Senate Committee on the Economic Status of the Faculty
Fiscal Year 2017
July 1, 2016 through June 30, 2017

Contents

Senate Committee on the 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 the current economic status of the faculty, based on salary and benefits data provided to the committee by the Provost's Office, prepared by the Offices of Institutional Research & Analysis and Human Resources. Unless otherwise specifically stated, faculty salary information discussed in this report refers to the aggregated 9-month or "academic year" base salary of faculty members whether salaries are paid from General Operating Funds and/or from Designated Funds.[1] Deans and faculty on phased retirement were excluded. The data provided to SCESF preserve anonymity of individuals. Benefits data were provided by Human Resources; additional data were extracted from publicly available websites.

SCESF's mission is to provide an analysis of the economic status of standing faculty at the University of Pennsylvania. This year, SCESF was provided Fiscal Year 2017 (FY2017) data for 1,119 members of the tenure-line faculty continuing in rank (684 Professors, 216 Associate Professors, and 219 Assistant Professors). As in past years, these data exclude tenure-line faculty from the Perelman School of Medicine (PSOM), except for those in the basic sciences. Also excluded are roughly 1,000 clinician educators in the standing faculty from Medicine, Dental Medicine, Veterinary Medicine, Nursing and Social Policy and Practice. SCESF requested that the FY2018 adjusted academic base salary data include *all* tenure line standing faculty members, including those in the PSOM clinical departments. SCESF will continue to request the omitted PSOM salary data in the future in order to achieve its mission to report on the economic status of *all* standing faculty at Penn.

The report focuses on three topics:

- Comparison of the base salary at Penn to those at peer institutions.
- Gender disparity in faculty salaries within Penn.
- Faculty benefits.

Section VI details SCESF's issues of concern and recommendations for Fiscal Year 2018 (FY2018).

II. Merit Raises for Penn Faculty in Fiscal Year 2017 (FY2017)

A. Process for Setting and Adjusting Faculty Salaries at Penn

Faculty salaries at Penn are the product of a two-step process. First, faculty salary levels are set at the time of initial appointment by the dean making the appointment. Second, faculty salary levels are normally increased annually based on academic merit through a standardized process that was described in detail in the SCESF report for FY2016. Penn's salary policy for FY2017 including the target salary increase percentage was published in *Almanac* (*https://almanac.upenn.edu/articles/salary-guide-lines-for-2017-2018*). Using available resources, the dean of each school makes a certain amount available for faculty salaries. Particular aspects of faculty salaries for which these funds are used include sustaining existing faculty appointments, providing annual salary and promotion increases for continuing faculty members, and creating salary funding for new faculty positions. Additional resources are available for faculty retentions. Details of the compensation procedure used at PSOM were reviewed by SCESF last year (*https://almanac.upenn.edu/uploads/media/Senate_Commit-tee_on_the_Economic_Status_of_The_Faculty_Fiscal_Year_2016_2015.pdf*).

B. Target Annual Salary Increases in FY 2017

For FY2017, deans of the 12 schools were given a target salary increase of 3.0% for faculty members continuing in rank (*https://almanac.upenn.edu/articles/salary-guidelines-for-2017-2018*). This target has not exceeded 3% since 2006, when it was 4%.

C. Actual Annual Salary Increases

Several tables in Section VIII provide details regarding annual salary increases in FY2017 for faculty continuing in rank. Table 1 shows that the median salary increase was 3.0% at all ranks. Mean increases in this table are higher than medians due to selective higher individual salary increases at all ranks. Nearly all faculty received merit increases in excess of 0.7%, the growth in the Philadelphia Consumer Price Index (Tables 2 and 3). Faculty receiving merit increases below the CPI growth of 0.7% were concentrated in Dental Medicine and PSOM basic science departments.

When merit increases are further separated by rank and school, Tables 6, 7, and 8 show that the median salary increase generally meets or exceeds the University-wide salary increase target of 3.0% for faculty continuing within each rank. The lowest median increase is 2.5%. Consistent with fluctuations in historical increases, variation in the amount of increase is most evident for Associate Professors, particularly at Wharton (lower quartile increase 3.1% and upper quartile increase 11.0%).

D. Annual Salary Levels

Table 9 presents the mean and median salary by rank for faculty continuing in rank for FY2013-FY2017, and Table 10 shows the quartiles of base salary for these same groups. These data show that base salaries for associate professors are squeezed from below by salaries of assistant professors that are rising more rapidly. Throughout these years, the median base salary for associate professors has been less than the mean base salary for assistant professors. The column "Not Weighted" compares each amount to the corresponding value for assistant professors. For example, in FY2017, the average base salary of an associate professor is 9% more than the average base salary of an assistant professor. The column "Weighted" adjusts for the different composition by rank across schools at Penn. When weighted by school, associate professors earn 24% more on average than assistant professors, consistent with associate professors being concentrated in lower-paying schools.

Table 10 indicates that the range of the middle half of associate professor salaries (the interquartile range, IQR) is compressed relative to those of assistant and full professors. Base salaries for full professors in FY2017 range by $102,594 for full professors and $74,430 for assistant professors, but only by $33,129 for associate professors. Confidential supplemental data (not published) also shows variability in salaries across disciplines.

III. Salary Comparisons: Penn's Competitive Standing

A. Comparisons to Ivy Plus Universities

To evaluate Penn faculty salaries relative to peers in the higher education market, SCESF compared academic base salaries at Penn to those at a set of highly competitive private research universities, the Ivy Plus schools (consisting of Ivy League schools with Chicago, Duke, MIT and Stanford). We provide comparisons of mean academic base salaries for full, associate and assistant professors at Penn to this peer group in Figures 1 and 2. Figure 1 summarizes the position of average base salaries of assistant, associate and full professors at Penn relative to the mean salary for that rank within Ivy Plus schools. The three panels of Figure 2 repeat these summaries but within the context of salary trends at each rank for the other eleven schools in the Ivy Plus. Table 5 presents these data as salaries relative to mean salaries at Penn.

Among this group of comparable research universities, base salaries of Penn assistant professors rank at or near the top. On average, assistant professors at Penn now earn over 10% more than the average for assistant professors in the Ivy Plus. This high relative position has been sustained since 2009, with salaries at Penn either at the top or second only to salaries for assistant professors at Stanford (Figure 2A).

---

[1] Academic base year salary is paid for the normal academic duties of a standing faculty member (teaching, committee service, research). At Penn, the "academic base year salary" is a faculty member's compensation for the nine-month academic year, although it is typically paid out in 12 equal amounts in a monthly paycheck. The only exception occurs in the health care schools, which have some or all standing faculty on a 12-month or "annualized" base. All salaries reported on a 12-month basis have been adjusted to be comparable with the salaries reported on a 9-month basis. "Summer money" is paid routinely at varying levels in parts of the University. Such additional income is not included in these base year salaries.

Senate Committee on the Economic Status of the Faculty

(continued from page 2)

These highly competitive faculty salaries are not achieved at other ranks, however. In short, Penn is persistently losing ground in the higher education market for senior faculty. Salaries for associate professors were about 5% above the mean in 2009, but have steadily drifted down relative to the Ivy Plus until 2014 and are now slightly above the mean for Ivy Plus schools, substantially below salaries at Columbia, Stanford, MIT, and Princeton (Figure 2B). The relative placement of salaries of full professors at Penn has been more stable, remaining close to the mean among Ivy Plus schools. This stability leaves a gap of salaries of full professors at Penn consistently below the cluster of schools made up of Columbia, Stanford, Princeton, Chicago and Harvard (Figure 2C).

B. Comparisons to the Association of American Universities

The Association of American Universities Data Exchange (AAUDE) is a source of information about faculty salaries at an expanded group of peer universities. The Association of American Universities (AAU) comprises 62 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 and the University of Michigan), and other public universities (e.g., Michigan State, University of California-Davis and University of California-Irvine).[2]

Because of the marked variation in salaries across schools and academic levels, comparisons to the AAU dataset are broken out by academic field and rank in Table 4. The most recent data are for 2016. Categories with fewer than five faculty members at Penn were omitted from the table to preserve confidentiality.

Across disciplines, Penn's national rank varies. It is expected that those disciplines consistently ranked high in their field should be compensated at a level near the top of the discipline. Rankings often change slowly, and SCESF monitors salary ranking fluctuations closely. SCESF notes few significant changes in salary rank from 2015 to 2016, with changes in ranking related to changes in the composition of represented schools. An exception is the large improvement in the ranking for assistant professors within Basic Sciences at PSOM. The salary rank grew from 15/60 in 2015 to 5/57 in 2016, a dramatic improvement.

IV. Salaries for Female Faculty Continue to Lag Behind Their Male Counterparts

A. Mean Salary Increases for Men and Women. Annual percentage increases in salary for faculty who continued in rank are similar for men

---

[2] For a complete list of the member institutions, see the AAU website *https://www.aau.edu*
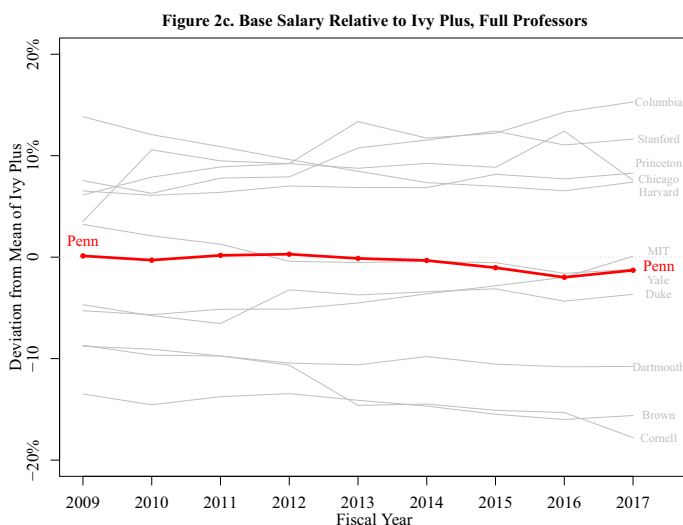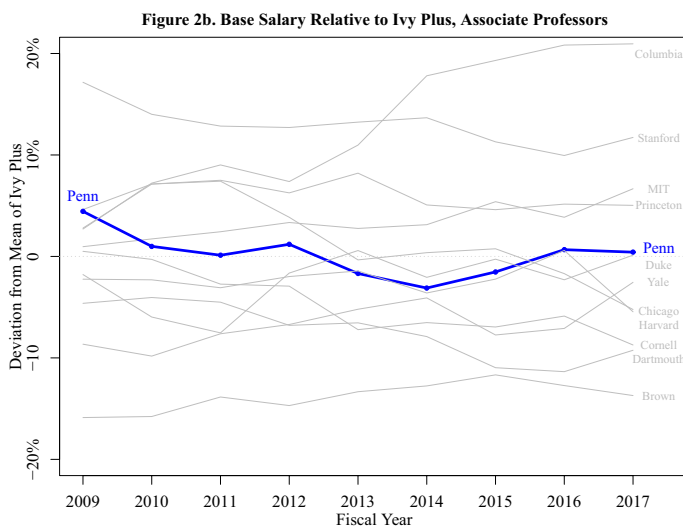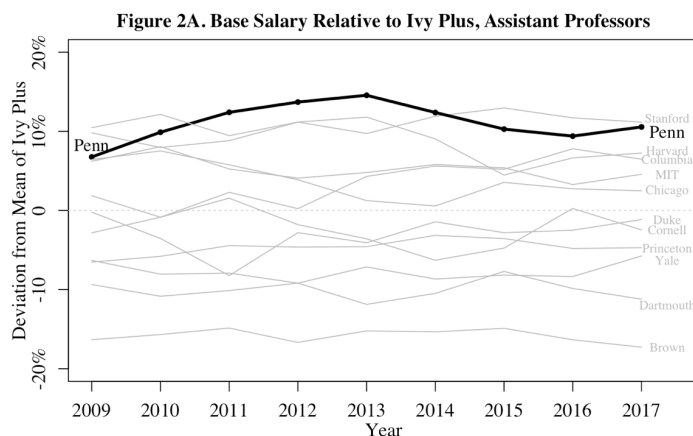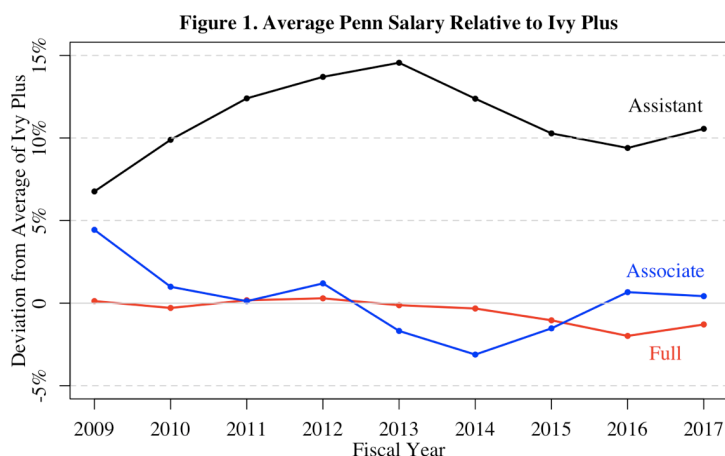
**Figure 1. Average Penn Salary Relative to Ivy Plus**

Figure 2A. Base Salary Relative to Ivy Plus, Assistant Professors

Figure 2b. Base Salary Relative to Ivy Plus, Associate Professors

Figure 2c. Base Salary Relative to Ivy Plus, Full Professors

Senate Committee on the Economic Status of the Faculty

and women faculty at Penn (Table 11). Given the presence of a gap in salaries between male and female faculty at Penn noted in previous reports from SCESF, this similarity anticipates the disparity noted below in 2017.

B. Gender Gap in Faculty Salaries at Penn. Despite the general parity in annual salary increases (Table 11), differences in base salaries for men and women have persisted over the years (Table 12). At the full professor level (23% of whom are women), the mean academic year base salary for women is $14,157 less than the mean salary for men at the same rank. At the associate professor rank (38% women), the mean salary for women is $15,594 less than the mean salary for men. A substantial gap is also present at the entry level: the mean salary for assistant professors (42% women) is $16,767 less for women than for men. A wage gap at the assistant professor level sets the stage for continuing disparities as faculty move through ranks. Any comprehensive program to reduce the gender gap must include close attention to starting assistant professor salaries.

C. Factors Contributing to the Disparity. A substantial portion of the wage disparity evident in Table 12 results from differences in gender ratios in faculty across the different schools. Traditionally male-dominated fields typically benefit from higher salaries than those found in traditionally female-dominated fields. To examine the extent of this effect, the Vice Provost provided a weighted set of comparisons (Table 12). This adjustment computes the weighted average salary for women, for example, using weights based on the proportions of male faculty within different schools. Although this weighting reduces the wage gap, a gender gap remains between the weighted values for men and women. The weighted gender gap in FY2017 is 2.5% for assistant professors, 2.0% for associate professors and 2.6% for full professors. Some of the remaining gender gap may be attributed to the incomplete nature of this adjustment. Salary levels differ considerably across departments within schools at Penn, and the adjustments in Table 12 only distinguish schools.

To further explicate sources of the gender disparity, the Vice Provost provided SCESF with a regression analysis conducted by the Office of Institutional Research and Analysis (IRA). This analysis regresses the log of base salary on gender, race/ethnicity, experience (measured by academic rank and time in rank), status as a department or endowed chair and academic field. Academic field is roughly grouped at a school level, retaining some of the heterogeneity present in the weighted analysis of Table 12. The regression analysis finds that, without adjustment for field, rank, or time in rank, women have a base salary that is about 19% lower than that of male faculty. Adjustment for rank and ethnicity cuts this gap in half to about 9%, consistent with the fact that there are proportionally fewer women in higher paid ranks (women make up 23% of full professors, compared to 42% of assistant professors). Time in rank and having an administrative role or endowed chair are predictive of overall salary but have little influence on the gender gap. Adjustment for academic field, however, substantially reduces the gender gap to less than 2%, confirming that fewer women have positions in highly paid disciplines. This 1.5% to 2% gender gap has persisted for the last 6 years, without demonstrable change in the significance of rank, ethnicity, time in rank, administrative role, endowed chair or discipline. The importance of discipline is consistent with the weighted analysis in Table 12, which shows a reduction in the wage gap to 2%-3%. Some of the granular differences between Table 12 and the regression analysis may be attributed to the use of slightly different data. Table 12 limits the comparison to faculty who continued in rank, whereas the regression analysis includes promotions and appointments, and those in administrative positions (e.g., department chairs).

In addition to the overall regression analysis, IRA repeated the regression analysis, but estimated separately for each faculty rank. By separating the data into assistant, associate and full professors, these analyses allow the impact of gender and academic field on salary to vary by rank. When specified in this manner, regression analysis finds no significant gender gap. A very small gender gap less than 1% is estimated among full and assistant professors. For associate professors, the estimated gap is larger at 3.1% between the salaries of male and female associate professors. Although the notion of statistical significance is problematic for these data (which essentially form the population of standing faculty not at PSOM), it provides a familiar measure of the effect size relative to unexplained variation in the data.

SCESF would like to have performed a more extensive regression analysis in order to identify sources of the remaining gender gap, for example incorporating a finer level of distinction among academic fields and a more thorough analysis of the role of time in rank. Aside from recognizing whether a faculty member has an endowed chair, the regression analysis does not account for research productivity or teaching performance. SCESF will continue to focus on the underlying mechanisms associated with these and other explanatory factors in upcoming years and identify potential interventions.

D. Base Salary is Not Total Salary. The data presented in the summary tables in Section VIII primarily concern base salary at Penn. As noted, base salary excludes compensation for "summer months" as well as extra compensation earned from optional overload teaching, executive education and service roles outside normal faculty responsibilities. SCESF requested information that would quantify the extent of faculty compensation from these other sources from the Provost's Office. For example, combining the counts from Table 10 with means in Table 9, the total base salary earned by the 1,119 faculty continuing in rank is about $202 million. In order to gauge the extent of extra compensation earned by faculty at Penn, SCESF sought from the Provost's Office the corresponding total salary including extra sources of compensation. The Provost's Office was not able to provide this total. Absent that information, SCESF resorted to the RCM summary of the Penn Operating Budget for FY2017 (Schedule B). This budget reports that "academic salaries" at Penn (exclusive of benefits) for fiscal year 2016 amounted to more than $613 million. SCESF recognizes that the RCM budget includes CE faculty and adjunct faculty that are excluded from the data used in this report. Nonetheless, the gap between $202 million and $613 million suggests that total compensation could be much larger than base salary. In the future SCESF will seek to incorporate accurate data for total compensation into its analysis of the gender gap at Penn. Given the discretionary nature of extra compensation and its potentially large size, it is impossible for SCESF to provide a thorough analysis of gender equity from base salary alone.

V. Faculty Benefits at Penn

Benefits are an important aspect of total compensation and are of great interest to university faculty. Continuing a practice begun in 2015, this report includes faculty benefits data. Benefits data will continue to be included in the future, expanding in a stepwise manner, to provide a more complete annual review of the competitive standing of faculty benefits. This year, SCESF sought to include a comparison on the use of sabbatical benefits. The Provost's Office was not able to provide this information in a timely fashion that would have allowed its inclusion in this report. In the future, SCESF will again seek these data as well as comparative data for early retirement incentives, and medical, vision, and dental insurance.

Penn offers two types of retirement plans. In the Basic Plan, the University makes contributions to 403(b) tax-deferred retirement accounts on an increasing scale with faculty member age (to a maximum of 4% of base salary at age 40 and over). In the Matching Plan, Penn matches the faculty member's contributions dollar-for-dollar in a 401(a) tax-deferred retirement account. The contribution limit increases with age to a maximum of 5% of salary below $265,000 (at age 40 and over). Virtually all eligible faculty participate in the matching retirement account program. Penn's maximum contribution of 9% (4% to 403(b) plus 5% to 401(a)) is below the Ivy Plus group median of 10% (Table 13).

Penn offers tuition benefits for faculty members, their partners, and their dependents. Benefits depend on whether enrollment is at Penn or another institution and are different for faculty hired before 1997. Benefits for two parent-partners employed at Penn are not summed, so when partners are both employed at Penn, only one tuition benefit can be used for

Senate Committee on the Economic Status of the Faculty

each child. Currently Penn covers 75% of the tuition and technology fees ($36,177 in FY2017) for dependents of 188 faculty who are enrolled at Penn ("home") and up to 40% of Penn's tuition fee ($18,966 in FY2017) for dependents who are enrolled elsewhere. Penn's tuition benefits are more generous than the median tuition benefit offered by the Ivy Plus institutions ($25,461 for "home" tuition and $16,945 for "away").

VI. Issues of Concern and Recommendations from the SCESF

Penn's continued prominence as an eminent university requires academic excellence in the faculty across all schools and disciplines, and this excellence is based directly on the quality of the faculty recruited to, and retained by, our university. We encourage the President, Provost, Deans and the faculty-at-large to continue to monitor closely faculty compensation across the entire University in order to maintain Penn's competitive position with peer institutions and eliminate salary disparities based on gender, as well as other characteristics that were unexamined in this report including race, ethnicity and sexual orientation.

In accordance with Faculty Senate policy, we present the following issues of concern and our recommendations to address these issues.

A. Expanding Economic Data Beyond Base Salary

Issue of Concern: The tabular data provided to the Committee on the Economic Status of the Faculty summarizes base salary. Faculty across the University now earn additional compensation for summer support or other activities, such as supplemental teaching or service beyond the norm for their school or department. Such compensation is excluded from our data, but could be substantial and have a large impact on the analysis of gender equity at Penn.

SCESF Recommendation: SCESF requests that data from the Provost's Office be expanded next year to include total compensation for faculty.

Response: The Committee was provided with base salary data for standing faculty except for clinician-educators and those who are not basic scientists in the Perelman School. Once a year all full-time faculty and staff receive a personal and confidential "total compensation" summary that details their individual "beyond-the-paycheck" compensation, such as the University's contributions to healthcare, and retirement plans, work-life programs, disability benefits, and discount programs. This "beyond the paycheck" information, some of which pertains to elective benefits, such as the tuition benefit, is not reflected in the twelve salary tables provided to the Senate. Also not reflected in the data tables are "additional payments" made to faculty for voluntary services such as extra teaching or administrative roles, or to fulfill the terms of negotiated contractual compensation agreements between faculty and their Schools or the University. The University shares the Committee's commitment to ensuring that opportunities for activities for which additional compensation is provided are available to eligible faculty on an equitable basis. In addition, the Provost's Office will engage in discussions with the Senate about whether additional data should be provided to the Senate.

B. Assessing the Economic Status of the Entire Faculty

Issue of Concern: The Committee on the Economic Status of the Faculty is charged to gather and organize data on academic salaries and benefits for the faculty and to represent the faculty in the determination of University policy on salary issues. This year, SCESF was provided academic base salary data for 1,119 faculty who were continuing in rank. Penn is composed of 2,581 standing faculty in the tenure and clinician-educator tracks.[3] Historically, this Committee falls short of its charge because the Provost's Office provides academic base salary data for less than half of the standing faculty.

SCESF Recommendation: To provide a more complete analysis of faculty salary and benefits, SCESF requests that data from the Provost's

Office be expanded next year to include the academic base salary for all standing faculty, subject to the standard exclusion of Deans and faculty members in phased retirement. SCESF will again request the PSOM standing faculty data to analyze along with data from every other school at Penn. Future requests may extend to the associated faculty, currently 2,141 in number.[4]

Response: In recent years, SCESF has come to characterize its charge under the Rules of the Faculty Senate as assessing the economic status of the entire faculty. SCESF's expansive interpretation of its charge is inconsistent with understandings of the scope of SCESF's role that date back more than two decades. Salary data on tenure-track faculty in the eighteen clinical departments, CE-track faculty, and Associated Faculty have never been provided. In 2017-18, the Provost's Office again provided the Senate with salary data organized into twelve tables. SCESF created Table 13, "Employer Contributions to Retirement Accounts and to Dependent Undergraduate Tuition at Penn and Ivy Plus Peer Group," which incorporates information obtained through the Provost's Office and the Division of Human Resources. The University appreciates that SCESF is seeking to better serve the faculty by commencing broader analyses of the salaries and compensation of additional categories of faculty. The Provost's Office will work with the Senate to explore whether a broader role for SCESF is warranted.

C. Maintaining Penn's Competitive Standing

Issue of Concern: To attract and retain an eminent faculty, the University must provide faculty salaries that are competitive with peer institutions in the top tier of U.S. research universities. Penn's stated goal is to provide compensation, on average, in the middle of the upper half of our most relevant peer group, the Ivy Plus institutions (see the 2016 SCESF report *http://www.upenn.edu/almanac/volumes/v62/n24/contents.html*). Comparisons of mean salaries at Penn to this peer group show that Penn assistant professors have consistently ranked at or near the top. The ranking for salaries of more senior faculty, however, is not so lofty. Base salary of associate professors has fallen to just above average, and that of full professors has remained at or below average of the group. Penn's salaries for tenured professors are below those in highly competitive institutions of higher learning, eroding Penn's ability to compete with peers to retain the best talent. Associate and full professors have consequently adopted the ad hoc practice of re-aligning their salary by obtaining outside offers to establish their market value.

SCESF Recommendation: SCESF recommends that faculty salary data for our peer institutions (Table 5) be used in the University budget process to determine an appropriate target for annual salary increases for Penn faculty and that peers-within-disciplines (e.g., Association of American Universities Data Exchange (AAUDE) information in Table 4) be used by Deans to correct faculty salaries, and provide Penn's faculty with competitive compensation.

Response: University is strongly committed to offering competitive compensation in order to recruit and retain an outstanding faculty. Penn's budget process involves a multifaceted analysis of markets and University resources. The Schools are afforded the flexibility to use AAUDE data (found in Table 4) and other relevant peer and professional data to ensure appropriate responses to market conditions affecting each field and discipline. Regular review by the Provost's Office further helps to promote the fairness and equity of School salaries. As illustrated in Table 5, the mean salaries of Penn's Assistant and Associate Professors are favorably ranked among 12 Ivy Plus research universities. Full Professor base salaries paid by Penn Schools compare favorably to salaries at peer institutions. Six Penn Schools pay Full Professor salaries that surpass the mean paid by their AAU peers. Additionally, the cost of living in the Philadelphia region and a very attractive overall faculty benefits package, mitigate some of the differences in salary.

---

[3] Retrieved December 29, 2017, from *http://www.upenn.edu/about/facts*

[4] Retrieved December 29, 2017, from *http://www.upenn.edu/about/facts*

Senate Committee on the Economic Status of the Faculty

D. Achieving Gender Equity at Penn

Issue of Concern: SCESF remains concerned about the persistent gender inequity in base faculty salaries at Penn. Regression analysis reveals that much of the salary gap is explained by the influences of rank, time in rank and discipline, but a persistent 1.5% to 2% gender gap is substantial in the context of 3% annual salary increases for the faculty. Faculty also earn additional compensation beyond base salary, such as summer support, overload teaching and service activities. The extent and distribution of this additional income among the faculty is not included in the data provided to SCESF, but has the potential to influence the gender gap in salaries at Penn.

SCESF Recommendation: We urge the President, Provost and the Deans to focus on eliminating gender inequities in faculty salaries across the University. SCESF will open discussions with the Provost's Office regarding the use of total compensation as a further means to ensure gender equity in faculty salaries at Penn.

Response: Faculty equity and inclusion are among the highest priorities of the President, Provost, and Deans. The number of women on Penn's faculty has increased without fail every year for the past ten years. Based on the November 2017 Fall Employee Census, there are now 898 women on the standing faculty, comprising 33.7% of the total number of standing faculty members. Salary equity is important to the recruitment and retention of women and men, at all ranks. In determining salaries, the Schools use discipline-specific evidence of scholarship, teaching, mentoring, training, administrative roles, clinical skill, grants, and service, as well as relevant metrics for external and internal markets. The Office of Institutional Research and Analysis (IR&A) performs regular regression analyses on salary data to help the University monitor gender equity. After correcting for rank, time in rank, and discipline, the gap between male and female salaries in fall 2017 was 1.7%—a slight decline from the 1.9% in the fall of 2016. The Provost's Office will continue to work with the Deans and Department Chairs to eliminate gender gaps in those disciplines, departments, ranks and Schools where significant differences remain.

E. Improving Retirement Benefits

Issue of Concern: The portfolio of benefits offered by Penn to faculty is extensive, but only to the extent that faculty utilize these benefits. Data provided to SCESF show that retirement benefits are virtually universally taken by faculty but are less than those available at other competitive universities.

SCESF Recommendation: We encourage the President and Provost to increase the matching benefits contribution to 10%, bringing Penn into alignment with competitive universities.

Response: At 9%, Penn's retirement contribution benefit is extremely competitive. The University has analyzed the cost of increasing the matching contribution, and underscores that some of our peers with higher matching contributions to retirement plans do not have an overall stronger package of benefits for their faculties. As SCESF's own Table 13 shows, Penn offers one of the most generous undergraduate tuition benefit programs of its peers—two of which do not provide this benefit. Three universities listed on Table 13 offered matching contributions in their retirement programs that were lower than Penn's, including one that did not provide matching contributions.

VII. Members of the Committee
2017-2018 Committee Members

Robert Stine, Wharton/Statistics, *Chair*
Kenneth Burdett, SAS/Economics
Robert Ghrist, SAS/Mathematics
Blanca Himes, PSOM/Biostatistics, Epidemiology, & Informatics
Sarah Kagan, Nursing
Iourii Manovskii, SAS/Economics
Ex Officio:
Santosh Venkatesh, SEAS/ESE, Faculty Senate Chair
Laura Perna, GSE, Faculty Senate Past Chair
Jennifer Pinto-Martin, Nursing, Faculty Senate Chair-Elect

The Committee gratefully acknowledges the essential and invaluable assistance of J. Patrick Walsh of the Office of the Faculty Senate and the additional information provided in response to SCESF requests by the offices of the Provost, Institutional Research and Analysis and Human Resources. The Committee also notes that this year's report directly benefited from presentation and analysis described in reports from previous years and, where appropriate, some previous text is included here.

VIII. Tables

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/Metric		FY 2016-2017
Professor	Mean	4.6%
	Median	3.0%
Associate Professor	Mean	5.5%
	Median	3.0%
Assistant Professor	Mean	3.8%
	Median	3.0%
All Three Ranks	Mean	4.6%
	Median	3.0%
U.S. City Average CPI Growth	Mean	1.6%
Phil. CPI Growth	Mean	0.7%
Budget Guidelines	Mean	3.0%

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

FY 2016-2017 CPI growth for the U.S. and for Philadelphia are based on a change in CPI from June 2016 to June 2017

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 with Salary Increases Exceeding Growth in the CPI (Phil.) FY 2016 to 2017
Annenberg	94.4%
Dental Medicine	82.6%
Design	100.0%
Engineering & Applied Science	100.0%
Graduate Education	100.0%
Humanities (A&S)	99.4%
Law	100.0%
Natural Science (A&S)	100.0%
Nursing	100.0%
Perelman-Basic Science	93.8%
Social Policy & Practice	95.5%
Social Science (A&S)	99.1%
Veterinary Medicine	98.0%
Wharton	100.0%
All Schools/Areas	98.5%
U.S. City Average CPI Growth	1.6%
Phil. CPI Growth	0.7%
Budget Guidelines	3.0%

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

FY 2016-2017 CPI growth for the U.S. and for Philadelphia are based on a change in CPI from June 2016 to June 2017

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 Salary Increases Exceeding Growth in the CPI (Phil.) FY 2016 to 2017
Annenberg	100.0%
Dental Medicine	90.0%
Design	100.0%
Engineering & Applied Science	100.0%
Graduate Education	100.0%
Humanities (A&S)	99.0%
Law	100.0%
Natural Science (A&S)	100.0%
Nursing	100.0%
Perelman-Basic Science	89.2%
Social Policy & Practice	90.9%
Social Science (A&S)	100.0%
Veterinary Medicine	96.6%
Wharton	100.0%
All Schools/Areas	98.0%
U.S. City Average CPI Growth *	1.6%
Phil. CPI Growth *	0.7%
Budget Guidelines +	3.0%

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

FY 2016-2017 CPI growth for the U.S. and for Philadelphia are based on a change in CPI from June 2016 to June 2017

Table 4

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

Academic Field	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016
Full Professor							
Annenberg	1/41	1/41	1/39	1/43	1/43	1/43	1/42
Dental Medicine	9/45	10/45	9/43	9/44	11/44	10/46	11/45
Design	5/55	10/53	11/52	10/55	11/56	11/57	10/54
Engineering & Applied Science	13/57	13/55	14/54	13/58	14/59	17/59	16/56
Graduate Education	6/47	6/47	7/45	4/45	6/45	6/47	6/45
Humanities (A&S)	9/58	7/56	11/55	11/58	10/59	11/60	10/57
Law	8/40	7/39	8/38	7/39	8/38	6/41	6/40
Natural Science (A&S)	14/58	12/56	11/55	14/58	15/59	18/60	14/57
Nursing	1/17	1/19	1/19	1/21	3/23	1/24	2/24
Perelman - Basic Science	6/58	6/56	8/55	7/58	8/59	9/60	6/57
Social Policy & Practice	8/25	6/25	6/23	6/26	4/27	3/27	3/26
Social Science (A&S)	9/57	8/56	9/55	9/57	9/58	7/59	9/57
Veterinary Medicine	3/14	3/14	4/13	2/13	3/13	4/13	5/14
Wharton-Business & Management	5/55	5/53	2/52	3/55	2/56	1/56	1/53
Wharton-Public Policy	-	13/54	12/53	5/55	9/56	10/57	9/55
Wharton-Statistics	1/36	1/34	2/34	2/36	2/34	1/34	1/32
Associate Professor							
Annenberg	-	-	-	-	-	-	-
Dental Medicine	9/43	13/43	9/41	-	6/44	-	-
Design	3/55	1/51	3/51	3/52	3/54	4/56	6/53
Engineering & Applied Science	8/57	11/54	11/53	10/56	11/57	10/57	7/54
Graduate Education	8/48	8/45	9/44	9/44	6/45	6/47	6/44
Humanities (A&S)	12/57	11/55	13/54	12/57	10/58	9/59	10/56
Law	-	-	-	-	-	-	-
Natural Science (A&S)	14/58	15/56	17/55	17/58	15/58	17/59	18/56
Nursing	3/17	5/19	3/19	2/21	7/24	7/25	4/25
Perelman - Basic Science	8/58	4/55	4/54	3/57	4/58	5/59	5/56
Social Policy & Practice	-	-	-	-	-	-	6/26
Social Science (A&S)	7/57	8/56	14/55	10/56	7/57	8/58	10/56
Veterinary Medicine	11/14	6/14	6/13	7/13	7/13	4/13	4/14
Wharton-Business & Management	2/54	2/51	2/51	3/54	3/56	3/56	1/53
Wharton-Public Policy	-	-	-	-	-	-	-
Wharton-Statistics	3/31	2/27	2/30	-	-	-	-
Assistant Professor							
Annenberg	-	-	-	3/41	3/42	-	2/40
Dental Medicine	-	-	-	-	-	-	-
Design	6/55	6/51	4/50	5/54	7/55	7/56	5/52
Engineering & Applied Science	6/57	7/54	8/54	8/58	10/59	6/59	7/56
Graduate Education	7/47	-	15/43	12/44	13/44	11/46	13/44
Humanities (A&S)	14/58	14/56	17/55	14/58	13/59	9/59	9/56
Law	5/25	6/27	-	-	-	-	-
Natural Science (A&S)	15/58	15/56	22/55	16/58	18/59	20/60	18/57
Nursing	2/17	3/19	2/19	3/21	5/24	5/25	4/25
Perelman - Basic Science	8/58	6/56	9/55	9/58	10/59	15/60	5/57
Social Policy & Practice	6/25	-	5/24	5/26	5/27	6/27	8/26
Social Science (A&S)	8/57	7/56	8/55	7/57	8/58	11/59	14/57
Veterinary Medicine	6/14	5/14	5/12	5/13	5/13	5/13	4/14
Wharton-Business & Management	4/54	4/52	4/51	5/54	7/55	4/56	4/53
Wharton-Public Policy	-	1/54	1/53	1/52	1/55	1/56	1/55
Wharton-Statistics	-	-	-	-	-	-	

Using the federal CIP (Classification of Instructional Programs) codes for 2010, departments at comparable universities were mapped to Penn Schools.

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

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

Table 5

Percentage differences in mean academic base salary of Professors at a sample of comparable research universities for Academic Years 2008-2009 through 2016-2017

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Full Professors - Mean Academic Base Salaries: Percentage Differences*									
Columbia	3.4%	10.9%	9.3%	8.9%	13.5%	12.1%	13.4%	16.6%	16.8%
Stanford	7.4%	6.6%	7.6%	7.6%	10.9%	11.9%	13.6%	13.3%	13.1%
Princeton	6.4%	6.4%	6.2%	6.7%	7.0%	7.2%	9.3%	9.9%	9.7%
Chicago	6.0%	8.2%	8.7%	8.9%	8.9%	9.6%	10.0%	14.7%	9.0%
Harvard	13.7%	12.4%	10.7%	9.3%	8.6%	7.7%	8.1%	8.7%	8.8%
MIT	-5.4%	-5.4%	-5.3%	-5.4%	-4.4%	-3.3%	-1.8%	0.0%	1.4%
Yale	3.1%	2.4%	1.1%	-0.7%	-0.4%	-0.1%	0.5%	0.4%	0.1%
Penn	**$169.4**	**$170.1**	**$175.1**	**$181.6**	**$187.0**	**$192.3**	**$197.5**	**$202.6**	**$209.2**
Duke	-4.8%	-5.5%	-6.7%	-3.5%	-3.6%	-3.1%	-2.1%	-2.4%	-2.4%
Dartmouth	-8.8%	-9.4%	-9.9%	-10.7%	-10.5%	-9.5%	-9.6%	-9.0%	-9.6%
Brown	-13.6%	-14.3%	-13.9%	-13.7%	-14.0%	-14.4%	-14.6%	-14.3%	-14.5%
Cornell	-8.9%	-8.8%	-9.9%	-10.9%	-14.5%	-14.2%	-14.2%	-13.6%	-16.7%

NOTES: Penn academic base mean salaries are based on standing faculty members at the rank of professor. Excluded are all members of the Faculty of Perelman except basic scientists, and all standing faculty members who are appointed as Clinician Educators. Data Source: AAUP Salary Surveys.

*Universities are ordered from highest to lowest percentage difference for full professors as of 2016-2017. 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.

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Associate Professors - Mean Academic Base Salaries: Percentage Differences*									
Columbia	-1.7%	6.2%	8.9%	6.1%	12.9%	21.6%	21.2%	20.0%	20.4%
Stanford	12.2%	12.9%	12.7%	11.4%	15.2%	17.3%	13.0%	9.2%	11.3%
MIT	-3.3%	0.7%	2.3%	2.1%	4.5%	6.4%	7.0%	3.2%	6.2%
Princeton	0.2%	6.1%	7.4%	5.0%	10.1%	8.5%	6.2%	4.5%	4.6%
Penn	**$114.1**	**$110.2**	**$112.5**	**$117.8**	**$117.3**	**$119.5**	**$125.2**	**$132.3**	**$135.0**
Duke	-6.0%	-6.9%	-7.6%	-2.8%	2.3%	1.1%	1.3%	-2.9%	-0.3%
Yale	-12.5%	-10.7%	-7.7%	-7.8%	-3.6%	-1.0%	-6.3%	-7.7%	-3.0%
Harvard	-1.6%	6.1%	7.3%	2.6%	1.4%	3.6%	2.3%	-2.3%	-5.6%
Chicago	-6.4%	-3.3%	-3.2%	-3.1%	0.3%	-0.5%	-0.7%	-0.1%	-5.9%
Cornell	-3.8%	-1.3%	-2.8%	-4.1%	-5.6%	-3.5%	-5.5%	-6.5%	-9.1%
Dartmouth	-8.7%	-5.0%	-4.6%	-7.9%	-4.9%	-4.9%	-9.6%	-11.9%	-9.6%
Brown	-19.5%	-16.6%	-14.0%	-15.7%	-11.9%	-10.0%	-10.3%	-13.3%	-14.1%

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Assistant Professors - Mean Academic Base Salaries: Percentage Differences*									
Stanford	2.9%	-1.8%	-3.2%	-2.2%	-4.2%	-0.4%	2.4%	2.1%	0.5%
Penn	**$98.0**	**$102.3**	**$106.8**	**$112.3**	**$116.2**	**$118.0**	**$119.6**	**$123.3**	**$127.5**
Harvard	3.5%	2.1%	-2.6%	-2.2%	-2.4%	-3.0%	-5.3%	-2.5%	-3.0%
Columbia	-9.0%	-9.8%	-9.0%	-11.8%	-9.0%	-6.0%	-4.6%	-1.5%	-3.7%
MIT	-0.5%	-1.7%	-6.4%	-8.5%	-8.5%	-5.8%	-4.4%	-5.6%	-5.4%
Chicago	-0.3%	-2.2%	-5.9%	-8.6%	-11.6%	-10.5%	-6.1%	-6.1%	-7.3%
Duke	-6.5%	-12.2%	-18.4%	-14.5%	-16.3%	-12.3%	-11.9%	-10.9%	-10.6%
Cornell	-4.6%	-9.8%	-9.6%	-13.6%	-15.8%	-16.6%	-13.6%	-8.4%	-11.8%
Princeton	-12.4%	-14.3%	-15.0%	-16.1%	-16.7%	-13.8%	-12.5%	-13.0%	-13.8%
Yale	-12.2%	-16.3%	-18.1%	-20.1%	-18.9%	-18.7%	-16.7%	-16.2%	-14.7%
Dartmouth	-15.1%	-18.9%	-20.0%	-20.1%	-23.1%	-20.3%	-16.3%	-17.6%	-19.7%
Brown	-21.6%	-23.3%	-24.3%	-26.7%	-26.0%	-24.7%	-22.8%	-23.5%	-25.2%

Table 5 - Adjusted

Percentage differences in mean ADJUSTED academic base salary of Professors at a sample of comparable research universities for Academic Years 2008-2009 through 2016-2017

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Full Professors - Mean ADJUSTED Academic Base Salaries: Percentage Differences*									
Duke	18.1%	17.3%	9.0%	12.7%	12.6%	11.7%	12.7%	12.5%	12.4%
Chicago	10.0%	12.3%	8.2%	8.3%	8.3%	5.7%	6.1%	10.6%	5.2%
Princeton	10.0%	-1.3%	1.2%	1.7%	2.0%	2.2%	4.2%	4.8%	4.5%
Columbia	-12.0%	-5.7%	-4.6%	-5.0%	-1.0%	-1.1%	0.1%	3.0%	3.2%
Penn	**$142.2**	**$142.8**	**$152.8**	**$158.5**	**$163.2**	**$169.1**	**$173.7**	**$178.2**	**$184.0**
Yale	7.6%	6.8%	1.8%	0.0%	0.3%	-2.0%	-1.6%	-1.6%	-1.8%
Harvard	-0.8%	-1.9%	-4.6%	-5.9%	-6.5%	-8.1%	-7.8%	-7.3%	-7.2%
Cornell	2.4%	2.5%	0.0%	-1.2%	-5.2%	-7.2%	-7.1%	-6.5%	-9.9%
MIT	-17.4%	-17.4%	-18.4%	-18.5%	-17.6%	-17.5%	-16.2%	-14.7%	-13.5%
Stanford	-34.5%	-34.9%	-21.1%	-21.1%	-18.8%	-19.1%	-17.9%	-18.1%	-18.3%

NOTES: Penn academic base mean salaries are based on standing faculty members at the rank of professor. Excluded are all members of the Faculty of Perelman except basic scientists, and all standing faculty members who are appointed as Clinician Educators. Data Source: AAUP Salary Surveys.

*Universities are ordered from highest to lowest percentage difference for full professors as of 2016-2017. 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.

Salary figures adjusted using 2007, 2010 and 2013 Runzheimer Living Cost Indices. Indices for Hanover, NH (Dartmouth), and Providence, RI (Brown) are not available

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Associate Professors - Mean ADJUSTED Academic Base Salaries: Percentage Differences*									
Duke	16.7%	15.6%	7.8%	13.5%	19.4%	16.5%	16.7%	11.8%	14.9%
Columbia	-16.4%	-9.7%	-5.1%	-7.5%	-1.6%	7.3%	7.0%	5.9%	6.3%
Penn	**$95.8**	**$92.5**	**$98.2**	**$102.8**	**$102.4**	**$105.1**	**$110.1**	**$116.4**	**$118.7**
Princeton	-7.2%	-1.6%	2.3%	0.1%	4.9%	3.3%	1.3%	-0.5%	-0.3%
Cornell	8.1%	10.9%	7.7%	6.4%	4.7%	4.4%	2.3%	1.1%	-1.7%
Yale	-8.8%	-6.8%	-7.1%	-7.2%	-2.9%	-3.0%	-8.2%	-9.5%	-4.9%
Chicago	-2.9%	0.4%	-3.8%	-3.7%	-0.3%	-4.1%	-4.3%	-3.7%	-9.2%
MIT	-15.7%	-12.1%	-11.9%	-12.0%	-10.0%	-9.2%	-8.7%	-12.0%	-9.4%
Harvard	-14.1%	-7.5%	-7.5%	-11.6%	-12.7%	-11.6%	-12.7%	-16.8%	-19.5%
Stanford	-31.6%	-31.1%	-17.4%	-18.4%	-15.6%	-15.2%	-18.3%	-21.0%	-19.5%

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Assistant Professors - Mean ADJUSTED Academic Base Salaries: Percentage Differences*									
Duke	15.9%	8.8%	-4.6%	-0.1%	-2.2%	1.1%	1.5%	2.7%	3.0%
Penn	**$82.3**	**$85.9**	**$93.2**	**$98.0**	**$101.4**	**$103.8**	**$105.2**	**$108.4**	**$112.1**
Cornell	7.2%	1.4%	0.2%	-4.2%	-6.6%	-9.8%	-6.6%	-0.8%	-4.6%
Chicago	3.4%	1.5%	-6.4%	-9.1%	-12.1%	-13.7%	-9.4%	-9.4%	-10.5%
Columbia	-22.6%	-23.3%	-20.6%	-23.2%	-20.6%	-17.1%	-15.8%	-13.0%	-15.0%
Yale	-8.5%	-12.7%	-17.5%	-19.6%	-18.3%	-20.3%	-18.3%	-17.8%	-16.4%
Harvard	-9.7%	-10.9%	-16.1%	-15.7%	-15.9%	-17.2%	-19.2%	-16.8%	-17.2%
Princeton	-18.8%	-20.6%	-19.0%	-20.0%	-20.6%	-17.9%	-16.6%	-17.1%	-17.8%
MIT	-13.2%	-14.2%	-19.3%	-21.1%	-21.2%	-19.8%	-18.5%	-19.5%	-19.3%
Stanford	-37.3%	-40.0%	-29.0%	-28.4%	-29.8%	-28.0%	-26.0%	-26.2%	-27.3%

Table 6

FULL PROFESSORS: Median academic base salary percentage increases of faculty continuing in rank who were Penn FULL PROFESSORS for FY2017, along with the first and third quartile salary increases

School/Area	Headcount	First Quartile (Q1), Median (Md.), and Third Quartile (Q3) Percentage Salary Increases, FY 2016-2017		
		(Q1)	**(Md.)**	**(Q3)**
All Schools	684	2.8%	3.0%	4.0%
Annenberg	10	2.5%	3.0%	3.0%
Dental Medicine	20	3.2%	4.0%	5.0%
Design	14	2.0%	2.8%	3.0%
Engineering & Applied Science	75	2.5%	3.0%	4.0%
Graduate Education	18	3.0%	3.0%	3.2%
Humanities (A&S)	94	2.8%	2.9%	3.8%
Law	42	3.2%	3.5%	3.8%
Natural Science (A&S)	114	2.6%	2.8%	3.1%
Nursing	10	3.0%	5.0%	5.0%
Perelman-Basic Science	83	2.8%	3.0%	4.0%
Social Policy & Practice	10	3.0%	3.0%	10.0%
Social Science (A&S)	56	2.8%	2.9%	3.3%
Veterinary Medicine	28	1.5%	3.0%	3.3%
Wharton	110	3.0%	3.7%	4.9%
Budget Guidelines			3.0%	

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

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

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

The median (Md.) percentage salary increase is the mid-point of all increases within each school and rank (i.e. half of all increases are below the median and half are above).

The difference between the third (Q3) and first quartile (Q1) percentages provides a measure of variability in the percentages increases for each school and rank.

At the lower end of the salary increase percentages, 25% of all increases are below Q1, while 75% are above

Median increases are reported only if the number of faculty members in a given school and rank is five or more, quartile increase are reported only if the number of faculty members is nine or more.

Table 7

ASSOCIATE PROFESSORS: Median academic base salary percentage increases of faculty continuing in rank who were Penn ASSOCIATE PROFESSORS for FY2017, along with the first and third quartile salary increases

School/Area	Headcount	First Quartile (Q1), Median (Md.), and Third Quartile (Q3) Percentage Salary Increases, FY 2016-2017		
		Q1	Md.	Q3
All Schools	216	2.6%	3.0%	3.5%
Annenberg	4			
Dental Medicine	3			
Design	9	2.5%	3.0%	3.0%
Engineering & Applied Science	10	3.1%	4.0%	4.8%
Graduate Education	6		3.1%	
Humanities (A&S)	47	2.8%	2.9%	3.2%
Law	-			
Natural Science (A&S)	30	2.4%	2.8%	2.9%
Nursing	11	3.0%	3.0%	8.0%
Perelman-Basic Science	28	2.0%	2.5%	3.0%
Social Policy & Practice	4			
Social Science (A&S)	23	2.8%	2.8%	3.5%
Veterinary Medicine	11	2.0%	3.0%	3.0%
Wharton	30	3.1%	4.0%	11.0%
Budget Guidelines +			3.0%	

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

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

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

The median (Md.) percentage salary increase is the mid-point of all increases within each school and rank (i.e. half of all increases are below the median and half are above).

The difference between the third (Q3) and first quartile (Q1) provides a measure of variability in the percentage increases for each school and rank.

At the lower end of the salary increase percentages, 25% of all increases are below Q1, while 75% are above

Median percentage increases are reported only if the number of faculty members in a given school and rank is five or more, quartile percentage increases are reported only if the number of faculty members is nine or more.

Table 8

ASSISTANT PROFESSORS: Median academic base salary percentage increases of faculty continuing in rank who were Penn ASSISTANT PROFESSORS for FY2017, along with the first and third quartile salary increases

School/Area	Headcount	First Quartile (Q1), Median (Md.), and Third Quartile (Q3) Percentage Salary Increases, FY 2016-2017		
		Q1	Md.	Q3
All Schools	219	2.9%	3.0%	3.5%
Annenberg	4			
Dental Medicine	-			
Design	10	2.0%	3.3%	3.5%
Engineering & Applied Science	15	3.3%	3.8%	4.5%
Graduate Education	7		3.0%	
Humanities (A&S)	23	2.8%	2.9%	4.2%
Law	1			
Natural Science (A&S)	25	2.8%	3.0%	3.3%
Nursing	10	3.0%	3.0%	3.0%
Perelman-Basic Science	29	3.0%	3.0%	3.6%
Social Policy & Practice	6		3.0%	
Social Science (A&S)	21	2.8%	2.8%	3.0%
Veterinary Medicine	9	2.2%	3.0%	3.0%
Wharton	59	3.0%	3.1%	3.5%
Budget Guidelines +			3.0%	

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

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

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

The median (Md.) percentage salary increase is the mid-point of all increases within each school and rank (i.e. half of all increases are below the median and half are above).

The difference between the third (Q3) and first quartile (Q1) provides a measure of variability in the percentage increases for each school and rank.

At the lower end of the salary increase percentages, 25% of all increases are below Q1, while 75% are above

Median percentage increases are reported only if the number of faculty members in a given school and rank is five or more, quartile percentage increases are reported only if the number of faculty members is nine or more.

Table 9

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

Rank/Academic Year/Metric			Amount	Not Weighted	Weighted
Professor	2012-2013	Mean	$188,537	1.64	1.82
		Median	$171,500	1.88	1.82
	2013-2014	Mean	$194,443	1.66	1.83
		Median	$176,072	1.86	1.84
	2014-2015	Mean	$200,643	1.67	1.84
		Median	$182,017	1.84	1.81
	2015-2016	Mean	$207,440	1.71	1.84
		Median	$187,571	1.88	1.83
	2016-2017	Mean	$213,613	1.72	1.84
		Median	$193,812	1.93	1.85
Associate Professor	2012-2013	Mean	$117,826	1.02	1.21
		Median	$104,508	1.14	1.21
	2013-2014	Mean	$119,064	1.02	1.22
		Median	$106,900	1.13	1.24
	2014-2015	Mean	$124,375	1.04	1.24
		Median	$109,283	1.11	1.23
	2015-2016	Mean	$130,872	1.08	1.25
		Median	$113,300	1.14	1.26
	2016-2017	Mean	$135,314	1.09	1.24
		Median	$115,816	1.15	1.27
Assistant Professor	2012-2013	Mean	$115,168	1.00	1.00
		Median	$91,400	1.00	1.00
	2013-2014	Mean	$117,100	1.00	1.00
		Median	$94,480	1.00	1.00
	2014-2015	Mean	$119,825	1.00	1.00
		Median	$98,728	1.00	1.00
	2015-2016	Mean	$121,590	1.00	1.00
		Median	$99,535	1.00	1.00
	2016-2017	Mean	$123,989	1.00	1.00
		Median	$100,519	1.00	1.00

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

The data are weighted by the number of continuing faculty members at each rank in each school.

Table 10

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

Rank/Academic Year		Headcount	Q1	Median	Q3	IQR	IQR-to-Median Ratio	# of Areas
Professor	2012-2013	637	$142,300	$171,500	$224,500	$82,200	0.48	14
	2013-2014	658	$145,500	$176,072	$232,093	$86,593	0.49	14
	2014-2015	672	$149,037	$182,017	$240,350	$91,313	0.50	14
	2015-2016	683	$152,200	$187,571	$249,474	$97,274	0.52	14
	2016-2017	684	$154,752	$193,812	$257,346	$102,594	0.53	14
Associate Professor	2012-2013	244	$91,950	$104,508	$122,829	$30,879	0.30	13
	2013-2014	242	$94,800	$106,900	$123,500	$28,700	0.27	13
	2014-2015	232	$98,088	$109,283	$129,878	$31,790	0.29	14
	2015-2016	223	$101,414	$113,300	$134,386	$32,972	0.29	14
	2016-2017	216	$105,210	$115,816	$138,339	$33,129	0.29	13
Assistant Professor	2012-2013	207	$82,025	$91,400	$158,000	$75,975	0.83	13
	2013-2014	214	$83,659	$94,480	$161,000	$77,341	0.82	14
	2014-2015	228	$85,807	$98,728	$164,375	$78,568	0.80	14
	2015-2016	222	$87,009	$99,535	$165,000	$77,991	0.78	13
	2016-2017	219	$89,820	$100,519	$164,250	$74,430	0.74	13

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

Table 11

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

Rank/Sex		Headcount	First Quartile (Q1), Median (Md.), and Third Quartile (Q3) Percentage Salary Increases, FY 2016-2017		
			Q1	Md.	Q3
Professor	Men	524	2.7%	3.0%	4.0%
	Women	160	2.8%	3.0%	4.0%
Associate Professor	Men	134	2.5%	2.9%	3.5%
	Women	82	2.8%	3.0%	3.9%
Assistant Professor	Men	126	3.0%	3.0%	3.5%
	Women	93	2.8%	3.0%	3.5%

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

Table 12

Mean academic base salary of Penn standing faculty members who continued in rank by rank and sex. Faculty on paid leave or unpaid leave are reported at their full salary.

Rank/Academic Year/Metric			Unweighted			Weighted by School/Discipline			Men - Women	
			Women	Men	% Difference	Women	Men	% Difference	Unweighted	Weighted
Professor	2012-2013	Mean	$178,939	$191,240	6.9%	$187,240	$191,240	2.1%	$12,301	$4,000
		Median	$167,606	$172,921	3.2%	$186,092	$187,320	0.7%		
	2013-2014	Mean	$183,418	$197,811	7.8%	$192,926	$197,811	2.5%	$14,393	$4,885
		Median	$169,373	$179,000	5.7%	$192,634	$194,587	1.0%		
	2014-2015	Mean	$188,619	$204,309	8.3%	$199,277	$204,309	2.5%	$15,690	$5,032
		Median	$175,975	$185,000	5.1%	$197,029	$200,227	1.6%		
	2015-2016	Mean	$198,783	$210,066	5.7%	$208,639	$210,066	0.7%	$11,283	$1,427
		Median	$181,442	$190,000	4.7%	$203,478	$205,589	1.0%		
	2016-2017	Mean	$202,768	$216,925	7.0%	$211,327	$216,925	2.6%	$14,157	$5,598
		Median	$184,871	$195,432	5.7%	$208,079	$211,620	1.7%		
Associate Professor	2012-2013	Mean	$107,877	$123,145	14.2%	$119,492	$123,145	3.1%	$15,268	$3,653
		Median	$98,350	$110,153	12.0%	$120,071	$120,546	0.4%		
	2013-2014	Mean	$108,925	$125,067	14.8%	$119,010	$125,067	5.1%	$16,142	$6,057
		Median	$100,127	$112,750	12.6%	$121,612	$123,634	1.7%		
	2014-2015	Mean	$111,971	$132,825	18.6%	$121,576	$132,825	9.3%	$20,854	$11,249
		Median	$103,625	$118,076	13.9%	$122,624	$130,632	6.5%		
	2015-2016	Mean	$117,024	$139,565	19.3%	$127,591	$139,565	9.4%	$22,541	$11,974
		Median	$107,193	$123,075	14.8%	$129,967	$136,475	5.0%		
	2016-2017	Mean	$125,640	$141,234	12.4%	$138,505	$141,234	2.0%	$15,594	$2,729
		Median	$112,232	$123,247	9.8%	$140,304	$137,831	-1.8%		
Assistant Professor	2012-2013	Mean	$104,802	$121,832	16.3%	$118,812	$121,832	2.5%	$17,030	$3,020
		Median	$86,398	$97,732	13.1%	$116,624	$122,590	5.1%		
	2013-2014	Mean	$109,758	$122,033	11.2%	$117,788	$122,033	3.6%	$12,275	$4,245
		Median	$89,400	$100,435	12.3%	$115,358	$118,212	2.5%		
	2014-2015	Mean	$112,695	$124,649	10.6%	$121,025	$124,649	3.0%	$11,954	$3,624
		Median	$92,716	$103,128	11.2%	$118,706	$122,042	2.8%		
	2015-2016	Mean	$113,120	$127,585	12.8%	$123,750	$127,585	3.1%	$14,465	$3,835
		Median	$95,209	$106,003	11.3%	$120,728	$124,284	2.9%		
	2016-2017	Mean	$114,342	$131,109	14.7%	$127,957	$131,109	2.5%	$16,767	$3,152
		Median	$96,914	$108,265	11.7%	$123,935	$126,728	2.3%		

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.
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. Percent 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.

Table 13
Employer Contributions to Retirement Accounts and to Dependent Undergraduate Tuition at Penn and Ivy Plus Peer Group

University	Maximum Employer Contribution to Retirement Accounts*	Dependent UG Tuition Benefit to Attend home Institution#	Dependent UG Tuition Benefit to Attend Other Institution#
Penn	9%°	75% ($36,177)^	100% (up to $18,966)
Brown	10%	22% ($11,752)	100% (up to $11,752)
Carnegie Mellon	8%	100% ($52,732)	100% (up to $31,639)
Columbia	9-11.2%†	100% ($59,704)	50% (up to $29,852)
Cornell	10%	50% ($26,427)	30% (up to $15,856)
Dartmouth	10%	0	0
Duke	None	75% ($40,308)	100% (up to $38,790)
Harvard	10%	0	0
Michigan	10%	0	0
MIT	10%	100% (48,140)	up to $24,790
NYU	10%	90-100% ($44,318-$49,242)	up to $6,205
Princeton	9.3-12.45%†	37% ($17,442)	50% (up to $17,442)
Stanford	10%	50% ($24,494)	50% (up to $24,494)
Chicago	8%	75% ($39,969)	100% (up to $39,969)
Yale	10-11.38%†	32% ($16,448)	50% (up to $16,448)
Median Max Benefit (without Penn)	**10%**	**$25,461**	**$16,945**

*Data as of July 2017. Service minimums to qualify vary by institution. Combined contributions to 403(b) and 401(a) accounts for oldest age bracket; only salary up to $270,000 is eligible. A portion requires employee contribution to qualify

^Amount includes both Tuition and Technology Fee

#Data as of July 2017. Conditions to qualify vary by institution. Some benefits include tuition only, others include fees. At Duke, only tuition above $7,020 is eligible.

†rate differs above and below Social Security Wage base of $127,200

°Penn highest age bracket is age 40 and over

Note: SCESF created this table, incorporating information obtained through the Vice Provost for Faculty from the Office of Human Resources.