2002 Study of Faculty Salary Equity

Executive Summary

Report on the 2002 Faculty Salary Equity Study

A Study by the Office of the Executive Vice Chancellor and Provost

The University of North Carolina at Chapel Hill

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Introduction

This report describes the findings of a multiple regression analysis of faculty salaries to determine if systematic patterns of disparity by gender and ethnicity might exist at the University of North Carolina at Chapel Hill. A number of equity-related analyses have been conducted at the University during the past decade with selected faculty populations. However, findings of several widely publicized reports in the past two years concerning the status of women faculty in major research institutions suggested that increased representation had not necessarily led to salary and status equity. In response to those reports, several campus groups expressed an interest to Chancellor James Moeser and Executive Vice Chancellor and Provost Robert Shelton in seeing more research on equity issues concerning women and minority faculty on this campus. Executive Associate Provost Bernadette Gray-Little was asked to work with Dr. Lynn Williford, Assistant Provost and Director of Institutional Research, to conduct a campus-wide study on this topic. Input from various faculty committees was sought concerning specific research questions that should be addressed. Recommendations were made to study a variety of employment conditions that might be perceived as barriers by women and minorities. Provost Shelton determined that the immediate goal would be to determine if salary differences by gender and ethnicity could be detected after controlling for factors that should be compensable, with the possibility of pursuing related topics in subsequent years.

Methodology

Study design. Multiple regression analysis is the statistical method of choice for salary equity studies because it provides a means of estimating the impact of gender and ethnicity on salaries while holding constant other quantitative factors. A number of publications specific to faculty salary equity analyses were reviewed in the process of designing this study, including the Association of American University Professors (AAUP) publication Paychecks: A Guide to Conducting Salary-Equity Studies for Higher Education Faculty (Haignere, 2002). Reviews were also undertaken of the methods used by other institutions, including Michigan, UCLA, UC-San Diego, UC-Irvine, MIT, the SUNY System, Cal Tech, Wisconsin, Illinois, Duke, Washington University, and NC State University. The UNC-Chapel Hill study differed from many of the other studies reviewed in terms of its inclusion of non-tenure track faculty and the clinical areas of Medicine and Dentistry.

Data Sources and Population. Data for the study were extracted from University payroll files, and reviewed for accuracy and completeness by department chairs. The population included all 2,566 individuals with a full-time, permanent, primary appointment as a faculty member on the designated

census date, in either an active or on-leave status. Senior administrators in the roles of chancellor, dean, vice chancellor, provost, associate provost, or director of a major center or institute were excluded.

Variables Used in the Analysis. Variables used as predictors of salary were derived from existing campus electronic databases and included measures of: earned degrees, tenure status, distinguished professorships, rank, years since terminal degree, years at UNC-Chapel Hill, years in current rank, departmental affiliation, and the relative market value of the academic discipline. Notably missing from this study are measures of faculty productivity and quality, other than what is represented in the academic rank and distinguished title variables. Consistent with the approach taken by other institutions that have documented the many difficulties in quantifying merit for statistical analyses, the assumption was made that there are no systematic differences in productivity related to gender and ethnicity.

All salaries were adjusted to 9-month equivalents for faculty in Academic Affairs and 12-month equivalents for Health Affairs. Clinical income received by School of Medicine and School of Dentistry faculty was captured and added to base salaries to model the unique compensation policies of those units.

Results

Faculty data were aggregated into three major units for analysis: (1) Academic Affairs, with additional analyses of tenured/tenure track faculty and the College of Arts and Sciences; (2) the School of Medicine, with additional analyses of tenured/tenure track faculty and those in clinical medicine departments; and (3) other Health Affairs units (Pharmacy, Public Health, Nursing, and Dentistry). Several methods of regression analyses recommended in the literature were used to examine the relationship between gender/ethnicity and salaries; in the table below, the coefficients are expressed in terms of the average salary differences in dollars for females and minorities compared to white males after controlling for all other variables in the model.

Multiple Regression Model Results					
		N	%	R^2	Coefficient
Academic Affairs					
	Total Population	1,090	100.0%	.819	
	Female	353	32.3%		-$1,332
	Minority	153	14.0%		$1,680
	Tenured/Tenure Track Only	927	100.0%	.814	
	Female	261	28.1%		-$1,830
	Minority	129	13.9%		$1,249
	College of Arts & Sciences	743	100.0%	.786	
	Female	211	28.4%		-$1,169
	Minority	106	14.3%		629
School of Medicine (MD and doctoral degree holders only)					
	Total Population	941	100.0%	.817	
	Female	283	30.3%		-$6,976*
	Minority	121	12.9%		-$597
	Tenured/Tenure Track Only	612	100.0%	.796	
	Female	139	22.7%		-$6,713*
	Minority	65	10.6%		$6,261
	Clinical Medicine Departments	676	100.0%	.793	
	Female	200	33.2%		-$9,293*
	Minority	81	12.0%		-$195
Other Health Affairs Units (Nursing, Pharmacy, Dentistry, Public Health)					
	Total Population	421	100.0%	.800	
	Female	196	46.5%		-$3,440
	Minority	53	12.6%		$2,552
*Would be considered significantly different from zero at p<.05 in a random sample of this size, but in an analysis of a population where inference to a larger group is not the objective, statistical significance is generally considered irrelevant, and the coefficients are treated as actual differences. See main report for discussion of the use of statistical significance in faculty salary equity studies.					

Each of the models attempted was highly predictive of salaries, with R^2 values averaging .80. This indicates that about 80% of the variability in faculty salaries could be accounted for by the variables included in this study. Furthermore, across all populations and all models attempted, the strongest predictors of salary were those variables that we normally expect to be related to higher salaries: full professor rank, distinguished professorship, administrator of a large unit, tenure track appointment as opposed to fixed term, and specialization in a relatively high paying discipline.

After adjustments for the variables expected to be related to higher salaries, the variables gender and ethnicity contributed very little to the overall prediction of salaries. However, examination of the coefficients indicates that status as a minority member was positively related to salary in all but the School of Medicine analyses, where a very small negative differential was observed. However, average female salaries lagged behind the average for the white male reference category in every analysis, ranging from a deficit of $1,169 in the College of Arts & Sciences to $9,293 in Clinical Medicine.

Although the models developed are quite robust, the results indicate that between fifteen and twenty-five percent of the variability in faculty salaries was not explained by the analyses. This remaining variability is quite likely due to differences in the quality of faculty contributions that are not accounted for in the regression analyses. Therefore, the results of this study should be treated as preliminary only. Further

analyses at the school/department level might focus on individuals with large negative disparities between their predicted and actual salaries in an attempt to determine what productivity differences or other factors might account for the observed gap.