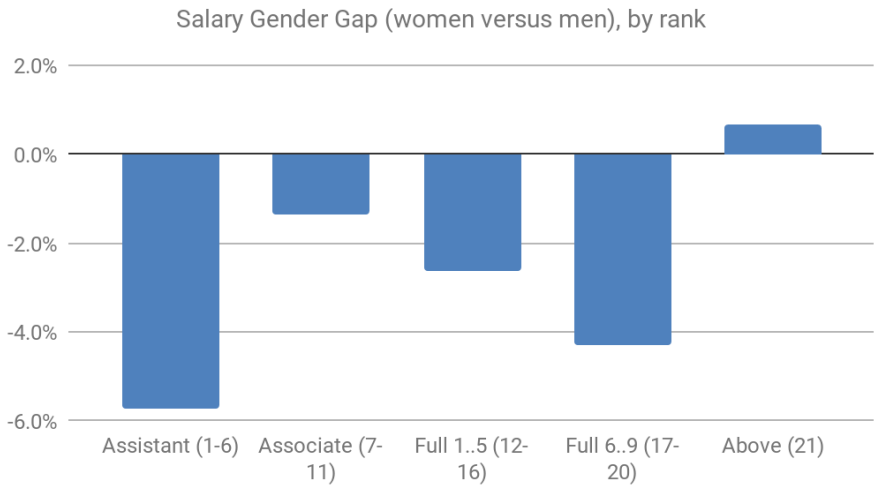

Figure 7: Salary "gender gap" (female versus male faculty members) at a given rank/step (UCSC, 2017-18)

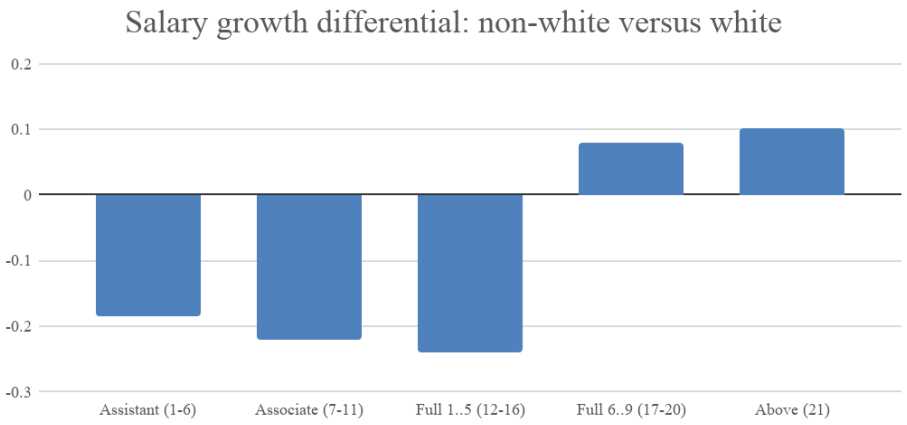

Figure 8: Salary growth differential based on ethnicity (non-white versus white faculty members) at a given rank/step (UCSC, 2017-18)

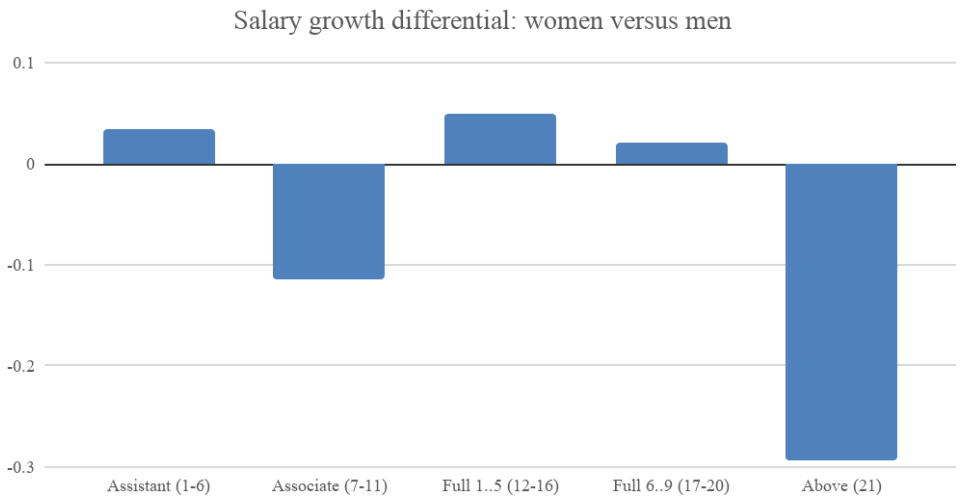

Figure 9: Salary growth differential by gender (female versus male faculty members) at a given rank/step (UCSC, 2017-18)

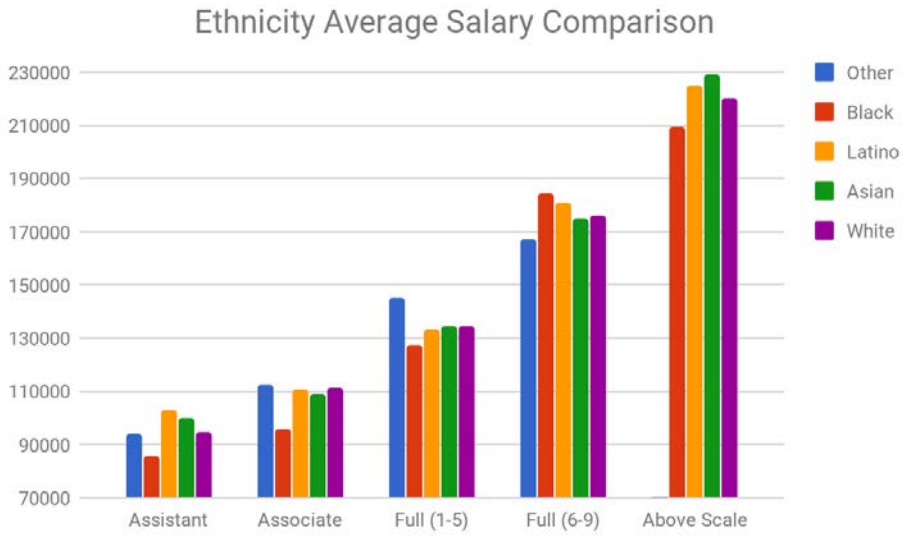

Figure 10: Average salary by ethnicity, at a given rank/step (UCSC, 2017-18)

Figure 11: Average salary growth by ethnicity, at a given rank/step (UCSC, 2017-18)

SALARY EQUITY STUDY: (2) RETENTION ACTIONS

CFW received data from APO on retention reviews which were limited to (i) reviews occurring on or after the academic year 2000-01, and (ii) successful reviews (i.e. reviews that did not lead to separations). Through the anonymous faculty ID available on the retention review database, CFW correlated retentions with a variety of metrics, including academic division (fig.12). CFW notes that the number and rate of retention reviews differ greatly among divisions. For example, the ratio of the total number of retention reviews by number of affiliated faculty in a given division varies from 9.3% in the Humanities to more than double, 19.0%, in the Social Sciences (fig.13). Additionally, CFW finds that significantly more male faculty (52 retention reviews since 2000-01) than female faculty (27 retention reviews since 2000-01) have had retention reviews recently, even expressed in number of retention to total number of faculty members of a given gender (14.5% versus 12.2%, see fig.14).

Faculty who had a retention review have significantly higher median salaries (fig. 15) and annual median salary growth (fig .16) than the figures associated with any ethnic group on campus, and higher median annual salary growth than faculty affiliated with any division (fig. 17). Finally, CFW finds a very high correlation between the fraction of faculty members who had a retention review in a Department, by Department, and the annual average salary and average salary growth (fig. 18): in other words, the frequency of retention actions in a Department is strongly correlated with how quickly average salaries grow, and how large salaries are in that Department.

CFW's study indicates that the very significant role that retention actions have in affecting overall compensation and salary growth is largely and intrinsically inequitable, as it disproportionately benefits (i) male over female faculty members, (ii) certain academic divisions and departments and not others, and (iii) it bypasses the comprehensive personnel review criteria for rank and salary growth that other faculty are subject to. CFW reiterates the recommendation made last year to adopt salary strategies that better reward and compensate meritorious faculty *within* the normative personnel action path. One such possible strategy is an enhanced version of the Special Salary Practice, which comparison with our sister UC campuses indicates is necessary both to keep UCSC salaries merely in line with growth at other campuses, and to fill the gap between UCSC and UC-system-wide salaries at the highest percentiles at a given rank/step (see fig.1 and 2 above).

Retention actions are extremely expensive, in terms of (i) time faculty members spend in seeking external offers, (ii) resources needed to match external offers, (iii) resources needed to replace faculty members who decide to leave UCSC. An aggressive salary practice that better rewards high-performing faculty would both have the beneficial effect of boosting faculty morale, and of reducing the desire of faculty to seek external offers to secure a retention action.

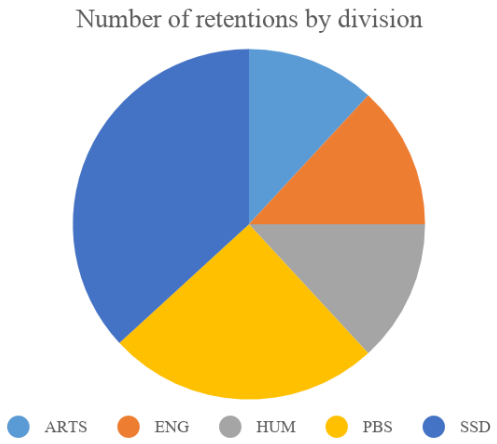

Figure 12: Number of retentions (2000-01 to 2017-18) by division

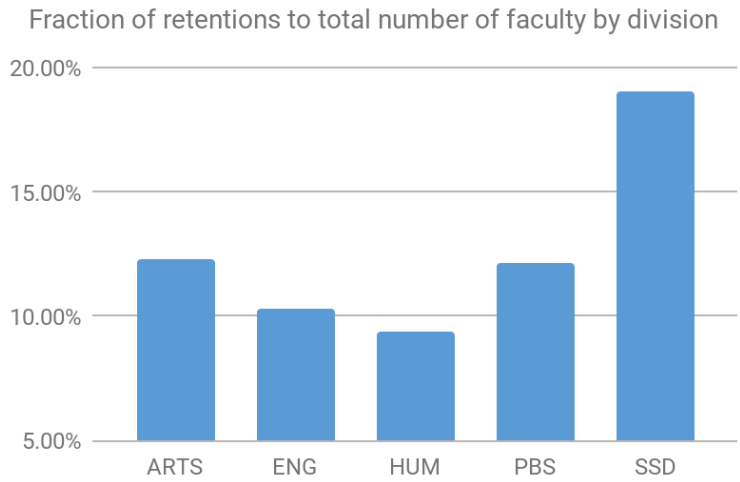

Figure 13: Fraction of retentions to number of faculty (2000-01 to 2017-18) by division

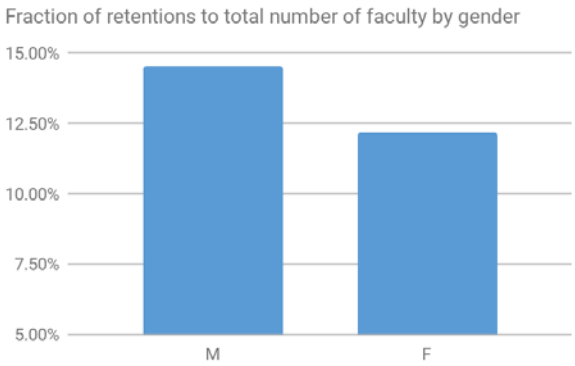

Figure 14: Fraction of retentions (2000-01 to 2017-18) by gender

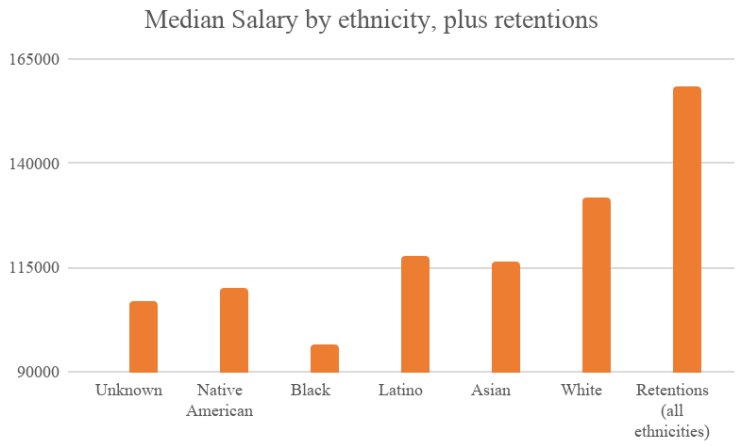

Figure 15: Median salary by ethnicity, plus median salary for faculty (of any ethnicity) with a retention review

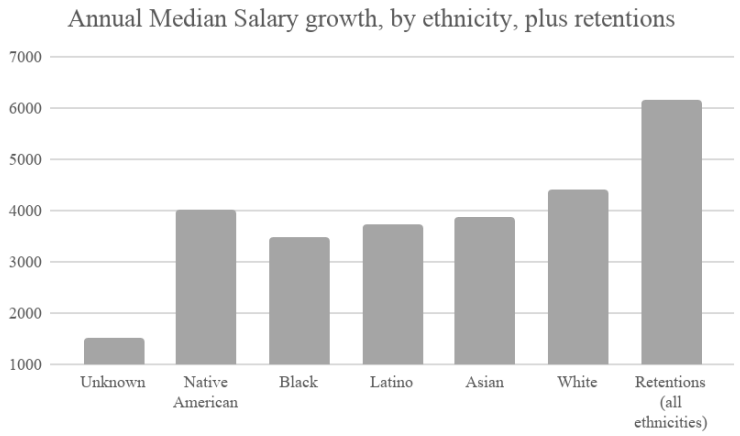

Figure 16: Annual median salary growth by ethnicity, plus retentions

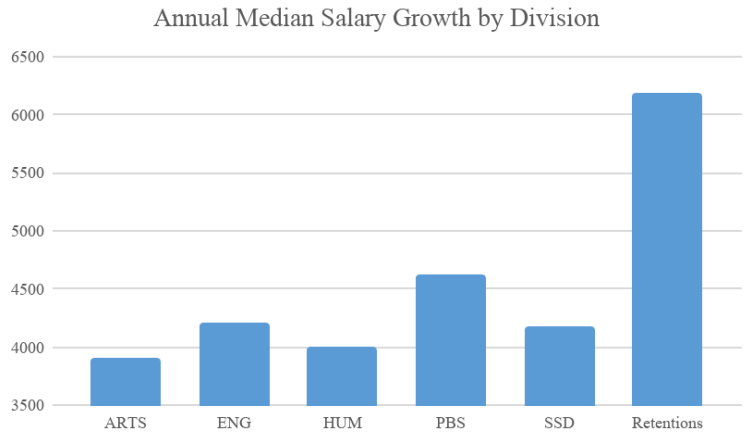

Figure 17: Annual median salary growth by division, plus retentions

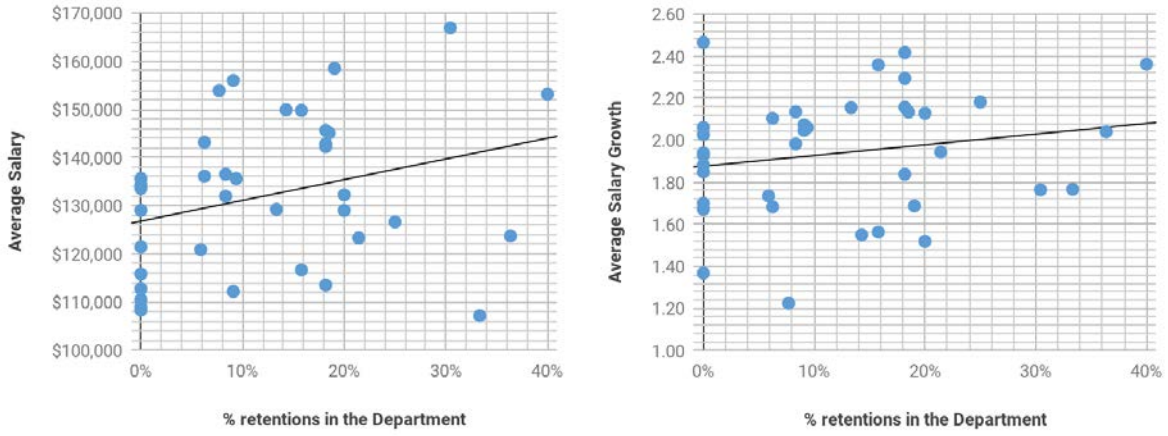

Figure 18: Correlation between the fraction of faculty members who had a retention review in a Department, by Department, and the annual average salary (left) and average salary growth (right)

SALARY EQUITY STUDY: (3) SALARY AND SALARY GROWTH EQUITY ACROSS ACADEMIC DIVISIONS AND DEPARTMENTS

In this section, we focus on salary and salary growth equity at the divisional and departmental level. First, we show in fig. 19 the correlation between the fraction of female faculty in a department and the average salary (left) and average off-scale (right) in that department. While the off-scale has a weak correlation with gender representation, the correlation with average salary is striking: departments with the largest average salaries tend to have fewer female faculty. CFW notes that this likely correlates with what shown in fig. 4 above - female faculty on campus tend to be over-represented at more junior ranks/steps than their male colleagues. To further inspect the finding of figure 19, left, we researched whether there is a correlation at the departmental level between gender representation and salary growth or rank advancement (fig. 20). Our analysis does not find any evidence for such a correlation.

Fig. 21 shows that there is a weak correlation between ethnicity (as represented by the fraction of non-white faculty members) and salaries.

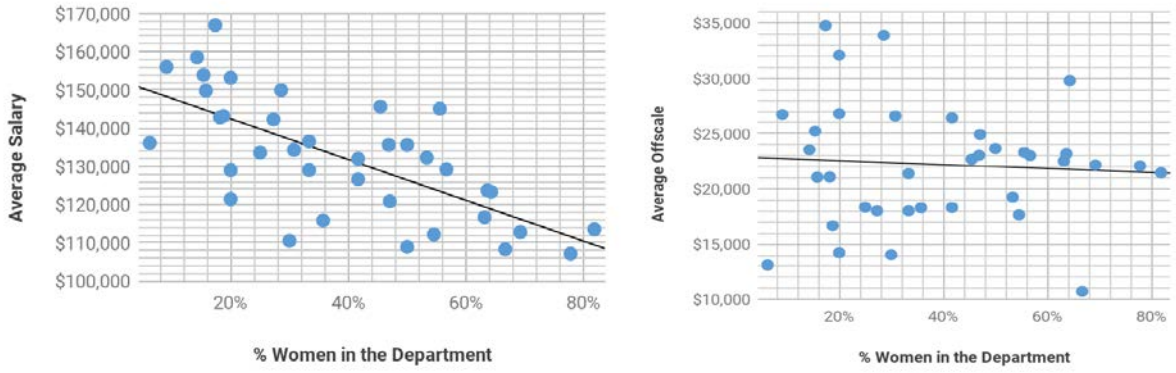

Figure 19: Correlation between the fraction of female faculty in a Department, by Department and the average salary (left) and average off-scale compensation (right).

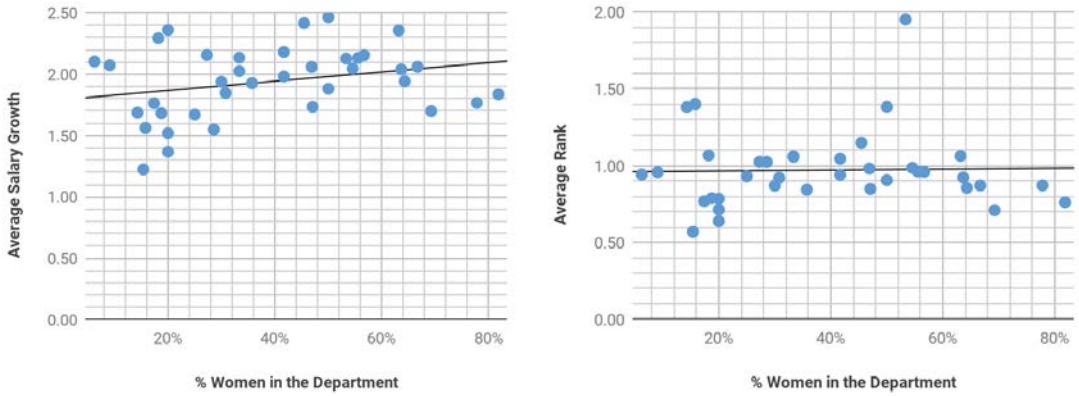

Figure 20: Correlation between the fraction of female faculty in a Department, by Department and the annual average salary growth (left) and average rank growth (right).

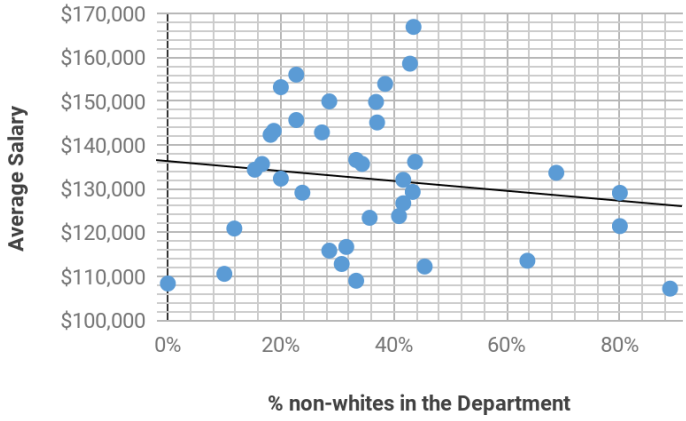

Figure 21: Correlation between the fraction of non-white faculty members in a Department, by Department, and the annual average salary (aggregate for all ranks/steps)

In addition to examining the above factors by salary growth, CFW also examined these factors in comparison to promotion growth. This measure converts the rank and steps to their time (in years) equivalence as shown below. According to this measure, a PG of 1 indicates the standard progression through the ranks, while a value above 1 indicates acceleration with respect to the standard progression.

$$PG = \frac{\text{time equivalence of rank/step (years)}}{\text{years since degree}}$$

Assist 1	Assist 2	Assist 3	Assist 4	Assist 5	Assist 6	Assoc 1	Assoc 2	Assoc 3	Assoc 4	Assoc 5	Full 1	Full 2	Full 3	Full 4	Full 5	Full 6	Full 7	Full 8	Full 9	Above Scale
1.0	3.0	5.0	7.0	9.0	11.0	9.0	11.0	13.0	15.5	18.6	15.5	18.5	21.5	24.5	27.5	30.5	33.5	36.5	39.5	42.5

In general, promotion growth is roughly the same across divisions and slightly above 1, with the major exception of the Arts Division, which has an overall lower promotion rate (Fig. 25). Similarly, promotion and gender do not show major differences, even when broken down by rank (Fig. 26). The overall slower promotion rate at the Associate level is likely due to some faculty spending additional time at Associate Professor, Step 5. We see similar result by ethnicity; promotion growth is fairly equivalent (Fig. 27).

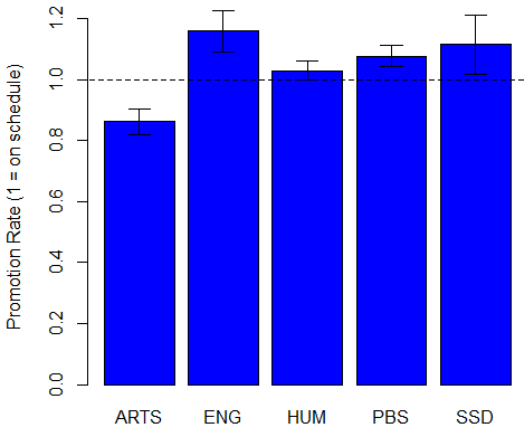

Figure 25. Promotion by division. Dotted line = on scale. Error bars indicate standard error.

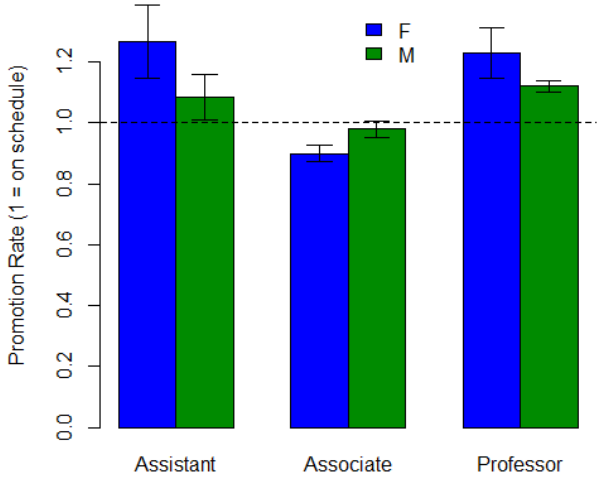

Figure 26. Promotion Growth by Gender and Rank. Error bars indicate standard error.

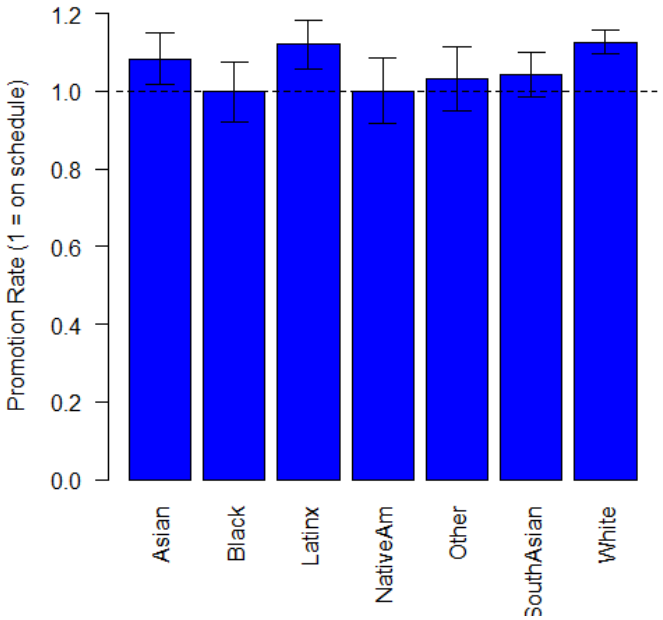

Figure 27. Promotion Growth by Ethnicity. Error bars indicate standard error.

A final way to evaluate faculty salaries is to compare salary growth with promotion growth. In this measure, we expect a positive correlation where higher promotion rates correspond to higher salary growth. While this is broadly true, the relationship does vary somewhat by division (Fig. 28). Two divisions, Engineering and Physical and Biological Sciences show slightly shallower

slopes that suggest more faculty being promoted faster than their salary growth, though the high degree of variation makes any strong conclusions tentative.

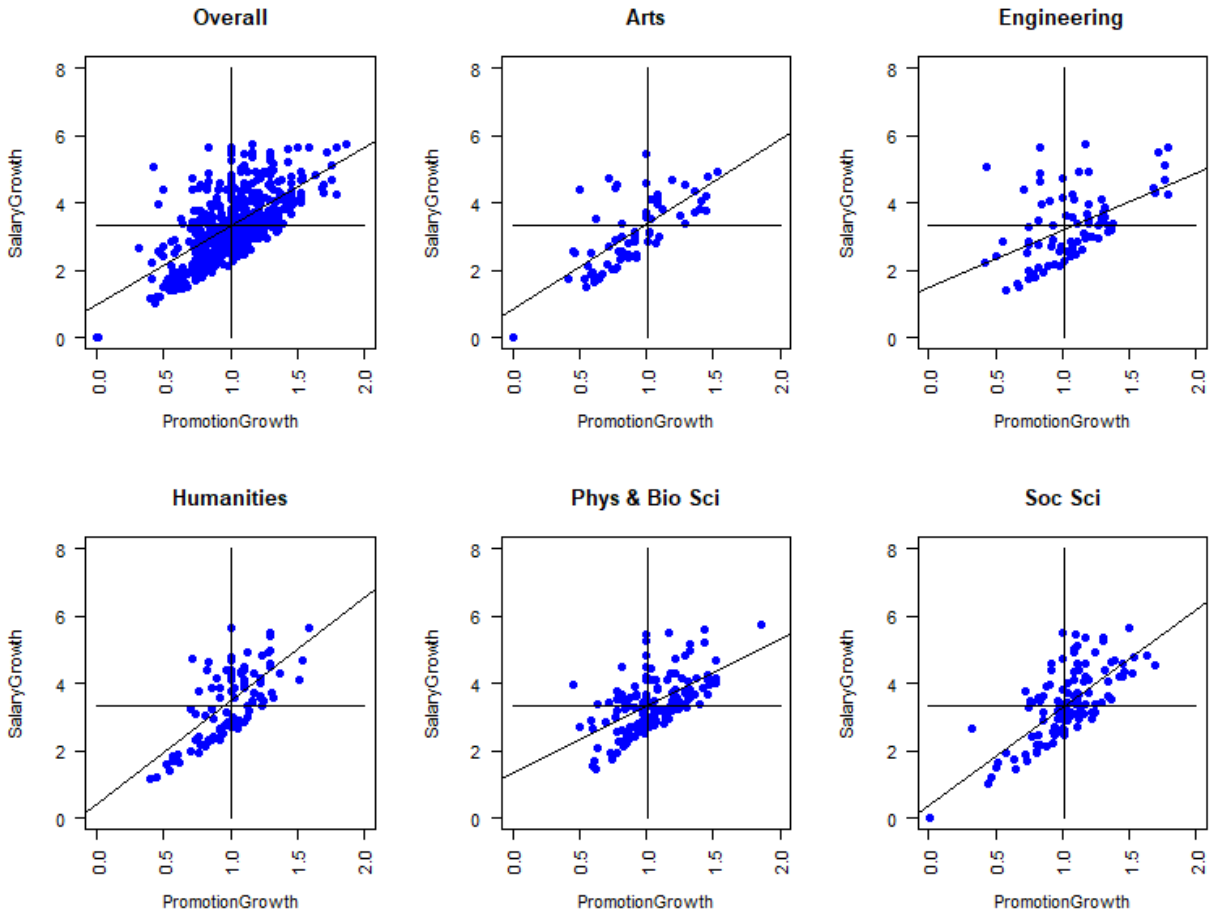

Fig 28. Promotion Growth by Salary Growth. The top left panel shows the data for the university overall where 1 dot = 1 faculty member. In all panels the horizontal and vertical lines show the median values for the university as a whole. Diagonal lines are linear regression lines fitted to each subset of the data (in all cases p <001, r > 0.8).

CFW notes that all data shown in this analysis are available upon request.

Respectfully submitted;
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