

**ANALYSIS OF GENDER DIFFERENCES IN SALARY INCREASES
FOR FACULTY AND PROFESSIONAL AND ADMINISTRATIVE STAFF
AT THE UNIVERSITY OF MINNESOTA**

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This report examines the salary increases for faculty and professional and administrative staff members at the University of Minnesota for the academic year 1995-96. Specific attention is directed towards determining whether there are salary increase differentials by staff classification (faculty versus professional and administrative), and by gender for those faculty who were employed by the University during the Rajender consent decree (the "Rajender Cohort").

For the purpose of comparison, only those staff members who met the following criteria were included in the analysis: (1) employed at the University of Minnesota in both academic years 1994-95 and 1995-96; (2) held 100% time appointments in both years; (3) on the same term appointment in both years; and (4) have the same primary and secondary job classifications (e.g. 9401) in both years.¹ Note that salary augmentations are added to base salaries for the purpose of computing salary increases for faculty and staff.

ALL STAFF COMBINED

The first table presents the mean salary increases for all staff members combined, broken down by gender and provostal unit:

¹ Two additional staff members were omitted from the analysis because of changes in their duties which led to considerable salary decreases between 1994-95 and 1995-96.

Table 1: Mean Salary Increases for All Faculty and Professional and Administrative Staff -- University of Minnesota 1995-96

Category	Mean Percentage Salary Increase	Number of Observations
All Staff	2.75% (3.5)	4,432
Males Only	2.66% (3.5)	2,958
Females Only	2.95% (3.4)	1,474

NOTES: Standard deviations in percent increases are shown in parentheses. Includes all faculty and P&A staff in the three provostal units and the three coordinate campuses who held 100% time appointments in both academic years 1994-95 and 1995-96 and who did not change job classifications between years.

The statistics in Table 1 show that the mean salary increase for all staff members across the University of Minnesota for the 1995-96 academic year was 2.75 percent. Overall, the mean salary increase for females was approximately three-tenths of one percent larger than for males. While the difference, $2.95\% - 2.66\% = 0.29\%$, is statistically significant at the 1% significance level,² it will be shown below that the difference is due to the higher proportion of women who hold professional and administrative appointments. Table 2 provides a breakdown of mean salary increases by provostal unit and campus:

² The calculated t-ratio using the separate variance estimator for the difference in mean salary increases is $t_c = +2.68$, with a corresponding p-value of 0.007 (two-tailed).

Table 2: Mean Salary Increases for All Faculty and Professional and Administrative Staff by Provostal Unit and Campus -- University of Minnesota 1995-96

Provostal Unit	Mean Percentage Salary Increase	Number of Observations
Arts, Sciences & Engineering	3.55% (4.0)	1,099
Professional Studies	3.47% (2.7)	1,092
Academic Health Center	0.72% (2.3)	1,140
University of Minnesota, Duluth	2.67% (3.0)	392
University of Minnesota, Morris	2.71% (1.6)	116
University of Minnesota, Crookston	4.06% (4.7)	62
Other	3.93% (4.2)	531

NOTES: Standard deviations in percent increases are shown in parentheses. Includes all faculty and P&A staff in the three provostal units and the three coordinate campuses who held 100% time appointments in both academic years 1994-95 and 1995-96 and who did not change job classifications between years.

FACULTY VERSUS PROFESSIONAL AND ADMINISTRATIVE STAFF

Table 3 illustrates how the mean salary increases differed for faculty versus professional and administrative staff for the academic year 1995-96:

Table 3: Mean Salary Increases for Faculty Versus Professional and Administrative Staff by Gender -- University of Minnesota 1995-96

Category	< ----- Faculty Only ----- >		< ----- P & A Only ----- >	
	Mean % Increase	Number of Faculty	Mean % Increase	Number of P & A Staff
Males Only	2.47% (3.3)	2,039	3.08% (3.9)	919
Females Only	2.45% (3.0)	623	3.31% (3.6)	851
Combined	2.46% (3.2)	2,662	3.19% (3.8)	1,770

NOTES: Standard deviations in percent increases are shown in parentheses. Includes all faculty and P&A staff in the three provostal units and the three coordinate campuses who held 100% time appointments in both academic years 1994-95 and 1995-96 and who did not change job classifications between years.

The mean salary increase for professional and administrative staff (3.19%) was significantly higher than the mean salary increase for faculty (2.46%), and this result held for both men and women. Interestingly, when broken down by job classification (faculty versus professional and administrative), there were no significant differences in mean salary

increases for men and women.³

Note that while 23.4 percent of the faculty are female, 48 percent of the professional and administrative staff are female. Since a greater proportion of women hold administrative or professional titles and staff members in these job classifications received higher salary increases, this resulted in a higher mean salary increase for all women when compared to men. Thus, the observation from Table 1 of a higher mean salary increase for women than for men is attributed to the higher proportion of women who hold professional and administrative appointments.

Table 4 provides similar breakdowns of mean salary increases for faculty by gender across provostal units and campuses. The same analysis for only professional and administrative staff is shown in Table 5:

³ The calculated t-statistics for (a) faculty and (b) professional and administrative staff were +0.08 and +1.29, respectively, with p-values that fall well within the acceptable bounds used in hypothesis testing.

Table 4: Mean Salary Increases for Faculty by Provostal Unit and Campus Broken Down by Gender -- University of Minnesota 1995-96

Provostal Unit or Campus	<----- Men Only ----->		<----- Women Only ----->	
	Mean % Increase	Number of Faculty	Mean % Increase	Number of Faculty
Arts, Sciences & Engineering	3.62% (4.3)	712	3.38% (3.4)	170
Professional Studies	3.12% (2.8)	425	2.97% (2.0)	133
Academic Health Center	0.50% (1.5)	594	0.83% (2.4)	188
UM - Duluth	2.50% (1.7)	198	2.51% (0.8)	74
UM - Morris	2.71% (1.4)	55	3.11% (1.4)	23
UM - Crookston	3.14% (0.9)	27	5.52% (9.0)	11
Other	3.56% (2.6)	28	3.58% (2.6)	24

NOTES: Standard deviations in percent increases are shown in parentheses. Includes all faculty in the three provostal units and the three coordinate campuses who held 100% time appointments in both academic years 1994-95 and 1995-96 and who did not change job classifications between years.

Overall, the salary increases for faculty within provostal units and campuses did not vary significantly by gender. The only exception is the Academic Health Center, where there is marginal evidence ($p < 0.086$) that the average salary increase for women exceeded the average salary increase for men (0.83% versus 0.50%). Statistical inferences for Morris,

Crookston, and the other provostal unit are unreliable due to the relatively small number of observations within each gender group.

Table 5: Mean Salary Increases for Professional and Administrative Staff by Provostal Unit and Campus Broken Down by Gender -- University of Minnesota 1995-96

Provostal Unit or Campus	<----- Men Only ----->		<----- Women Only ----->	
	Mean % Increase	Number of P&A Staff	Mean % Increase	Number of P&A Staff
Arts, Sciences & Engineering	3.79% (3.9)	122	3.00% (3.2)	95
Professional Studies	3.72% (2.7)	254	3.99% (2.8)	280
Academic Health Center	0.96% (3.8)	195	1.09% (2.3)	163
UM - Duluth	2.90% (5.8)	72	3.27% (2.9)	48
UM - Morris	2.82% (2.4)	23	1.98% (1.3)	15
UM - Crookston	4.27% (5.1)	15	4.70% (3.2)	9
Other	3.76% (3.9)	238	4.17% (4.6)	241

NOTES: Standard deviations in percent increases are shown in parentheses. Includes all professional and administrative staff in the three provostal units and the three coordinate campuses who held 100% time appointments in both academic years 1994-95 and 1995-96 and who did not change job classifications between years.

As with faculty, the average salary increases for professional and administrative staff

did not generally differ significantly by gender for the academic year 1995-96. While there is marginal evidence that the mean salary increase for men in Arts, Sciences & Engineering was greater than for women, the significance level (p-value = 0.106) is still relatively large enough that the difference could be due to random factors. The small number of men and women on the Morris and Crookston campuses reduce the reliability of the statistical tests used to detect differences in mean salary increases.

RAJENDER COHORT

Following the settlement of the class action suit known as *Shyamala Rajender v. The University of Minnesota, et al.* (henceforth "Rajender"), the University has monitored the salary increases given to the male and female faculty members who were employed by the University at the time of the settlement. Of the 1,544 original faculty members who were included in the multiple regression model used to assess the degree of salary inequity, 985 remain employed at the University of Minnesota in academic year 1995-96. The mean salary increases for the individuals in the Rajender Cohort, broken down by gender, are shown in Table 6:

Table 6: Mean Salary Increases for All Faculty in the Rajender Cohort -- University of Minnesota 1995-96

Category	Mean Percentage Salary Increase	Number of Observations
All Faculty	2.89% (4.4)	985
Males Only	2.90% (4.4)	815
Females Only	2.84% (4.5)	170

NOTES: Standard deviations in percent increases are shown in parentheses. Includes only those faculty who were originally included in the regression model used in the settlement of the Rajender class action suit in 1986-87 and are still employed by the University of Minnesota in academic year 1995-96.

From Table 6, it can be seen that men and women in the Rajender cohort received very similar mean salary increases for the academic year 1995-96. Furthermore, a comparison of these figures with those shown in Table 3 reveal that the mean salary increase for faculty in the Rajender cohort was greater than for all faculty during the past year. Since the faculty remaining from the Rajender Cohort are likely to be successful within their fields, almost by definition, the higher salary increases may reflect factors such as research productivity.

SUMMARY AND COMMENTS

The statistics presented in this report show that there is no evidence of salary increase differentials for men and women for the academic year 1995-96. Interesting differences were found, however, in comparing faculty to other staff, and in comparing salary increases across provostal units and campuses. Finally, the remaining women in the Rajender Cohort appear to be receiving salary increases that are comparable to the remaining men in the cohort.

While previous reports have also included measures of salary inequity from the multiple regression model used in the settlement of Rajender, such results were not included in this report for three reasons. First, because the regression model was estimated using data from the academic year 1986-87, the data for selected variables (such as experience measures, market salaries, and retention funding) are in need of revision. Second, since only 63 percent of the original Rajender Cohort is still employed by the University, and the characteristics of the remaining faculty are markedly different from the original cohort, the results from the regression model are suspect. Finally, the regression model does not incorporate data on men and women hired following the Rajender class action suit, and hence gender inequities for recently-hired women would not be detected by the model.

To address the issue of whether or not there are gender inequities in salaries for all currently-employed faculty, a new multiple regression salary model could be developed. The creation of a carefully-specified model could be a time-consuming process. If such a model is developed, considerable attention should be directed towards choosing an appropriate model specification. Since the results from such a model would certainly be compared to those obtained during the Rajender class action suit, the model specifications should be as similar

as possible. Finally, the Office of Planning and Analysis has shown that there are a large number of alternative methods for assessing financial damages from such models should they be found.