

SENATE

This revised May 15, 2008 Economic Status of the Faculty report contains corrections in tables 4, 9, 10, and 12. Please note that these corrected tables did affect some of the analysis and explanations contained in the report.

The errors in Tables 9, 10, and 12 of the 2006-07 report arose because the initial analyses did not appropriately identify some faculty with 12-month (rather than 9-month) academic base salaries. According to the Office of Institutional Research, the errors in Table 4 occurred because of clerical errors (e.g., two rank-field categories were inadvertently transposed) and because some faculty were misclassified (e.g., some faculty in the School of Medicine were incorrectly considered in the Natural Science A&S category; some faculty in art history (A&S) were incorrectly considered in the Design category).

Revised 2006-2007 Annual Report

Senate Committee on the Economic Status of the Faculty

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(Revised May 15, 2008)

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SENATE Economic Status of the Faculty

I. Introduction

The Senate Committee on the Economic Status of the Faculty (SCESF) is charged by the “Rules of the Faculty Senate” to:

- Gather and organize data on faculty salaries and benefits;
- Issue an annual report on the economic status of the faculty; and
- Represent the faculty in the determination of University policy on salary issues.

The focus of this report is on the current economic status of the faculty as based on salary data. The report is organized in terms of three broad concerns:

- The salary setting process at Penn: the sources of funds for faculty salaries and how annual salary increase decisions are made.
- External comparisons: the competitiveness of faculty salaries at Penn in comparison with faculty salaries at other universities.
- Internal comparisons: variability of faculty salaries within Penn, and sources of possible salary inequity that might occur within observed variability.

One major section of this report is devoted to each of these three topics. Section VI describes the SCESF’s overall conclusions about the economic status of the faculty.

In accordance with the procedures adopted by the Senate Executive Committee in spring 1999, we do not offer recommendations here for development of faculty salary policy. Instead, we report in Section VII the committee’s recommendations, as adopted by the Senate Executive Committee and submitted to the Provost, and the Provost’s responses to these recommendations.

In performing its responsibilities, the SCESF has been cognizant of Penn’s current salary policy as stated by the President, Provost, and Executive Vice President (*Almanac*, April 17, 2007). Penn’s guiding principle in salary planning is to pay faculty and staff (a) competitively, (b) in relationship to the markets for their services and prevailing economic conditions, (c) to acknowledge their contributions to the University, and (d) to help Penn remain a strong and financially viable institution.

In studying faculty salaries for this report, the SCESF has benefited greatly by access to detailed salary data (excluding, of course, any information that would make it possible to identify individual faculty salaries) that have been collected and provided by Penn’s central administration. Our understanding, both of Penn’s competitiveness with peer institutions in faculty salary levels and of faculty salary variability within Penn, has been enhanced by access to this information and by the assistance of those who produced it. The SCESF appreciates this assistance.

II. Resources for Faculty Salaries and Annual Increases

Faculty salaries are the product of a two-step process:

1. *Setting Salary Levels:* Faculty salary levels are set at the time of initial appointment by the dean of the faculty making the appointment.

2. *Annual Salary Increases:* Faculty salary levels are normally increased annually by a process described below. Such salary increases are ordinarily based on academic merit. Some annual increases are also the result of promotion in rank and equity adjustments.

All funds for faculty salaries come from each school’s operating budget; there is no central fund earmarked specifically for faculty salaries. Most of each school’s resources are raised in accordance with the principles of Penn’s Responsibility Center Budgeting System (RCBS).¹ In addition, subvention is distributed to schools by Penn’s central administration. Of these resources, each School makes a certain amount available for faculty salaries in three respects: (a) sustaining existing faculty appointments, (b) providing annual salary increases for continuing faculty members, and (c) creating salary funding for new faculty positions. In addition, schools must provide funds for employee benefits that approximate 30% of all such faculty salary expenditures.

Annual salary increase recommendations for continuing faculty members are made by Department Chairs (in schools with departments) and by Deans, based on merit, with general review and oversight by the Provost (see the statement of the “Salary Guidelines for 2006-07” as published in *Almanac* April 25, 2006). Penn’s President, Provost, and Executive Vice President set an upper limit on a “pool percentage” for salary increases. For FY 2007, schools were authorized to award, as salary increases, a pool of up

¹ The 1998-1999 and 1999-2000 Reports of the Senate Committee on the Economic Status of the Faculty contain overviews of Penn’s Responsibility Center Budgeting System.

to 4.0% of the FY 2006 salaries of continuing faculty members. The recommended salary increase range was 1% to 6%, with Deans being obligated to consult with the Provost about any individual increases outside this range. To address possible inequity in faculty salaries, Deans were asked to “give careful consideration to salary adjustments for faculty members who have a strong performance record but whose salary may have lagged behind the market” and to discuss with the Provost any market conditions warranting an increase in the overall pool. Thus, Deans could propose additional salary increments to meet outside offers, reduce internal inequities, or address significant variances from prevailing markets. School resources are variable, however, and since raises are funded with school and center resources, the guidelines recognize “that some units may need to administer a smaller aggregate pool for both faculty and staff” to maintain fiscal health.

III. Penn Faculty Salaries: External Comparisons

Average Penn Faculty Salaries (i.e., academic year base salaries) are compared with three types of external indicators in the following sections: (a) growth in the Consumer Price Index (CPI), (b) average faculty salaries by rank at other universities as reported by annual surveys conducted at the school level, and (c) average salaries of full professors for a sample of 19 public and private research universities selected as comparable to Penn from among those included in the “Annual Report on the Economic Status of the Profession” issued by the American Association of University Professors (AAUP). As a methodological note and unless otherwise specifically stated, all faculty salary information discussed in this report refers to the aggregated “academic year base salary” of individual faculty members whether salaries are paid from General Operating Funds and/or from Designated Funds.² In addition, all salary data exclude members of the Faculty of Medicine except for basic scientists and all clinical educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy and Practice). Tables 1, 2, and 12 refer to continuing Penn faculty, whether they continued in the same rank or were promoted to a higher rank. Faculty members who were promoted from assistant professor to associate professor effective July 1, 2006, for example, are included among the associate professors for the 2006-07 year—and any salary increases they received due to their promotion are included in the percentage changes in salaries reported for associate professors in 2006-07 (it is only the percentage changes in their salaries that generally are reported; only Tables 9, 10, and 12 report actual salary levels). For Tables 3 and 6 through 11, in contrast, the information refers only to faculty members who continued in the same rank. Tables 4 and 5 provide data regarding faculty members who were in the designated rank on the date of the snapshot used to compile the data reported to the AAUP or AAU Data Exchange.

A. Comparisons with Growth in the Consumer Price Index (CPI)³

Mean and median faculty salary increases in percentage terms by rank, averaged for all schools, between fall 2004 and fall 2005 (i.e., FY 2005 to 2006) and between fall 2005 and fall 2006 (i.e., FY 2006 to FY 2007), and compound cumulative for FY 2005 to 2007, are shown in Table 1 in comparison with comparable data for two measures of inflation (the U. S. city average CPI and the Philadelphia CPI) as well as Penn budget guidelines.⁴ The rate of inflation was higher in FY 2006 than in FY 2007, with a U.S.

² These terms are used in Penn’s Responsibility Center Budgeting System. See the 1999 or 2000 report on the Economic Status of the Faculty for a description of this system.

³ The consumer price index (CPI) refers to prices for a basket of goods and services purchased by “average workers.” There are questions about how well this index captures quality changes in goods and services (i.e., if it understates quality improvements as suggested by some observers then it overstates price increases for goods and services of a given quality) and how well this index captures goods and services consumed by faculty (i.e., if faculty consume goods and services that have had greater quality improvements for which corrections have not been made in the CPI than do average workers then faculty salaries in purchasing power terms have increased more than would be indicated by a comparison in the reported CPI). Nevertheless, use of the CPI is widespread and helps give some perspective.

⁴ The fiscal year refers to the year starting on July 1 and continuing through June 30 of the next calendar year. This report refers to the second of the two calendar years covered in a fiscal year. That is, the FY 2006 refers to the fiscal year (or academic year) starting on July 1, 2005 and continuing through June 30, 2006.

city average CPI of 4.3% for FY 2006 and 2.7% for FY 2007. In FY 2007, the CPI was lower for Philadelphia than the U.S. city average (1.6% versus 2.7%). Comparisons for FY 2007 indicate that: (a) for all ranks, the mean FY 2007 percentage salary increases were considerably higher than the percentage increases in the U.S. city-average CPI and Philadelphia CPI, (b) for all ranks, the median FY 2007 percentage salary increases were higher than the percentage increases in the CPI, (c) for all ranks, the extent to which the percentage increase in the means and median salaries exceeded the percentage increase in the CPI was higher in FY 2007 than FY 2006 due to the lower rate of inflation in FY 2007 than FY 2006, and (d) in both years the mean percentage increases for associate professors exceeded the faculty guideline upper bound of 6.0%, perhaps reflecting salary adjustments in response to tenure and promotion. We believe that, such a trend, if it continues, will strengthen Penn's competitive position and allow us to attract even higher quality researchers and teachers.

The most impressive salary increase percentages are the cumulative compound salary increments from FY 2005 through FY 2007, shown in the final column in Table 1. For each of the three ranks, the cumulative mean Penn faculty salary increments in percentage terms during this period exceeded the percentage growth in the U.S. city average and Philadelphia CPI.

Over this period Penn's budget guidelines for percentage increases in faculty salaries equaled the percentage growth in the U.S. city average CPI (7.1%). If the CPI accurately captures inflation in the goods and services purchased by faculty, this means that a faculty member who received the recommended percentage increase in salaries for FY 2006 and FY 2007 would have experienced no increase in real purchasing power. But, the mean compound cumulative growth in faculty salaries over this period exceeded Penn's budget guidelines for percentage increases in faculty salaries by 2 percentage points for full professors, 2.7 percentage points for associate professors, and 2.6 percentage points for assistant professors. The Penn budget guidelines refer to the centrally recommended salary pool percentage for faculty continuing in rank. There are at least two reasons why the actual salary percentage increases on average for continuing faculty exceeded guidelines for percentage increases in faculty salaries. First, a number of faculty may have received additional salary increments due to promotion. Second, a number of faculty may have received additional salary increments to meet actual or potential higher outside offers, to address perceived previous inadequate salary levels or to reward what has been perceived as very meritorious behaviors. Apparently many (perhaps all) of the Deans of Penn's schools have added additional school resources to the recommended cumulative base pool for salary increases. Thus, it is apparent that Penn's administrators have made efforts to permit percentage increases in the average level of faculty salaries that exceed the rate of growth in the CPI and the University guidelines.

The overall increases in faculty salary by rank in comparison with growth in the CPI, as seen in Table 1, are reported by school (including three disciplinary areas of SAS) in Table 2 for FY 2006 and FY 2007. As might be expected, the percentage of continuing standing faculty who receive percentage salary increases that exceed the percentage growth in the Philadelphia CPI is substantially higher when the CPI is low (1.6% in FY 2007) than when the CPI is higher (4.4% in FY 2006). Table 2 shows that, in FY 2007, 96% of faculty in all schools and areas combined received percentage salary increases that exceeded 1.6% (the Philadelphia CPI for June 2006 to June 2007). But, in FY 2006, only 32% of faculty in all schools and areas combined received percentage salary increases that exceeded the 4.4% CPI for Philadelphia. In FY 2006, only in Law and Nursing did more than 50% of the continuing standing faculty receive percentage increases that exceeded the Philadelphia CPI growth. In contrast, in FY 2007, 100% of the standing faculty in six schools/areas received percentage increases that exceeded the rate of inflation.

Despite what seems to be improving performance by the criteria used for Table 2 in general, the SCESF has some concerns. In particular, in FY 2006, fewer than a third of the faculty in nine of the 14 schools/areas (Annenberg, Dental Medicine, Design, Graduate School of Education, Humanities (A&S), Natural Science (A&S), Social Science (A&S), Veterinary Medicine, and Medicine-basic science) received percentage salary increases that exceeded the rate of inflation. This finding likely reflects, at least in part, the fact that the Penn budget guideline for FY 2006 was below the rate of inflation over this period (3.0% versus 4.4% CPI for Philadelphia). Nonetheless, as in past SCESF reports, this finding raises the question of whether

there are good reasons in terms of market pressures, faculty composition or other factors that relatively large percentages of faculty members in these schools/areas should receive percentage salary increases that are below the percentage increases in the CPI.

Table 3 provides additional information about trends for full professors continuing in rank (i.e., that abstract from promotion increases). Between FY 2005 and FY 2007, across all schools/areas, 74% of full professors continuing in rank received cumulative percentage salary increases above the 6.1% cumulative increase in the Philadelphia CPI. But, again, there is substantial variation across schools/areas. In particular, only 33% of full professors continuing in rank in Dental Medicine, 57% of full professors continuing in rank in Humanities (A&S), and 56% of full professors continuing in rank in Medicine-basic science received cumulative percentage salary increases above the Philadelphia CPI during this period. Or, to make the same point in a slightly different way, 26% of full professors continuing in rank in all schools/areas combined, 67% of full professors continuing in rank in Dental Medicine, 43% of full professors continuing in rank in Humanities (A&S), and 44% of full professors continuing in rank in Medicine-basic science experienced a decline in their real purchasing power between FY 2005 and FY 2007. Indeed, more than 10% of full professors continuing in rank in nine schools/areas (the exceptions being Annenberg, Design, Graduate Education, Law, and Nursing) experienced declines in their real purchasing power by this criterion between FY 2005 and FY 2007.

The SCESF recognizes that there are legitimate reasons for individual faculty members to be awarded increments less than the growth in the CPI. For example, in a particular year (i.e., FY 2006), the salary increment pool may only approximate, or even be less than, the rate of growth in the CPI. Furthermore, in a small department or school, a few promotions or market adjustments needed to retain a valued faculty member could obligate a disproportionate share of an existing increment pool, thereby leaving little to award to other faculty members in the unit. Finally, some faculty members may be sufficiently lacking in merit to justify an increment exceeding the CPI growth.

Nonetheless, if the salary increment pool available in each school/area is well in excess of CPI growth (as it was in FY 2007), it is the judgment of the SCESF that individual faculty members should receive cumulative salary increases equal to, or exceeding, growth in the CPI (defined over some "to be discussed" time horizon) unless their performance has been unsatisfactory over a substantial period of that time horizon. It, therefore, seems possible that the cumulative salary increments received by some continuing full professors have been inequitably low, particularly in Dental Medicine, Humanities (A&S), and Medicine-basic science, but also more broadly. This issue merits further exploration, not only for full professors continuing in rank but also for others.

B. Comparisons with Peer Universities Using AAU Data

Prior reports have used data from the MIT annual survey of a group of approximately 25 private and public research universities as the source of faculty salaries at peer universities. Because the MIT annual survey was discontinued after fall 2004, this report relies on comparison data from the Association of American Universities (AAU) Data Exchange. The AAU is comprised of 60 public and private research universities in the United States and two in Canada. The AAU includes several Ivy League institutions (e.g., Penn, Brown, Harvard, Princeton, Cornell, and Yale), other private universities (e.g., Brandeis, Rice, Emory, Vanderbilt), public flagship universities (e.g., Penn State University and the Universities of Michigan, Virginia, and Maryland), and other public universities (e.g., Michigan State, University of California Davis, and University of California Irvine). Please refer to the AAU Fact Sheet for a complete list of member institutions: www.aau.edu/aaufact.cfm.

Data from the AAU member institutions provide comparisons for faculty salaries by rank and school/area. Table 4 provides comparisons by rank for each of the following schools/areas: Annenberg, Dental Medicine, Design, Engineering & Applied Science, Graduate Education, Humanities (A&S), Law, Natural Science (A&S), Nursing, Social Science (A&S), Social Policy & Practice, Veterinary Medicine, Wharton-Statistics, Wharton-Public Policy, Wharton-Business & Management, and Medicine-basic science.

For the 16 schools/areas, Penn's mean faculty salaries for all ranks in 2006-07 are in the upper half of the distribution for AAU institutions. In fact, mean faculty salaries are at least in the top quartile of AAU institutions for all three ranks in all schools/areas except assistant professors in social

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science (A&S), where Penn's salaries ranked 15th of 56 in fall 2006. Being above average in this comparison group, of course, is good. But, if Penn has aspirations of being in the top part of this comparison group, it may be necessary to increase faculty salaries relative to these competitors. If faculty salaries remain at the current levels relative to this comparison group, Penn may have a hard time attracting and retaining enough of the best and the brightest faculty.

Table 4 shows that the competitiveness of Penn's mean salary levels varies across academic fields and by professorial rank within fields. There certainly is room for improvement in the competitiveness of Penn mean salary levels for some rank by school/area comparisons. Compared with mean salaries of faculty at AAU institutions, mean salaries at Penn appear particularly low for full professors in Dental Medicine (8th of 35), Engineering & Applied Science (14th of 56), Law (7th of 36), Natural Science (A&S) (11th of 57), Social Science (A&S) (9th of 56), and Social Policy & Practice (6th of 24). Mean salaries also are also particularly low for associate professors in Natural Science (9th of 57), Social Science (A&S) (9th of 56) and Social Policy & Practice (5th of 24) and assistant professors in Humanities (A&S) (14th of 56), Social Science (A&S) (15th of 56), and Medicine-basic science (9th of 38). How much improvement should be expected is a matter of assessing how relative faculty salaries affect attainment of the University's long-run objectives. Clearly, more improvement is required if Penn is to move further up in the ranks of the nation's research universities.

Looking across the schools and ranks between fall 2004 and fall 2006, we note a number of changes in relative standing: 13 improvements, 10 cases of worsening, 12 unchanged. We also note that some of the rankings change a fair amount from year to year so that such comparisons need to be qualified because of their dependence on the time period selected. If comparisons are limited to changes of at least two positions between fall 2004 and fall 2006 (therefore lessening the influence of noisy small changes), there are nine cases of better positions, five cases of less good positions, and 21 cases of changes less than two in position. The nine improvements of at least two positions are: Design and Engineering & Applied Science for full professors; Design, Engineering & Applied Science, Nursing, and Social Science (A&S) for associate professors; and Engineering & Applied Science, Graduate Education, and Natural Science (A&S) for assistant professors. For assistant professors in both Engineering and Graduate Education, the improvement was 6 positions (from 12th to 6th of 56 in Engineering and from 12th to 6th of 45 in Graduate Education). These improvements are particularly noteworthy because the future of the University is likely to be affected by the quality of its junior faculty, which in turn is likely to be affected by the salaries that the junior faculty receive relative to comparable institutions.

Worsening by at least two positions occurred for full professors in Dental Medicine and Graduate Education, associate professors in Natural Science (A&S), and assistant professors in Social Science (A&S) and Medicine-basic science. For assistant professors in Social Science, the decline was six positions (from 9th of 56 in fall 2004 to 15th of 56 in fall 2006).

C. Comparisons with Peer Universities Using AAUP Survey Data

Table 5 presents a comparison of the mean salaries of all full professors at Penn with those at a small select group of research universities based on data obtained by the Penn administration from annual salary surveys conducted by the American Association of University Professors (AAUP) and published in the *Chronicle of Higher Education*. To make meaningful and fair comparisons of Penn salaries with those at other universities, the following five criteria were used to select comparison universities: (a) be included in the Research I category of the Carnegie Classification System, (b) offer a broad array of Ph.D. programs in arts and sciences disciplines, (c) include at least two of three major professional schools (law, business, engineering), (d) not include a school of agriculture, and (e) have a composite academic reputation rating greater than 4.0 (on a five point scale) in a rating system reported by *U.S. News and World Report*.⁵ The 17 research universities meeting all five of these criteria are identified in the first column of Table 5. In addition, as Princeton and NYU are considered by the SCESF as main competitors of Penn for faculty, we included these two schools as well.

The relative standings of mean salaries of Penn full professors are presented for three years are presented in Table 5. Universities are listed in Table 5 in order of the magnitude of mean salaries of full professors (from high to low) for the most recent academic year (2006-07). Each row (except for Penn) gives the difference between a comparison university's mean

⁵ A composite rating was constructed by computing the mean of three separate academic reputation ratings: a general rating, a mean rating of key Ph.D. programs, and a mean rating of key professional schools.

salary and Penn's mean salary as a percentage of Penn's mean salary. For example, Table 5 shows that, in 2006-07, the mean salary of full professors was 13.4% higher at Harvard than at Penn (\$156,500), but 4.5% lower at NYU than at Penn.

The data in Table 5 show that mean salaries for full professors at Penn became somewhat more competitive during the past three-year period. For example, Stanford provided mean salaries that were 3.6% higher than Penn in 2004-05, but only 0.7% higher than Penn in 2006-07. In addition, the percentage advantage of salaries at Princeton and Yale over Penn also decreased during this period of time. Penn also somewhat increased its percentage advantage in average salaries for full professors over NYU, MIT, Duke, UCLA, UC Berkeley, Michigan, Virginia, and Carnegie-Mellon. The data in Table 5, thus, imply a good degree of competitiveness on Penn's part for full professors, overall.

Between 2004-05 and 2006-07, however, the gap between the average salaries of full professors at Penn and full professors at Harvard, Princeton, and Chicago remained substantial, as average salaries were 13.4% higher at Harvard, 4.6% higher at Princeton, and 3.8% higher at Chicago than at Penn in 2006-07. The SCESF emphasizes that it is important to monitor the average salaries of faculty at Penn relative to the universities with the highest full professor salaries so that Penn continues to become increasingly competitive.

Even though the SCESF was careful to select universities for overall mean salary comparisons that are similar to Penn on several important criteria and made comparisons at the full professor rank (i.e., we did not aggregate across the three professorial ranks), AAUP salary data did not permit the SCESF to control for the specific schools sponsored by each university and the number of full professors appointed in each school. Such controls would be desirable because mean salary levels vary by school, as do the number of professors appointed to the faculty of each school on which the means are based. Therefore, the relative standing of Penn mean salaries in Table 5 might be misleading for understanding what has been happening in particular schools or departments. Nonetheless, the general improvement between 2004-05 and 2006-07 in Penn's relative standing seems to be sufficiently representative to include in this report.

VI. Penn Faculty Benefits

The 1998-99 SCESF Annual Report included a section with comparative faculty benefits data. More recent cross-university benefits data are of insufficient precision to permit meaningful quantitative comparisons. Accordingly, no such comparisons are made in this report.

V. Penn Faculty Salaries: Internal Comparisons

As previous reports of the SCESF have highlighted, there is a great deal of variability (e.g., inequality) in faculty salaries at Penn attributable to several recognized factors: differences in individual merit, rank, time in rank, external labor market forces, the relative wealth of schools, and perhaps differences among schools in principles and practices for allocating salary increments.

One of the SCESF's concerns has been that, among all the existing variability in faculty salaries, there might be some significant element of inequity (i.e., salary setting based on incomplete or inaccurate information about merit, or bias that could be involved in the process of deciding salary increments). However, it is not possible for the SCESF to pinpoint any instance of individual or group inequity without individual faculty salaries and associated information about individual merit, labor market forces, etc. What we can do is review some facets of salary variability and raise questions about the possibility that inequity might be responsible for some degree of the observed variability. These questions might lead to further review and action by senior academic administrators (Department Chairs, Deans, and the Provost) with a view to correcting any inequities that might be identified.

This section describes several dimensions of faculty salary variability within Penn. As with the external salary comparisons above, all salary data reviewed in this section include only basic science faculty in the School of Medicine and exclude all standing faculty members who are appointed as Clinician Educators from four other schools that have such positions (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice).

A. Variability in Average Salary Increases by Rank and School/Area

As reported in Table 1, median faculty salary increases by rank (for all of Penn's schools combined) in FY 2007 exceeded the growth in the CPI and, except for full professors, equaled or exceeded Penn's "budget guidelines" of 4.0% (i.e., the "pool percentage" that the President, Provost, and Executive Vice President established for salary increases, discussed in

section II of this report). These salary increases are broken out by school and rank in Tables 6, 7, and 8. These tables show considerable variability in median salary increases across schools and years, as well as among the first and third quartile increases (Q1 and Q3, respectively).

Before reviewing these salary increases, it should be recognized that the salary increase guideline of 4.0% for FY 2007 is just that, a guideline, and pertains to an aggregate of all increases for all ranks combined for each of Penn's schools (i.e., merit increases for continuing faculty members, special increases for faculty members who have been promoted in rank, and market adjustments for faculty members with generous salary offers from other institutions). Schools may allocate more, or less, resources to faculty salary increases than the guideline, depending upon each school's financial circumstances (see Section II.B. above). Therefore, a comparison of the median increase awarded to faculty members of a particular rank and school with the salary guideline only gives an indication of the extent to which the guideline was implemented in that particular instance. Accordingly, a particular median increment of less than 4.0% should not be regarded as a specific failure of salary policy, since there is no policy for each rank and each school to be awarded at least that much on average. Furthermore, the 4.0% guideline pertains to the mean increase, a measure of central tendency that is usually higher than the median salary increases as shown in Table 1. This is a statistical fact that indicates positive skewness in the distribution of salary increase percentages within schools/areas (i.e., the majority of salary increases are bunched toward the low end, with a small or modest percentage of faculty members benefiting from relatively large increases).

Nonetheless, the overall mean salary increase for all continuing faculty members for FY 2007 was 5.2% (see Table 1), an increase well above the guideline of 4.0%. Even so, this substantial mean salary increase was not distributed sufficiently widely to lift the median salaries of all ranks in all schools/areas by at least the guideline amount—a phenomenon that may be attributable to differences in wealth, competitive pressures, and budget priorities among the various schools as permitted under RCBS.

1. Median Increases Across Ranks And Schools/Areas In Comparison With General Guidelines

With respect to full professors (see Table 6), in three of the 14 schools/areas (Annenberg, Law, and Wharton) the median salary increases for FY 2007 were within half a percentage point of the general guideline of 4.0% (i.e., between 3.5% and 4.5%), while seven were lower than 3.5% (Dental Medicine, Humanities (A&S), Medicine-basic science, Natural Science (A&S), Social Science (A&S), Social Policy and Practice, Veterinary Medicine), and the other four were above 4.5% (Design, Engineering & Applied Science, Graduate School of Education, and Nursing). For FY 2006, in only Dental Medicine was the median percentage increase at least half a percentage point below the general guideline of 3.0%. Only in Law and Nursing was the median percentage increase in salary at least half a percentage point above the general guideline in both FY 2006 and FY 2007.

With respect to associate professors (see Table 7), in one (Nursing) of the 12 schools/areas (data describing Annenberg and Law are not published because of the small number of faculty at this rank), the median salary increase for FY 2007 was within half a percentage point of the general guideline of 4.0% (i.e., between 3.5% and 4.5%), while seven were lower than 3.5% (Dental Medicine, Humanities (A&S), Medicine-basic science, Natural Science (A&S), Social Science (A&S), Social Policy and Practice, and Veterinary Medicine) and the other four were above 4.5% (Design, Engineering & Applied Science, Graduate School of Education, and Wharton). In contrast, the median salary increase for associate professors in FY 2006 equaled or exceeded the general guideline of 3.0% in all 12 schools/areas. In Design, Engineering & Applied Science, Graduate School of Education, Nursing, and Wharton the median salary increase for associate professors was at least half a percentage point above the general guideline in both FY 2006 and FY 2007.

With respect to assistant professors (see Table 8), in four (Dental Medicine, Design, Humanities (A&S), and Nursing) of the 11 schools/areas (data for Annenberg, Law, and Social Policy & Practice are not published because of the small number of faculty at this rank) the median salary increases for FY 2007 were within half a percentage point of the general guideline of 4.0% (i.e., between 3.5% and 4.5%), while four were lower than 3.5% (Medicine-basic science, Natural Science (A&S), Social Science (A&S), and Veterinary Medicine) and the other three were above 4.5% (Engineering & Applied Science, Graduate School of Education, and Wharton). In FY 2006, only in Dental Medicine was the median salary increase for assistant professors below the general guideline (2.5% versus 3%). In Engineering & Applied Science, Graduate School of Education, Humanities (A&S), Nursing, and Wharton, the percentage increase for assistant

professors was at least half a percentage point above the general guideline in both FY 2006 and FY 2007.

2. First Quartile Salary Increases Across Ranks and Schools/Areas in Comparison with Increases in CPI

The SCESF has regularly questioned the principles by which salary increases are awarded in relation to increases in the CPI (the U.S. city average and the Philadelphia CPI from Table 1). Therefore, we compare the salary increases in FY 2007 at the 25th percentile for schools with data at the different ranks in Tables 6, 7, and 8 relative to the real-time increase in the Philadelphia CPI of 1.6%. This comparison shows that, at the full professor, associate professor, and assistant professor ranks, all 14 schools/areas had a 25th percentile salary increase greater than the increase in the Philadelphia CPI in FY 2007. Nonetheless, the comparison between salary increases at the 25th percentile and the Philadelphia CPI in FY 2006 (4.4%) yields more troubling results. In FY 2006, only one of the 12 schools/areas with data had a 25th percentile increase for full professors greater than the increase in the Philadelphia CPI (Law), only one of the 9 schools/areas with data had a 25th percentile increase for associate professors greater than the increase in the Philadelphia CPI (Nursing), and none of the seven schools/areas with data had a 25th percentile increase for assistant professors greater than the increase in the Philadelphia CPI. Having more than a quarter of the faculty, at all ranks in most schools, experience a decline in real purchasing power in any given year (i.e., FY 2006) is a matter of concern that may merit further investigation.

As noted in previous reports, Tables 6, 7, and 8 do not report quartiles for schools/areas by rank when the number of faculty is 10 or less (as quartiles would be based on two people). While we agree wholeheartedly with this protection of individual information, we would still like to see a measure of dispersion for these schools by rank. Accordingly, we repeat the recommendation from previous reports that, in future years, the committee be provided a two or three year average of those quartiles for those schools/areas in which we otherwise would not be able to report a 1st or 3rd quartile.

B. Variability in Average Salary Levels by Rank

Three-year data on mean and median faculty salaries by rank are shown in Table 9 for all schools combined.⁶ Ratios also are given for these values relative to the values for assistant professors. These ratios suggest that, in FY 2007, mean salaries were 72% higher for full professors than for assistant professors and 15% higher for associate professors than for assistant professors. Median salaries were 92% higher for full than assistant professors, and 23% higher for associate than for assistant professors. Between 2004-05 and 2006-07, the ratio of median salaries increased somewhat for full professors to assistant professors (from 1.84 to 1.92) and for associate professors to assistant professors (from 1.19 to 1.23).

Such ratios give a crude perspective on rank differences in salary because of aggregation biases across schools so interpretation must be made with care. For example, one might expect a considerably larger difference between assistant and associate professor mean salaries. The modest difference might occur if the Law school has a considerably lower percentage of associate professors than other schools, a difference that could reduce the observed mean salary for associate professors, or if the Wharton School has a considerably higher percentage of assistant professors than other schools, a difference that could increase the observed mean salary for assistant professors. A more meaningful comparison of variation in faculty salaries by rank can be made by computing the ratios for continuing faculty members for each school and then computing a mean weighted ratio (weighted for the number of continuing faculty members at each rank in each school).⁷ Thus, Table 9 also gives the weighted ratios. Using the weighted ratios generally increases the spread in salary levels by rank, as the weighted ratios show that mean (median) salaries of full professors are 84% (84%) higher than assistant professors and mean (median) salaries of associate professors are 27% (27%) higher than assistant professors.

C. Variability of Average Salary Levels by School/Area

As described in previous SCESF reports, there is considerable variability in median faculty salary levels across Penn's 14 schools/areas. Information about the extent of this cross-school variability is presented by rank in Table 10 for the 2004-05, 2005-06, and 2006-07 academic years in terms

⁶ The mean salary figures for full professors recorded in Table 9 are higher than those recorded in Table 5 which are drawn from AAUP reports. Table 5 includes all faculty members at the rank of full professor (including those newly appointed to a rank) whereas Table 9 is limited to faculty members who continued in the same rank from the prior year (a difference that reduces the AAUP mean).

⁷ Weighted ratios were based on all schools except Annenberg which had no assistant professors and Law which had only one assistant professor.

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of the first quartile (Q1), second quartile (Q2, the same as the median), and the third quartile (Q3) of median faculty salary levels. For full professors, the interquartile range of median salaries in 2006-7 based on the 14 schools/areas was \$59,300 (i.e., the third quartile salary of \$180,000 minus the first quartile salary of \$120,800). The comparable interquartile range of salary levels across schools/areas was understandably less for associate professors (\$25,500) and assistant professors (\$34,500) in absolute dollars. Three facets of these data are considered below: 1. Measures of salary variability, 2. Differences in variability across ranks, and 3. Trends in variability over time.

1. Measures of Variability

The measure of variability of median salaries across schools/areas of continuing faculty members selected here is the interquartile range (IQR) (i.e., the third quartile salary in the distribution minus the first quartile, all as described in more detail in footnote "b" of Table 10). However, the IQR can be expected to be larger when the general salary level is relatively high (such as for full professors) than when the general salary level is much lower (such as for assistant professors). To compensate for such differences in the general level of salaries, we have divided the IQR by the median of the distribution (i.e., the second quartile: Q2), thereby computing a ratio of the IQR to the median (as reported in the next to last column of Table 10 labeled "IQR to Median").⁸ This ratio provides an index of the amount of variability in relation to the general level of the salary distributions, and has utility when comparing variabilities across ranks and trends over time.

2. Differences in Variability Across Ranks

As seen in Table 10, the ratio of the IQR to the median varies across rank and year with no particular pattern. In FY 2007, the ratio of the IQR to the median was 0.41 for full professors, 0.28 for associate professors, and 0.46 for assistant professors. The ratio varied just 0.01 between FY 2005 and FY 2007 for full professors, by 0.04 between FY 2006 and FY 2007 for associate professors, and 0.12 between FY 2005 and FY 2006 for assistant professors. Variations in this ratio may be a function (at least in part) of the variability in external competitiveness for faculty of different rank and variations in the extent to which Penn is matching the highest end salaries of its competitors. The cross-rank variation, thus, is currently relatively low, which may imply somewhat increased competitiveness for more senior relative to more junior faculty than in the past. Because of the variation, ongoing monitoring is warranted.

3. Trends in Variability Over Time

Also as seen in Table 10, the variability (i.e., the IQR) of median salaries for Penn's 14 schools/areas for the three professorial ranks increased between FY 2005 and FY 2007 for full professors, associate professors, and assistant professors. This is evidence of ongoing rapidly increasing disparity of faculty salaries across Penn's 14 schools/areas. Schools/areas offering higher median salaries apparently also offer higher annual percentage increases. That is, the increases in the IQR are not just proportional to the increase in salary levels from one year to the next, but the disparities among schools/areas in median salaries is growing in percentage terms as well as in dollars.

In short, these statistical facts indicate that, in general, differences in median faculty salaries between lower paying schools/areas and higher paying schools/areas have been, and continue to be, slowly increasing both in dollar amount and in percentage difference. As noted in prior SCESF reports, variability among schools/areas is no doubt a product, to a considerable extent, of market forces in the hiring of faculty members and in the relative wealth of schools (i.e., financial ability to support faculty salaries). The relative wealth of schools available for supporting faculty salaries is, in major part, a function of how much income a school is able to earn and the level of non-faculty expenditures it regards as essential. Analyses in the 2001-02 SCESF report suggest that the variability in mean faculty salaries across schools/areas at Penn is currently in line with the experience of peer institutions, and, thus, reflects general economic forces affecting all of academia.

D. Variability by Gender

In response to recommendations in previous reports, this report includes two tables describing gender differences in faculty salaries. Table 11 provides the percentage increases in salaries by rank and gender for the first, second and third quartiles for FY 2006 and FY 2007.⁹ The general pattern seems to be approximately equal salary increases in percentage terms. The

⁸ The statistically inclined reader will recognize this ratio as similar to the coefficient of variation (i.e., the ratio of the standard deviation to the mean of a distribution).

⁹ This information is presented only at the aggregate level because, for a number of school/areas-rank cells, the number of one gender (generally female) is fairly low.

range of differences for the male minus female percentage increases by ranks-quartiles in FY 2007 was -0.36 to 1.14. In only one case was the percentage increase in FY 2007 lower for women than for men: the third quartile for associate professors.

Table 12 reports the observed mean and median salaries for men and women by rank. These data show that both mean and median salaries were higher for men than women at all ranks in FY 2005, FY 2006, and FY 2007. The magnitude of the percentage difference in salary declines as rank increases. For example, Table 12 shows that, in FY 2007, median salaries were 13.4% higher for men than for women among assistant professors, 9.9% higher for men than for women among associate professors, and 9% higher for men than women among full professors.

An important limitation of the average salary data shown in the first two columns of Table 12 is that they do not control for differences in the distribution of faculty by gender or differences in average salaries across schools/areas. The small numbers of men and women at some ranks in some schools/areas limit further disaggregation of the data. Nonetheless, to address these issues, Table 12 also provides "weighted" salary data to reflect differences in the distribution of women across schools/areas. Male weights were calculated as the ratio of male faculty in each school/area to the total number of male faculty at Penn. Salaries for women faculty were weighted by male weights.

Table 12 shows that gender differences in salaries are substantially reduced after correcting for gender differences in the distribution of faculty across schools/areas. After applying the weight, median and mean salaries for women and men assistant professors differ by no more than 1.1% in FY 2005, FY 2006, and FY 2007. Among associate professors, mean weighted salaries were 2.3% higher for men than for women and median salaries were 2.6% lower for men than for women in FY 2007. Among full professors, both mean and median weighted salaries were somewhat higher for men than for women in FY 2007 (3.5% and 4.3%).

VI. Conclusions

A. Economic Status of the Faculty

1. External Competitiveness.

Comparisons of Penn faculty salary percentage increase with percentage increases in the CPI: Penn median and mean percentage salary increases for continuing faculty at all three ranks exceeded the increases in the CPI by a fair amount in FY 2007, when the Philadelphia CPI was very low (1.6%, Tables 1-3). In FY 2006, when the Philadelphia CPI was 4.4%, mean salary increases equaled or exceeded the rate of increase in the CPI at all three ranks, while median salary increases were below the rate of increase in the CPI for full professors (3.3%), associate professors (3.7%), and assistant professors (4.1%). Reflecting the lower rate of inflation in FY 2007 than in FY 2006, the percentage of faculty members whose percentage salary increases exceeded the percentage increase in the CPI increased from 32% in FY 2006 to 96% in FY 2007. For all schools/areas combined, 74% of the continuing full professors received percentage increases in salary that exceeded the percentage increase in the CPI over the FY 2006 and FY 2007 period. These comparisons with the percentage changes in the CPI overall suggest a generally positive and possibly improving performance by this criterion. However, there are questions that merit further consideration. First, is it really the case that, even in a year of low inflation, 4% of continuing faculty are underperforming to the extent that their salaries should be declining in real purchasing power? Second, are the relatively high percentages of faculty who received percentage increases in salaries below the percentage increases in the CPI—especially in FY 2006 in Annenberg, Dental Medicine, Design, Graduate Education, Humanities (A&S), Natural Science (A&S), Social Science (A&S), Veterinary Medicine, and Medicine-basic science—justified in terms of performance?

Comparisons with other comparable universities: Using data from the now-discontinued MIT survey, the last SCESF report concluded that: "This is a generally good and generally improving performance. But there certainly is much room for improvement in the competitiveness of Penn mean salary levels." Similarly, this SCESF committee identifies both improvements but continuing qualifications and concern.

In terms of improvements, the previous SCESF report noted particular concern with the low average salaries for full professors in engineering compared with the MIT comparison group, noting that mean salaries for full professors in engineering were "exceeded by the majority of other universities in the comparison group." Between fall 2004 and fall 2006, Penn made substantial strides in addressing this concern, as Table 4 shows an improvement of six positions for full professors in engineering over this period (increasing from 20th of 56 in fall 2004 to 14th of 56 in fall 2006).

The results of the annual AAU Data Exchange of 60 major research uni-

versities indicate that mean salaries are in the top quartile of the comparison group across virtually all three ranks in the 16 school/areas. Between fall 2004 and fall 2006, mean salaries improved by at least two positions for nine rank-school/area comparisons but worsened by at least two positions for five rank-school/area comparisons. Compared with AAU institutions, mean salaries at Penn appear particularly low for full professors in Dental Medicine, Engineering & Applied Science, Law, Natural Science (A&S), Social Science (A&S), and Social Policy & Practice, associate professors in Natural Science (A&S), Social Science (A&S) and Social Policy & Practice, and assistant professors in Humanities (A&S), Social Science (A&S), and Medicine-Basic Science. How much improvement should be expected depends on how relative faculty salaries affect attainment of the University's long-run objectives.

The results of the annual AAUP salary survey for a group of 19 peer research universities place the mean salary of Penn full professors in rank order six as of academic year 2006-07. The highest mean salary in this group (at Harvard University) is 13.4% higher than the Penn mean (Table 5). Mean salaries for full professors at Penn became slightly more competitive during the past three years. For example, between 2004-05 and 2006-07 the percentage advantage in salaries at Stanford and Yale over Penn declined. However, between 2005-06 and 2006-07, the magnitude of the advantage in salaries at the three top universities—Harvard, Princeton, and Chicago—remained relatively large. The SCESF emphasizes that it is important for Penn to continue to monitor the level of salaries for full professors relative to salaries at the leading universities so that Penn is in a position to become increasingly competitive.

2. Internal Variability.

There is great variability in the distribution of faculty salary resources among the three professorial ranks (Table 9), among the 14 schools/areas included in this report (Table 10), and among percentage salary increases by rank within schools (Tables 6, 7, and 8) although not among percentage salary increases by rank and gender (Table 11) or average salary levels by rank and gender after weighting salaries to reflect the gender distribution of faculty across schools/areas (Table 12). Tables 6-8 show a few patterns in the schools/areas with median salary increases below the university guidelines. The median percentage salary increase was at least half a percentage point lower than the Penn budget guideline for Dental Medicine for all ranks in both FY 2006 and FY 2007 except associate professors in FY 2006. In six schools/areas, Humanities (A&S), Medicine-basic, Natural Science (A&S), Social Science (A&S), Social Policy and Practice, and Veterinary Medicine, the median percentage increase in FY 2007 was at least half a percentage below the budget guideline for faculty at each of the three ranks. The tables also show patterns in school/areas with median percentage salary increases above the guidelines. For example, in both FY 2006 and FY 2007, median percentage salary increases were at least half a percentage point above the median for full professors in Law and Nursing; associate professors in Design, Engineering & Applied Science, Graduate School of Education, Nursing, and Wharton; and assistant professors in Engineering & Applied Science, Graduate School of Education, Nursing, and Wharton. The within-rank variation relative to median salaries is relatively high for assistant professors (Table 10). Some level of variability in average faculty salaries among schools/areas is likely required to maintain Penn's competitive standings within different academic fields. Nonetheless, the SCESF believes that this variability continue to be monitored to be sure that these differences are warranted by factors such as competitive pressures.

B. Conditions of Concern

1. External Competitiveness.

Although Penn faculty salaries are generally competitive with those provided by a select group of universities (as noted above), the following particular conditions are of concern about the external competitiveness of faculty salaries at Penn:

As indicated in the SCESF's 1999 Annual Report (see Section VI, Recommendation A.2), Penn is committed to bringing faculty salaries back to a competitive level "if faculty salaries in certain fields begin to fall behind." For academic fields for which specific competitive data are available from the AAU Data Exchange, it appears that Penn generally has strengthened its competitive position between fall 2004 and fall 2006, especially for full professors in Design and Engineering, associate professors in Design, and assistant professors in Engineering and Graduate Education. However, between FY 2005 and FY 2007, mean faculty salaries at the full professor rank in Dental Medicine and Graduate Education, at the associate professor rank in Natural Sciences (A&S), and at the assistant professor rank in Social Science (A&S) and Medicine-basic science fell relative to the comparison group. Accordingly, the SCESF suggests that salaries in these areas

be reviewed to ensure that salary increases are sufficient.

Compared with mean salaries for faculty at other AAU institutions, mean salaries at Penn appear particularly low for full professors in Design, Engineering, Law, Natural Science (A&S), Social Science (A&S), and Social Policy & Practice, associate professors in Social Science (A&S) and Social Policy & Practice, and assistant professors in Humanities (A&S), Social Science (A&S), and Medicine-basic science. These findings raise the question of whether such salaries are likely to attract and to keep faculty of the caliber necessary for Penn's longer-run aspirations to be in the top end of this comparison group.

2. Internal Equity.

In the absence of data on individual faculty merit to compare with data on individual faculty salaries, the SCESF is not able to identify any specific instance of inequity among the dimensions of salary variability included in this report. However, the SCESF is concerned that some of the wide variability in individual faculty salaries may entail more than a trivial element of inequity. Although we are not able to report specific instances of salary inequity among individual faculty members, ranks, departments, or schools, this report has identified the following conditions that may give rise to equity concerns:

About 25% of full professors received cumulative salary percentage increases between fall 2004 and fall 2007 that were below the cumulative percentage increases in the Philadelphia CPI over the same period (Table 3).

Despite substantial resources for faculty salary increases, only 33% of full professors in Dental Medicine, 56% in Medicine-basic science, 57% in Humanities (A&S), 72% in Natural Science (A&S), 78% in Engineering & Applied Sciences and Social Science (A&S), and 81% in Veterinary Medicine received cumulative salary percentage increases during 2005-07 that exceeded the percentage growth in the Philadelphia CPI (Table 3).

These data may reflect changing competitive markets across schools/areas and differing shares of faculty across schools/areas that are not performing adequately. But, these aspects of the distribution of Penn faculty salaries also may reflect growing inequities. The SCESF emphasizes that these developments should be monitored in an attempt to understand whether they are warranted or reflect, even in part, undesired inequities.

VII. SCESF Communication with Provost Office

A. SCESF Requests in Preparation of the 2006-07 SCESF Report and Responses

Vincent Price (then-Chair, Faculty Senate) and Laura Perna (Chair, SCESF) met with Joann Mitchell (President's Center) to discuss some of the concerns and questions that arose in an earlier SCESF meeting. Agreement was reached for the administration to investigate the following topic.

Understanding patterns in salary changes by gender: The administration provided a new table (Table 12) with mean and median salaries by gender.

B. SCESF Recommendations and Questions for the Administration for 2006-07

In accordance with Faculty Senate policy, following are recommendations and questions for the administration that arose in the SCESF discussions, including some updates on the status of recommendations made in previous SCESF reports.

1. Timeliness of Information Provided to the SCESF

The delayed publication of this 2006-07 report reflects the challenges that the SCESF experienced in receiving the complete required data set from the administration. The administration's current procedures for providing data on the characteristics of Penn's faculty are complex and require substantial time to complete.

SCESF Recommendation

Continue efforts to develop the Faculty Database Information System in order to easily provide accurate academic base salary data for faculty in all schools. Establish a timeline to ensure that the Office of Institutional Research provides the necessary tables to the SCESF early in the fall of each academic year.

The Provost is committed to further development and maintenance of a Faculty Information System in the interests of timelier reporting of faculty data, including salary information. While we still depend upon data from the University payroll system for reporting on faculty salaries – data which for number of reasons have proven problematic for this purpose—we are examining ways of refining the entry of payroll data to improve the accuracy and flexibility of reporting. In the meantime, we are working with the Office of the Vice President for Institutional Affairs and the Assistant Vice President for Institutional Research and Analysis to set a more efficient timeline for the supply of data to the Committee.

(continued on next page)

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2. Inclusion of SCESF in Process of Setting Budget Guidelines

As in previous reports, this SCESF suggests that the SCESF meet with the Provost before salary guidelines for the next fiscal year are established. As we understand that salary guidelines are usually determined by mid-spring-semester, we would hope that such a meeting would take place late in the fall semester. We believe that this meeting would raise the SCESF's comfort about the decisions that are made regarding salary-setting policy. While former Provost Barchi previously indicated willingness to meet with the SCESF for such purposes, this procedure has not been implemented.

SCESF Recommendation

The Provost's Office will meet with the SCESF late in the fall semester prior to setting salary guidelines, starting in 2008-09.

The Provost will receive the Economic Status of the Faculty Report and discuss its implications with members of SCESF prior to the time the salary increase is announced for the coming year.

3. Salary Competitiveness

To provide high-quality instruction, research, and service, the University must maintain and attain faculty salary level at levels that are highly competitive with salaries provided by peer universities, while simultaneously sustaining other components of university operations.

SCESF Recommendations

a. Although recent changes in Penn salaries generally have been positive relative to peer institutions, mean salaries at Penn have fallen behind the comparison groups in the AAU Data Exchange in a few areas (e.g., compare first and last columns in Table 4). If these faculty groups are as meritorious, on the whole, as comparable faculty groups at Penn with changes towards more competitive mean salary levels, then the SCESF recommends that priority be placed on increasing mean salaries to Penn's competitive level of the groups that have fallen behind. These areas are: full professors in Dental Medicine and Graduate Education, associate professors in Natural Science (A&S), and assistant professors in Social Science (A&S) and Medicine-basic science. Moreover, compared to AAU institutions, average salaries at Penn appear to be particularly low for full professors in Dental Medicine, Engineering, Law, Natural Science (A&S), Social Science (A&S), and Social Policy & Practice, associate professors in Natural Science (A&S), Social Science (A&S), and Social Policy & Practice, and assistant professors in Humanities (A&S), Social Science (A&S), and Medicine-basic science.

The Provost agrees to explore reasons for the competitive standing of Penn's salaries in particular fields identified by the Committee, and to work with the school deans to take corrective actions that may be justified and financially feasible.

b. Even though priority should be placed on regaining Penn's competitive level in the academic fields identified above, the SCESF recommends that equal priority be given to recognizing in advance and rewarding with salary increases distinguished performance of faculty members who choose not to seek, or use, attractive offers of external appointment to negotiate salary increases. We note that, while generally Penn's salaries have improved relative to the AAU group in several rank by school/area comparisons, there is room for improvement for faculty in ranks in other schools/areas (Table 4). Moreover, the gaps in mean salaries between full professors at Penn and full professors at Harvard, Princeton, and Chicago remain large (Table 5). The question arises whether the University can keep and attract the highest-quality faculty members unless faculty salaries are in the top group.

The Provost will closely scrutinize market conditions as the basis for salary recommendations of the schools and departments, recognizing that deans and chairs must balance needs to attract distinguished faculty, retain those with outside offers, and treat comparably distinguished faculty equitably. The President and Provost remain committed to further enhancing Penn's ability to offer highly competitive faculty salaries, while recognizing that some of our peers enjoy greater financial resources than Penn, and may also have more developed faculties in some fields of study. We seek, through strategic investments in faculty recruiting and compensation, to consolidate our competitive strengths and address or competitive shortcomings.

4. Salary Equity

Inequity among individual faculty salaries by rank within departments (and schools that are organized as single departments) must be identified and eliminated. A considerable percentage of full professors (26%) received cumulative salary increases for FY 2005 through FY 2007 that were below the growth in the CPI (Phil.) for the same period (Table 3). This finding raises questions of whether some faculty members who have performed at a satisfactory level have received salary increases less than growth in the CPI. If so, this finding represents an effective reduction in salary in terms of purchasing power—a circumstance that is clearly inequitable given that the

overall salary increase percentage over this period exceeded the growth in the Philadelphia CPI (7.1% versus 6.1%, Table 1).

SCESF Recommendation

The SCESF recommends that the Provost and Deans give further consideration to decreasing instances when faculty members who have performed at least at a satisfactory level are awarded salary increases that are below the annual growth in the CPI (Phil.). In making this recommendation, we realize that the feasibility of awarding increases to faculty members with satisfactory performance at least as great as growth in the CPI depends on the difference between funds available for salary increases and the CPI growth percentage—with the larger the positive difference, the greater the feasibility of providing salary increases of at least the CPI growth percentage.

The Provost's Office reviews salary increases submitted by the deans and chairs, and will continue to question the rationale for giving low increases to individual faculty members. The Provost understands, however, that when increases in the available salary pool are comparable to the percentage increase in the CPI, deans and chairs may have great difficulty rewarding especially meritorious faculty performance and responding to retention issues while also granting increases at or above the growth in CPI to all faculty members who are performing at a satisfactory level.

5. Gender Equity

The SCESF appreciates the efforts of the Provost's Office to provide an additional table describing gender differences in faculty salaries (Table 12). Nonetheless, this table shows that average salaries are lower for women than for men faculty, especially for full professors, even after weighting the data to reflect differences in the gender distribution of faculty by school and area. The suggestion of gender inequity in faculty salaries is troubling.

SCESF Recommendation

The SCESF recommends that the Provost's Office place priority on identifying the causes of observed gender differences in salaries and addressing any inequities that are not attributable to legitimate forces.

The 2001 Gender Equity Report examined salary differentials and found relatively few significant differences by gender, after variables such as experience, rank, degree, and department were taken into account. The next periodic progress report on gender equity can revisit this analysis.

6. Completeness of Data

A previous SCESF report requested that Tables 6, 7, and 8, tables that provide percentage salary increases by rank, school, and quartile, be adapted to show a two- or three-year average for cases where the number of faculty is 10 or less (as quartiles would be based on two people). Despite the Provost's previously stated support, this recommendation has not yet been implemented. The SCESF also requests that future reports show not only percentage salary increases by rank and school, but also actual average salary levels by rank and school.

SCESF Recommendation

Implement the procedure for providing information for small cells in Tables 6, 7 and 8 by averaging data over two or three years for the 2007-08 report. Provide an additional table to the SCESF for the 2007-08 report that summarizes average salary levels by rank and school.

The Provost's Office agrees to explore these requests with the Office of Institutional Research and Analysis.

7. Faculty benefits

As faculty benefits at Penn compared with peer institutions have not been examined since the 1998-99 report, the SCESF requests that the Provost's Office provide this information for next year in accordance with what was done in 1998-99. Furthermore, going forward, we believe that, as recommended in prior reports, that benefits be looked at roughly every five years. Although the Provost agreed that this was a timely request in response to questions raised in previous SCESF reports, we believe that this process has not yet been initiated.

SCESF Recommendations

Undertake the report on faculty benefits in 2007-08.

While time is limited for a report on faculty benefits this academic year, the Provost agrees to work with the Vice President for Human Resources to undertake such a study next academic year, and every five years thereafter.

8. Competitiveness of Salaries at the "Top End"

The SCESF has previously expressed concern about the low relative spread in salaries at the full professor level, as low spread may indicate a problem in attracting faculty at the upper end of the scale. Table 10 provides continued evidence of this problem, as the spread in full professor salaries as a ratio to median salary is lower than that for assistant professors. Moreover, the spread in full professor salaries remained virtually unchanged between 2004-05 and 2006-07. In previous reports, the SCESF

requested that the Provost continue monitoring this situation and advise the committee as to what efforts are being made to allow Penn's "top end" to stay competitive.

SCESF Recommendation

As in previous reports, we emphasize that ongoing monitoring of the competitiveness of "top end" salaries is important and should be continued.

The Provost's Office, in reviewing proposed salary increases, will continue to monitor salaries and increases at the upper end of the distribution of full-professors. As noted above, however, when increases in the available salary pool are limited, deans and chairs may have great difficulty rewarding especially meritorious faculty performance while also granting increases at or above the growth in CPI to all faculty members who are performing at a satisfactory level.

9. Information for Putting Individual Salary Increases into Perspective

As stated in the previous SCESF report, one important objective of the SCESF is to improve information to faculty members about salary levels and changes. However, when receiving notification of their salaries for the next academic year, faculty generally do not have information to help them put their salary increases into some broader perspective, and the next SCESF report will not be available to help with that perspective for almost a year. Because of lags in information processing, information about how their salary changes fit into the broader distribution of salary changes at the University or even school level cannot be provided at the time of the salary increase notification. But, at a minimum, it would seem possible and desirable for salary notification letters to provide not only the new salary level, but also the percentage change in salary that that level implies.

SCESF Recommendation

The Provost's Office consider implementing a procedure so that all faculty salary letters include the percentage change, as well as the level, of the new salary.

The Provost considers this a reasonable recommendation and will discuss its implementation with the deans.

VIII. Members of the 2006-7 Senate Committee on the Economic Status of the Faculty

- Laura W. Perna, *Chair* (Education)
- Ann O'Sullivan (Nursing)
- David Pope (Engineering)
- Daniel Raff (Wharton)
- Chris Sanchirco (Law)
- Petra Todd (Economics)
- Neville Strumpf (Nursing), *Ex Officio*
- Larry Gladney (Physics), *Ex Officio*
- Sherrill Adams (Dental), *Ex Officio*

Table 1

Average academic base salary percentage increases of continuing Penn standing faculty members by rank in comparison with the Consumer Price Index (CPI) and Penn Budget Guidelines

Group/Condition	Average	Fiscal Year (FY)		Compound Cumulative FYs 2005-07
		FYs 2005-06	FYs 2006-07	
Full Professors	Median	3.3%	3.3%	7.1%
	Mean	4.4%	4.5%	9.1%
Associate Professor	Median	3.7%	4.0%	7.8%
	Mean	6.3%	6.3%	9.8%
Assistant Professor	Median	4.1%	4.1%	8.8%
	Mean	5.9%	6.0%	9.7%
All Three Ranks	Mean	5.2%	5.2%	NA
U.S. City Average CPI Growth	Mean	4.3%	2.7%	7.1%
Phil. CPI Growth	Mean	4.4%	1.6%	6.1%
Budget Guidelines	Mean	3.0%	4.0%	7.1%

NOTE 1: Academic base salary increases pertain to all Penn standing faculty members who were faculty at the fall census of both years (or three years for cumulative increases) for which percentage increases are calculated. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

NOTE 2: FY 2005 CPI growth for the U.S. and for Philadelphia are calculated as a change in CPI from June 2005 to June 2006. FY 2006 CPI growth for the U.S. and for Philadelphia are calculated as a change in CPI from June 2006 to June 2007.

Tables continue on next page

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Table 2

Percentage of continuing Penn standing faculty members awarded percentage salary increases exceeding the percentage growth in the consumer price index (CPI) for Philadelphia

Schools and Disciplinary Areas	Percentage of all Standing Faculty Members with Salary Increases Exceeding Growth in the CPI (Phil.)	
	FYs 2005-06	FYs 2006-07
Annenberg	12.5%	100.0%
Dental Medicine	3.8%	88.0%
Design	3.4%	100.0%
Engineering & Applied Science	41.9%	100.0%
Grad Education	32.4%	100.0%
Humanities (A&S)	22.6%	99.0%
Law	75.7%	97.4%
Natural Science (A&S)	26.1%	93.3%
Nursing	83.3%	100.0%
Social Science (A&S)	22.7%	97.9%
Social Policy & Practice	35.7%	100.0%
Veterinary Medicine	24.7%	89.6%
Wharton	40.1%	99.0%
Medicine-Basic Science	29.8%	87.8%
Median Across Schools/Areas	28.0%	99.0%
All Schools/Areas Combined	31.5%	96.1%
U.S. City Average CPI Growth	4.3%	2.7%
Phil. CPI Growth	4.4%	1.6%

NOTE 1: Academic base salary increases pertain to all Penn standing faculty members who were faculty at the fall census of both years for which percentage increases are calculated. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

NOTE 2: FY 2005 CPI growth for the U.S. and for Philadelphia are calculated as a change in CPI from June 2005 to June 2006. FY 2006 CPI growth for the U.S. and for Philadelphia are calculated as a change in CPI from June 2006 to June 2007.

Table 3

Percentage of continuing Penn full professors awarded percentage salary increases exceeding the percentage growth in the consumer price index (CPI) for Philadelphia

Schools and Disciplinary Areas	Percentage of all Full Professors with Cumulative Salary Increases Exceeding Growth in the CPI (Phil.)
	FYs 2005-07
Annenberg	100.0%
Dental Medicine	33.3%
Design	100.0%
Engineering & Applied Science	78.4%
Grad Education	92.9%
Humanities (A&S)	57.1%
Law	92.6%
Natural Science (A&S)	72.0%
Nursing	100.0%
Social Science (A&S)	78.4%
Social Policy & Practice	85.7%
Veterinary Medicine	80.5%
Wharton	85.9%
Medicine-Basic Science	55.9%
All Schools/Areas Combined	73.8%
Cumulative Phil. CPI Growth	6.07%

NOTE 1: Cumulative compounded academic base salary increases pertain to all Penn full professors who continued as full professors between Fall 2004 and Fall 2006. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), and faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

NOTE 2: FY 2005-07 CPI growth for Philadelphia is calculated as a change in CPI from June 2005 to June 2007.

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Table 4

Rank of mean salaries of Penn faculty by five academic fields as compared to 60 selected universities participating in the American Association of Universities Data Exchange (AAUDE) survey.

Academic Field	Fall 2004	Fall 2005	Fall 2006
Full Professor			
Annenberg	1/34	2/35	2/36
Dental Medicine	4/34	6/34	8/35
Design	9/52	7/51	3/53
Engineering & Applied Science	20/56	14/55	14/56
Graduate Education	2/44	3/43	4/45
Humanities (A&S)	6/56	5/55	5/56
Law	6/36	6/36	7/36
Natural Science (A&S)	11/57	12/56	11/57
Nursing	2/23	2/24	2/24
Social Science (A&S)	10/56	9/55	9/56
Social Policy & Practice	5/22	4/22	6/24
Veterinary Medicine	1/14	1/14	1/13
Wharton-Statistics	1/35	1/34	1/35
Wharton-Public Policy	3/19	3/19	3/18
Wharton-Business & Management	3/52	2/52	3/53
Medicine-Basic Science	2/34	3/35	3/37
Associate Professor			
Annenberg	—	—	—
Dental Medicine	1/30		
Design	9/50	7/50	1/51
Engineering & Applied Science	11/56	9/55	7/55
Graduate Education	2/47	2/46	3/46
Humanities (A&S)	6/56	8/55	6/56
Law	—	—	—
Natural Science (A&S)	6/57	11/56	9/57
Nursing	7/26	3/26	3/26
Social Science (A&S)	11/56	11/55	9/56
Social Policy & Practice	—	5/22	5/24
Veterinary Medicine	2/14	2/14	1/13
Wharton-Statistics	—	—	—
Wharton-Public Policy	—	—	—
Wharton-Business & Management	1/51	1/52	1/53
Medicine-Basic Science	2/31	4/34	2/36
Assistant Professor			
Annenberg	—	—	—
Dental Medicine	—	—	4/34
Design	2/50	4/49	—
Engineering & Applied Science	12/56	11/55	6/56
Graduate Education	12/43	7/43	6/45
Humanities (A&S)	14/56	13/55	14/56
Law	3/23	5/28	—
Natural Science (A&S)	10/57	7/56	8/57
Nursing	5/27	6/27	4/26
Social Science (A&S)	9/56	8/55	15/56
Social Policy & Practice	—	—	—
Veterinary Medicine	1/14	1/14	1/13

*Dramatic change in rank due to salary compression amongst peers.

Wharton-Statistics			
Wharton-Public Policy			
Wharton-Business & Management	3/50	7/52	3/53
Medicine-Basic Science	4/33	5/34	9/38

NOTE 1: Median salary data from this particular data source is not complete and therefore the more complete data set of average salary is used. The AAUDE survey instructions requests academic bases salaries and this was the metric used for submitting Penn faculty salaries.

NOTE 2: Using the federal CIP (Classification of Instructional Programs) codes for 2000, departments at comparable universities were mapped to Penn Schools.

NOTE 3: Calculations of rank only include those universities that have relevant departments. Therefore, the number of universities among which Penn is ranked varies by field.

NOTE 4: Rank is suppressed for all cells which contain fewer than five Penn faculty members.

Table 5

Full professor salary comparisons: Percentage differences in mean academic base salary levels of full professors at a sample of comparable research universities

University ^a	Full Professor Salaries: Percentage Differences by Year		
	2006-2007	2005-2006	2004-2005
Harvard	+13.4%	+12.5%	+13.8%
Princeton	+4.6%	+4.6%	+5.4%
Chicago	+3.8%	+3.5%	+3.5%
Stanford	+0.7%	+4.2%	+3.6%
Yale	+0.7%	+0.9%	+1.5%
Pennsylvania	\$156.5K	\$149.9K	\$143.4K
NYU	-4.5%	-3.9%	-3.7%
Northwestern	-5.9%	-6.1%	-5.0%
MIT	-6.8%	-6.4%	-5.9%
Duke	-9.3%	-9.0%	-8.4%
UCLA	-14.9%	-14.3%	-14.0%
U.C. (Berkeley)	-16.1%	-15.8%	-15.1%
Michigan	-16.7%	-16.2%	-16.2%
Virginia	-18.2%	-17.9%	-17.6%
Carnegie-Mellon	-18.8%	-17.4%	-17.4%
N.C. (Chapel Hill)	-19.0%	-23.1%	-21.4%
Texas (Austin)	-22.6%	-22.8%	-23.4%
MN (Twin Cities)	-25.5%	-26.4%	-26.5%
Columbia	N/A	N/A	-2.1%

NOTE: Penn academic base mean salaries are based on standing faculty members at the rank of professor. Excluded are all members of the Faculty of Medicine except basic scientists, and all standing faculty members who are appointed as Clinician Educators from four other schools that have such positions (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice). Data Source: AAUP Salary Surveys.

^aUniversities are ordered from highest to lowest mean salaries for full professors as of 2006-2007. For each year reported, the difference between the Penn mean salary and the mean salary for a comparison university was computed as a percentage of the Penn salary.

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SENATE Economic Status of the Faculty

Table 6

Full Professors: Median academic base salary percentage increases of faculty continuing in rank who were Penn full professors, along with the first and third quartile salary increases

School/Area	First Quartile (Q ₁), Median (Md.) ^a , and Third Quartile (Q ₃) Percentage Salary Increases by Year					
	FYs 2005-2006			FYs 2006-2007		
	Q ₁	Md.	Q ₃	Q ₁	Md.	Q ₃
All Schools		3.3%			3.3%	
Annenberg	3.0%	3.0%	4.0%	3.0%	4.5%	5.0%
Dental Medicine	2.5%	2.5%	2.9%	2.5%	3.0%	3.5%
Design	3.0%	3.0%	4.0%	4.0%	5.0%	6.0%
Eng & Applied Sci	2.7%	3.3%	8.0%	3.5%	5.0%	6.0%
Grad Education	3.0%	3.3%	3.5%	4.5%	5.0%	6.3%
Humanities (A&S)	2.8%	3.0%	3.6%	2.5%	3.1%	3.6%
Law	4.7%	5.0%	5.2%	3.9%	4.5%	5.8%
Medicine-Basic Science	2.9%	3.0%	4.6%	2.0%	2.8%	4.0%
Natural Science (A&S)	2.8%	3.2%	4.2%	2.7%	3.0%	3.5%
Nursing ^b	-	8.0%	-	-	6.0%	-
Social Science (A&S)	3.0%	3.3%	3.9%	3.0%	3.2%	4.1%
Social Policy & Practice ^b	-	4.0%	-	-	3.0%	-
Veterinary Medicine	3.0%	3.0%	4.0%	3.0%	3.0%	3.0%
Wharton	3.2%	3.8%	4.9%	3.2%	4.1%	5.3%
Budget Guideline		3.0%			4.0%	

NOTE 1: The Budget Guideline shown under each rank is for comparison purposes. As per Penn policy, it is a guideline for a salary increment pool for all standing faculty members in each school, but not specifically for each rank.

NOTE 2: Academic base salary percentage increases pertain to all Penn standing faculty members who were full professors at the fall census of both years for which percentage increases are calculated. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

NOTE 3: Salary increases include increases from all sources (e.g. merit, market, retention).

^a A median (Md.) percentage salary increase is the mid-point of the increase within each school/area and rank (i.e., half of all increases were below the median and half were above). Variability of salary increase percentages is indicated by the first quartile (Q₁) and third quartile (Q₃) percentage increases. At the lower end of the salary increase percentages, 25% of all increases were below the Q₁, while 75% were above. At the upper end, 75% of all increases were below the Q₃, while 25% were above. Median increases are reported only if the number of faculty members is four or more. The quartile increases are reported only if the number of faculty members is more than ten.

^b "-" in quartile columns means that there are less than ten faculty members.

Table 7

Associate Professors: Median academic base salary percentage increases of Penn faculty continuing in rank who were associate professors, along with the first and third quartile salary increases

School/Area	First Quartile (Q ₁), Median (Md.) ^a , and Third Quartile (Q ₃) Percentage Salary Increases by Year					
	FYs 2005-2006			FYs 2006-2007		
	Q ₁	Md.	Q ₃	Q ₁	Md.	Q ₃
All Schools		3.5%			3.7%	
Annenberg ^b		NA			NA	
Dental Medicine ^c	-	3.0%	-	-	3.0%	-
Design ^c	-	3.7%	-	-	12.0%	-
Eng & Applied Sci	2.8%	3.7%	5.5%	4.0%	4.8%	7.5%
Grad Education	3.0%	4.0%	14.0%	4.5%	5.0%	6.0%
Humanities (A&S)	2.9%	3.1%	3.6%	2.5%	3.0%	3.9%
Law ^{bc}	-	-	-		NA	
Medicine-Basic Science	2.7%	3.0%	5.1%	2.0%	2.0%	4.0%
Natural Science (A&S)	2.9%	3.4%	4.0%	2.9%	3.2%	4.4%
Nursing	4.5%	6.9%	9.8%	4.0%	4.5%	4.5%
Social Science (A&S)	3.0%	3.1%	4.1%	2.8%	3.2%	3.7%
Social Policy & Practice ^c	-	3.0%	-	-	3.0%	-
Veterinary Medicine	3.0%	3.5%	4.0%	3.0%	3.0%	3.5%
Wharton	3.8%	4.3%	6.9%	4.1%	5.5%	6.0%
Budget Guideline		3.0%			4.0%	

NOTE 1: The Budget Guideline shown under each rank is for comparison purposes. As per Penn policy, it is a guideline for a salary increment pool for all standing faculty members in each school, but not specifically for each rank.

NOTE 2: Academic base salary percentage increases pertain to all Penn standing faculty members who were associate professors at the fall census of both years for which percentage increases are calculated. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

NOTE 3: Salary increases include increases from all sources (e.g. merit, market, retention).

^a A median (Md.) percentage salary increase is the mid-point of the increase within each school/area and rank (i.e., half of all increases were below the median and half were above). Variability of salary increase percentages is indicated by the first quartile (Q₁) and third quartile (Q₃) percentage increases. At the lower end of the salary increase percentages, 25% of all increases were below the Q₁, while 75% were above. At the upper end, 75% of all increases were below the Q₃, while 25% were above. Median increases are reported only if the number of faculty members is four or more. The quartile increases are reported only if the number of faculty members is ten or more.

^b NA means that there are no faculty in this rank to report.

^c "-" in quartile columns means that there are less than ten faculty members and "-" in median columns means that there are less than four faculty members in the school/area.

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Table 8

Assistant Professors: Median academic base salary percentage increases of Penn faculty continuing in rank who were assistant professors along with the first and third quartile salary increases

School/Area	First Quartile (Q ₁), Median (Md.) ^a , and Third Quartile (Q ₃) Percentage Salary Increases by Year					
	FYs 2005-2006			FYs 2006-2007		
	Q ₁	Md.	Q ₃	Q ₁	Md.	Q ₃
All Schools		4.0%			4.0%	
Annenberg ^b	-	-	-	-	-	-
Dental Medicine ^b	-	2.5%	-	-	3.5%	-
Design ^b	-	3.0%	-	-	4.5%	-
Eng & Applied Sci	3.0%	3.9%	4.9%	5.0%	5.1%	6.0%
Grad Education ^b	-	3.8%	-	-	5.5%	-
Humanities (A&S)	3.4%	4.1%	4.9%	3.0%	3.5%	3.7%
Law ^b	-	-	-	-	-	-
Medicine-Basic Science	2.5%	3.0%	3.5%	2.0%	2.8%	4.2%
Natural Science (A&S)	3.0%	3.0%	5.3%	3.0%	3.1%	3.6%
Nursing ^b	-	5.0%	-	4.5%	4.5%	5.5%
Social Science (A&S)	3.0%	3.3%	5.6%	3.0%	3.1%	3.8%
Social Policy & Practice ^b	-	-	-	-	-	-
Veterinary Medicine	3.0%	4.0%	5.0%	3.0%	3.0%	6.4%
Wharton	4.1%	4.3%	5.5%	4.1%	4.9%	5.6%
Budget Guideline		3.0%			4.0%	

NOTE 1: The Budget Guideline shown under each rank is for comparison purposes. As per Penn policy, it is a guideline for a salary increment pool for all standing faculty members in each school, but not specifically for each rank.

NOTE 2: Academic base salary percentage increases pertain to all Penn standing faculty members who were assistant professors at the fall census of both years for which percentage increases are calculated. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

NOTE 3: Salary increases include increases from all sources (e.g. merit, market, retention).

^aA median (Md.) percentage salary increase is the mid-point of the increase within each school/area and rank (i.e., half of all increases were below the median and half were above). Variability of salary increase percentages is indicated by the first quartile (Q₁) and third quartile (Q₃) percentage increases. At the lower end of the salary increase percentages, 25% of all increases were below the Q₁, while 75% were above. At the upper end, 75% of all increases were below the Q₃, while 25% were above. Median increases are reported only if the number of faculty members is four or more. The quartile increases are reported only if the number of faculty members is ten or more.

^b"-" in quartile columns means that there are less than ten faculty members, and "-" in median columns means that there are less than four faculty members in the school/area.

Table 9

Mean academic base salary levels of Penn standing faculty members who continued in rank by rank

Rank	Acad. Year	Salary		Prof. Salary Level	
		Average	Amt.	Not Weighted	Weighted ^a
Full Prof.	04-05	Mean	141,863	1.74	1.81
		Median	129,850	1.84	1.78
	05-06	Mean	148,154	1.71	1.83
		Median	137,000	1.88	1.82
	06-07	Mean	154,314	1.72	1.84
		Median	143,000	1.92	1.84
Assoc. Prof.	04-05	Mean	94,513	1.16	1.23
		Median	84,100	1.19	1.22
	05-06	Mean	99,374	1.15	1.26
		Median	87,550	1.20	1.26
	06-07	Mean	102,928	1.15	1.26
		Median	91,600	1.23	1.27
Assist. Prof.	04-05	Mean	81,664	1.00	1.00
		Median	70,524	1.00	1.00
	05-06	Mean	86,704	1.00	1.00
		Median	72,723	1.00	1.00
	06-07	Mean	89,564	1.00	1.00
		Median	74,336	1.00	1.00

NOTE: Mean academic base salary levels are based on all Penn standing faculty members who continued in rank in FY 2005, FY 2006, and FY 2007 from their respective prior years. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

^aThe weighted ratios were computed by the following procedure: first, the ratios for continuing faculty members for each school were computed (except for Annenberg, which had no assistant professors, and Law, which had but one assistant professor); next a mean weighted ratio was computed (weighted for the number of continuing faculty members at each higher rank in each school).

^bAll salaries reported on a 12-month basis, for the purposes of this analysis, are adjusted to be comparable with the salaries reported on a 9-month basis.

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SENATE Economic Status of the Faculty

Table 10

Variability of academic base salary levels for faculty who continued in rank^a: First, second, and third quartile median salary levels by rank and year

Rank	Acad. Year	Quartiles ^b of Median Salaries				Ratio: IQR to Med. ^c	# of Areas
		Q ₁	Q ₂	Q ₃	IQR ^b		
Full Prof.	04-05	\$110.0K	\$129.9K	\$164.4K	54.4	0.42	14
	05-06	\$116.7K	\$137.0K	\$172.8K	56.1	0.41	14
	06-07	\$120.8K	\$143.0K	\$180.0K	59.3	0.41	14
Assoc. Prof.	04-05	\$75.5K	\$84.1K	\$100.1K	24.6	0.29	13
	05-06	\$77.6K	\$87.6K	\$105.7K	28.1	0.32	13
	06-07	\$81.0K	\$91.6K	\$106.5K	25.5	0.28	12
Assist. Prof.	04-05	\$62.4K	\$70.5K	\$87.4K	25.1	0.36	13
	05-26	\$65.2K	\$72.7K	\$100.1K	34.8	0.48	14
	06-07	\$67.8K	\$74.3K	\$102.3K	34.5	0.46	14

NOTE: Median academic base salary levels are based on all Penn standing faculty members who continued in rank in FY 2005, FY 2006, and FY 2007 from their respective prior years. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

^aThe fourteen schools/areas used for this analysis are the same as those listed in Table 3. In some years the number of areas reported was slightly less if the school had no continuing in rank faculty for a given rank.

^bVariability of median salary levels is reported by quartile. At the lower end of the median salary level distribution, 25% of all median salary levels were below the first quartile (Q₁), while the other 75% were above. In the middle, 50% of all median salary levels were below the second quartile (Q₂, also called the median), while the other 50% were above. At the upper end, 75% of all median salary levels were below the third quartile (Q₃), while the other 25% were above. Using Q₃ and Q₁, a measure of variability of median salaries termed the interquartile range (IQR) is then computed by subtracting the lower quartile salary (Q₁) from the upper quartile salary (Q₃).

^cThis is a ratio of (a) the variability of median salaries (i.e., the IQR) to (b) the average of those median salaries. With this ratio, it is possible to make meaningful comparisons across years, and across professional ranks, in the variability of salaries. The IQR is divided by the median salary (Q₂), thereby indexing the variability to the general level of salaries and making comparisons of variability more meaningful.

^dAll salaries reported on a 12-month basis, for the purposes of this analysis, are adjusted to be comparable with the salaries reported on a 9-month basis.

Table 11

Percentage Salary Increase Distribution of Faculty Who Continued in Rank by Gender and Rank

First Quartile (Q ₁), Median (Md.) ^a , and Third Quartile (Q ₃)							
Percentage Salary Increases by Year							
Rank	Gender	FYs 2005-2006			FYs 2006-2007		
		Q ₁	Median	Q ₃	Q ₁	Median	Q ₃
Full Prof.	Men	2.96%	3.27%	4.41%	2.92%	3.26%	4.62%
	Women	2.97%	3.45%	5.11%	3.00%	3.46%	5.26%
Assoc. Prof.	Men	3.00%	3.50%	4.60%	2.85%	3.63%	5.66%
	Women	3.00%	3.51%	6.07%	2.95%	3.99%	4.52%
Assist. Prof.	Men	3.00%	3.85%	5.00%	3.01%	4.00%	5.12%
	Women	3.03%	4.13%	5.27%	3.08%	4.07%	5.42%

NOTE: Academic base salary percentage increases pertain to all Penn standing faculty members who were in the same rank at the fall census of both years for which percentage increases are calculated. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

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Table 12

Mean academic base salary levels of Penn faculty members by gender and rank

Rank			Women	Men	% Difference	Women	Men	% Difference
Full professor	2004-05	Mean	134,083	142,944	6.6%	136,564	142,944	4.7%
		Median	120,538	131,100	8.8%	129,656	139,868	7.9%
	2005-06	Mean	139,891	149,032	6.5%	142,952	149,032	4.3%
		Median	127,051	138,450	9.0%	138,089	146,213	5.9%
	2006-07	Mean	146,762	155,230	5.8%	149,979	155,230	3.5%
		Median	132,200	144,150	9.0%	145,760	152,018	4.3%
Associate professor	2004-05	Mean	87,999	99,150	12.7%	97,948	99,150	1.2%
		Median	78,600	90,150	14.7%	97,018	96,317	-0.7%
	2005-06	Mean	92,619	102,478	10.6%	93,111	102,478	10.1%
		Median	82,750	93,000	12.4%	93,649	100,531	7.3%
	2006-07	Mean	94,695	107,698	13.7%	105,236	107,698	2.3%
		Median	87,263	95,900	9.9%	107,349	104,579	-2.6%
Assistant Professor	2004-05	Mean	77,794	85,464	9.9%	86,074	85,464	-0.7%
		Median	65,845	74,500	13.1%	83,808	84,000	0.2%
	2005-06	Mean	80,762	89,345	10.6%	89,955	89,345	-0.7%
		Median	68,190	77,340	13.4%	86,653	87,421	0.9%
	2006-07	Mean	83,835	92,169	9.9%	93,002	92,169	-0.9%
		Median	70,563	80,038	13.4%	89,946	88,924	-1.1%

NOTE 1: Mean academic base salary levels are based on all Penn standing faculty members who were at Penn in FY 2005, FY 2006, and FY 2007. Excluded were all members of the Faculty of Medicine except basic scientists, all Clinician Educators from four other schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members who were on unpaid leave of absence, faculty who had chosen phased retirement, and Deans of all schools.

NOTE 2: Female faculty members are weighted using male weights. Male weights are calculated as a ratio of male faculty in each school/area to the total number of male faculty at Penn. Schools/areas which had less than three female faculty in a given rank in a given year are assigned male weight of zero.

NOTE 3: % Difference is calculated as the difference between male and female salaries divided by the female salary. Negative percent differences occur when the female salary exceeds the male salary.

NOTE 4: All salaries reported on a 12-month basis, for the purposes of this analysis, are adjusted to be comparable with the salaries reported on a 9-month basis.