UNIVERSITY OF OREGON

MEMORANDUM

From: Tenure-track Faculty Salary Equity Study Advisory Work Group

To: Jayanth Banavar, Provost and Senior Vice President

CC: United Academics

Re: Preliminary recommendations and process overview

Introduction:

This memorandum provides the tenure-track faculty salary equity study advisory work group's ("Work Group") preliminary recommendation to the provost regarding tenured and tenure-track faculty equity adjustments. The Work Group's recommendations regarding individual faculty members are set forth in Exhibit 1.[1]

In addition to the Work Group's preliminary salary recommendations, the memorandum outlines the history of the study, the regression analysis, the composition of the work group and the group's process and rationale with respect to its final recommendations.

Background:

In early 2017, the administration and the union agreed to re-open the United Academics collective bargaining agreement as it relates to salary. Those negotiations resulted in new salary terms for 2019 and 2020. Specifically, the updated salary article states that for fiscal year 2019, tenured and tenure-track faculty members will receive a 1.25% across the board increase and the university will establish a .75% pool to address equity.

For the tenured and tenure-track faculty member equity increases, the union and the administration also reached an agreement regarding certain aspects of the equity study, which is the study that both parties agreed would be used to identify equity salary adjustments. That agreement is documented in a memorandum of understanding (MOU), which is available at: https://hr.uoregon.edu/2017-02-17-article-26-tenure-salary-equity-study.pdf \

In accordance with the MOU, the administration and the union worked together to post a public request for qualified consultants to bid on the empirical analysis for the salary equity study. At the end of that process, the group reviewed the qualified bidders and ultimately decided to hire Berkeley Research Group, LLC (BRG). BRG are national leaders in economic and statistical consulting, with more than three decades of experience conducting compensation analyses for governmental agencies, corporations and institutions of higher learning. The group has prepared pay studies for approximately two dozen

[1] This preliminary report and consultant's findings will be posted publicly and provided to United Academics pursuant to the Memorandum of Understanding signed in February of 2017. Exhibit 1 contains personal identifiable information and will not be posted publicly. The provost will not finalize his decisions regarding salary adjustments until the review period identified in the MOU has passed and/or he has had an opportunity to review all feedback provided by the union.

institutes of higher learning, including University of Kentucky, University of Georgia, and Colorado State University.

The regression analysis:

Once hired, BRG used data on our tenured and tenure-track faculty members. The data included factors such as:

- Demographic group membership (e.g., female or not)
- Current academic rank
- UO work experience
- Years in current rank
- Other years of UO service
- Years in each academic rank (assistant, associate and full)
- Distinguished professorship/endowed chair status
- Recurring teaching award status
- Years of previous work experience
- College/division/department
- Honors College
- Tenure status
- Highest level of education
- Total compensation (including teaching awards and department head compensation) but not including stipends for overloads or summer work

Based on that data, BRG used regression analysis and provided a summary of the results. BRG's regression analysis was conducted in accordance with industry-wide accepted statistical analysis methods. The purpose of the analysis was to identify whether systematic differences appear to exist by race, ethnicity, or gender, and also to help the Work Group identify individual cases that appeared to require further investigation.

While the results of the regression analysis and the Work Group's work related to the study are discussed in detail below, it is important to provide some context regarding why a regression analysis was used, along with a review of both the advantages and the limitations associated with this method.

Equal-Pay Analysis[2]

The goal for any equity analysis is to determine if, after accounting for all of the legitimate reasons salaries can differ (e.g., based on rank or discipline), factors like gender or race / ethnicity produce any differences in salary that cannot be explained by other factors.

Regression analysis is used in salary equity studies to determine whether specific groups of people as a whole, have systematically lower (or higher) salaries than a baseline reference group. This same analysis can also be used to determine whether individuals have salaries that are "unusual" as compared to similarly situated faculty. These unusual cases, commonly referred to as "outliers," may have

[2] This section includes information previously provided to campus and available at: https://provost.uoregon.edu/faculty-salary-equity-study-overview

unexpectedly high salaries, or unexpectedly low salaries, compared to the average for other people in the same discipline and rank, etc.

Analyzing Trends

Regression analysis compares the observed variation in salaries and controls for things that you would expect to affect salary, such as rank. In this way, the analysis can compare people who are similarly situated, i.e., those who have the same set of attributes that might affect their level of compensation. After accounting for these factors, "unexpected" differences can be more easily identified.

For example, given that salaries are expected to vary systematically by discipline and rank, regression analysis allows the model to control for these expected differences across groups of faculty members. Once all of the legitimate reasons for salary variation are accounted for, significant differences by gender or race / ethnicity can be identified.

Evaluating Individual Results

As outlined above, regression analysis can determine whether specific groups of people have lower (or higher) salaries than a baseline reference group. It can also be used to determine which *individuals* have notably different salaries within the various groupings described by a common discipline and rank, etc. These "outliers" may have unexpectedly high salaries, or unexpectedly low salaries, among other people in the same discipline and rank, etc.

Determining how different from a group average an individual salary needs to be before it is considered "unusual" is a subjective question. Social scientists typically adopt a statistical convention that defines an outlier as a difference from the group mean that is big enough to happen only 5% of the time. With a focus on low-salary outliers, this translates into the lowest 2.5% of salaries within a group, or 1.96 standard deviations below the conditional mean. In terms of relative differences, a salary is often considered to be remarkably low if it is less than 80% of the comparison group's mean. A combination of these two criteria is often used. However, different thresholds can be adopted. As explained below, the Work Group chose to use a broader, more inclusive definition of the term outlier in order to review a larger group of faculty members.

Important Considerations

Many of the salary differences may be explained by legitimate, yet less-readily quantifiable, factors such as research productivity, administrative assignments, performance reviews, and retention offers. Regression analysis is simply a tool that identifies unexpected cases and is tool, not a procedure that produces a specific remedy. Many factors that legitimately affect salaries must be excluded from the regression models because they cannot readily be quantified for *every* faculty member and included in the overall model. The Work Group reviewed every faculty member that was identified as an outlier and incorporated nonquantifiable information that may lay outside the model.

Additionally, when outliers and patterns are defined and identified, regression analysis alone cannot be used to understand whether an equity adjustment is warranted. For this reason, this statistical approach serves as a guide for identifying outliers and problematic patterns that warrant further investigation. It is important to note that just because the regression model identifies a difference in a particular faculty

member's actual vs. predicted salary, this does not mean that an adjustment is warranted. Instead the regression analysis is simply a tool that the Work Group used to identify individual faculty members whose compensation warranted deeper review. As explained below, the Work Group gathered information to perform an in-depth qualitative review of these individuals.

The Work Group:

After BRG was hired, the group focused on selecting the consultant was dissolved and the Work Group was formed. The provost is ultimately charged with making final determinations with respect to equity adjustments for tenured and tenure-track faculty members. However, in order to ensure faculty input on these matters, the provost convened the Work Group to assist with the study. The committee included a representative from United Academics, faculty members selected by the union and the Office of the Provost, and university administrators. The members are set forth below.

The Work Group worked as a full committee. There was also an executive committee that met to help inform and make recommendations to the full committee. Executive committee members are identified with an asterisk. The Work Group met as a large group and as an executive committee a total of 30 times between August 9, 2018 and April 30, 2019 in order to: review the regression analysis and any problematic patterns identified; determine which cases to designate as negative outliers and therefore requiring individual review; create and distribute requests for information to the schools and colleges regarding outliers; review that information; and make preliminary recommendations to the provost.

Work Group Members:

- Chris Sinclair – President, United Academics * (replaced Dave Cecil, Executive Director, United Academics in October 2018)
- Trudy Cameron, College of Arts & Sciences – Faculty
- Andy Marcus, College of Arts & Sciences – Faculty
- Daisy-O'lice Williams, College of Design – Faculty
- Janis Weeks, College of Arts & Sciences – Faculty
- Missy Matella – Senior Director of Employee and Labor Relations, Human Resources *
- Jamie Moffitt – Vice President of Finance and Administration & CFO *
- Scott Pratt – Executive Vice Provost *
- JP Monroe – Director of Institutional Research *

Patterns identified by the regression analysis:

BRG's regression analysis did not show any systemic issues related to gender and patterns of pay. It did, however, identify one group that systematically had lower than predicted salaries – Asian Assistant Professors. Given this finding, the Work Group individually reviewed every Asian Assistant Professor's salary history in order to determine whether they should receive an adjustment using the methodology identified below.

It is important to note that in reviewing these Asian Assistant Professors, the Work Group identified that the model was predicting that newly hired professors should make more than professors hired several years ago. As described below, one of the principles of the Work Group is that it will not recommend an

equity adjustment that will cause inversion, which means that many of these professors are not on the list for an equity adjustment. The Work Group believes that while the regression model might incorporate inversion into its salary predictions, it is not appropriate for the university to adjust salaries in order to continue patterns of inversion going forward. The rationale supporting the Work Group's observations related to inversion is explained below.

Inversion and the regression analysis

Each hiring season has its unique mix of disciplines and responses to market demands. In 2014 and 2015, the College of Business had an unusually high number of assistant professor hires. These changes in the university's pattern of hiring caused average salaries for starting assistant professors to systematically decrease from 2014 to 2017. This artifact in the data produced two effects in the regression analysis.

The first is that the regression model generated predicted salaries that were higher and inconsistent with current market rates in some disciplines. This was especially true in 2016 and 2017. For more recent hires, this inversion effect caused predicted salaries to be higher than similarly situated peers within the department and would have caused real inequities to be introduced across campus.

In 2017, the university also had an unusually high number of Asian Assistant Professors hires. The confluence of this hiring pattern and the decrease in the overall starting salaries for assistant professors caused the regression model to identify Asian Assistant Professors as having lower than expected salaries when compared to their White counterparts.

However, introducing a time variable that could account for shifts in the disciplinary mix of hiring each year erased the significant difference that was observed for Asian Assistant Professors and eliminated the inversion effect.

Outliers identified by the Work Group:

The Work Group also used the regression analysis to help identify negative outliers to be reviewed on an individual basis. The Work Group first discussed the more common, industry definition of outlier – 1.96 standard deviations below the conditional mean and 80% of predicted salary[3]– but decided to use a broader definition in order to ensure that more cases were reviewed on an individual basis.

As defined by the Work Group, negative outliers include those professors who: (1) had salaries that fell 1.5 or more standard deviations below the predicted salary and where the actual to predicted salary was 95.0% or less; or (2) were in a protected class with a salary that fell 1.0 standard deviations or more below predicted salary and had an actual to predicted percentage of 87.0% or less. If faculty members met one of these conditions in any one of the four regression models (see footnote four), they were individually reviewed by the Work Group as an outlier. The Work Group's designation of outliers thus includes more people than would usually be identified.

[3] Conventional statistical analysis considers a negative outlier to be a value that falls 1.96 or more standard deviations below the expected value for a given group, or a value that is 80% or less of that expected value. For normally distributed errors in a statistical model, only about 2.5% of people would be identified as negative outliers using the first criterion. The additional number of people flagged by the second criterion depends upon the actual shape of the error distribution.

It is important to note that while the regression analysis included high outliers, the Work Group did not review those outliers because the university does not intend to reduce salaries as a part of the equity study review process.

Gathering Data:

The Work Group consulted with IR, central human resources and its own members to identify what data should be used to review those individuals flagged as negative outliers and also all Asian Assistant Professors (collectively these individuals will be referred to as "Flagged Individuals"). Ultimately, the Work Group identified the following variables to collect and consider: starting salary details; grant-funded research expenditures; salary history; merit, promotion, and post-tenure review increases; performance reviews; retention offers; administrative experience; time in rank; and leave experience. It gathered data centrally, when possible, and also asked schools and colleges to provide data.

Once gathered, the Work Group reviewed each Flagged Individual in order to determine whether the person was eligible for an equity increase, whether there was a sizable gap between the person's actual and predicted salary[4] and, if there was a gap, whether that gap appeared to be legitimately explained by the data gathered.

Methodology for determining individuals for adjustment:

In total, there were seventy-five Flagged Individuals. Of that group, twelve had left the university, were on terminal contracts, or were not eligible for the equity increase because they had entered into retirement and were therefore not individually reviewed by the Work Group.

In making determinations regarding who should be considered for an equity adjustment, the Work Group sorted Flagged Individuals into several groups: individuals who had documented performance issues that resulted in lower-than-average salary adjustments (merit, post tenure review, etc.); individuals whose hire date negatively impacted their salary because they were not eligible for certain large salary increases; individuals who received a significant increase after the data snapshot date that put their salaries close to their predicted salary; individuals who received awards that caused a disproportionate increase to predicated salary; individuals with low starting salaries compared to their peers who were hired during the same time period; individuals who transferred from one department to another; individuals with actual salaries that were at or extremely close to the regression model's predicted salary; individuals with fair compensation compared to their similarly situated peers in the department; individuals whose predicted salaries were high due to inversion in the unit; and individuals whose salary difference cannot be explained.

The Work Group is not recommending that individuals in the following groups be adjusted: individuals with documented performance issues; individuals who received awards that caused a disproportionate increase to predicated salary; individuals with fair compensation compared to similarly situated peers in

[4] BRG ran four regression analyses: one that compared salaries based on gender, one that compared Asian and White faculty, one that compared Hispanic or Latino and White faculty, and one that compared African-American and White faculty. (Important to note that demographic information is based on self-reported information.) Each regression analysis resulted in unique predicted salaries. Because the gender regression analysis includes all faculty members, the Work Group used the predicted salaries produced by the gender analysis in its determination for purposes of salary adjustment calculations. For that reason, when the Work Group cites predicted salaries, we are referring to the gender analysis.

their department; individuals whose predicted salary is high due to inversion in the unit; and individuals with actual salaries that were at or extremely close to the regression model's predicted salary.

The Work Group is recommending that individuals in the following groups receive an equity adjustment: individuals with low starting salaries compared to their peers; individuals where there is no explanation for their lower-than-predicted salaries; individuals who transferred departments and now have lower-than-predicted salaries; individuals who, because of the time of their hire compared to the university's annual raises, have lower than predicted salaries.

Adjustment amounts:

The Work Group is recommending that faculty who fall into a group recommended for adjustment be brought up to 91% of their predicted salary. This recommendation is based on: (1) an analysis of the faculty composition below that threshold and a desire to reduce the impact of adjusted salaries on current salaries (i.e. to not create inversion through equity adjustments); and (2) the Work Group's definition of outlier (91% is half way between the two thresholds used by the group to define negative outliers)[5].

The following calculation was used to determine the exact increase necessary to bring faculty recommended for an adjustment to 91% of their predicted salary:

- Their current salary was reduced by the January 2019 1.25% across the board increase (since the regression model was based on faculty salary data that predated this increase)
- The resulting salary was compared to the regression model's predicted salary to calculate the augment necessary to place the individual at 91% of predicted salary
- The augment was then multiplied by 1.0125 to account for the January 2019 increase

In total, 12 are being recommended for adjustment by an average of $4,753. Any funds out of the 0.75% equity pool that are not used for equity adjustments to specific individuals will be distributed as an additional pro-rata salary increase to all tenured and tenure-track faculty.

[5] Note that there is no definitive standard criteria for the degree of correction to recommend. If regression errors were symmetrically distributed around the expected salary, fully half of the faculty are paid less than the predicted salary for their group. Moving outliers all the way to the expected salary for their group would "jump" them over other members of the comparison group.