2016-17 Faculty Salary Equity Analysis

Presented to the Committee on the Status of Women
May 14, 2018

Prior Faculty Equity Studies

- The Provost's Office periodically conducts institution-wide faculty equity analyses. Examples:

    - **Salary equity:** Is there evidence of salary disparities by gender or race/ethnicity after controlling for factors that <u>should</u> be related to salaries?

    - **Tenure/promotion patterns:** Are there group differences in career progression that that might relate to salary differences?

    - **Salary compression:** Have long-time UNC-Chapel Hill faculty suffered from a "loyalty penalty" when new faculty at or below their ranks are hired from the outside at higher, market-driven salaries?

Population for 2016-17 Salary Equity Study

- Three groups analyzed separately:
  1. **Academic Affairs Schools** -- Completed during 2016-17 and reported here.
  2. **Health Affairs Schools (without School of Medicine)** – Completed during 2016-17 and reported here.
  3. **School of Medicine** – Initiated in 2016-17; in progress during 2017-18. SOM staff is conducting analysis using data relevant to their unique compensation plans, such as clinical payments and other measures of clinical activity (e.g., Relative Value Units, or RVUs)

- Faculty selection criteria for #1 and #2 above:
  - Permanent, full-time, active appointments in October 2016
  - Tenured/tenure track and fixed term
  - Did not have a primary appointment as a senior administrator (Chancellor, Provost, Vice Provosts, Vice Chancellors, Deans)

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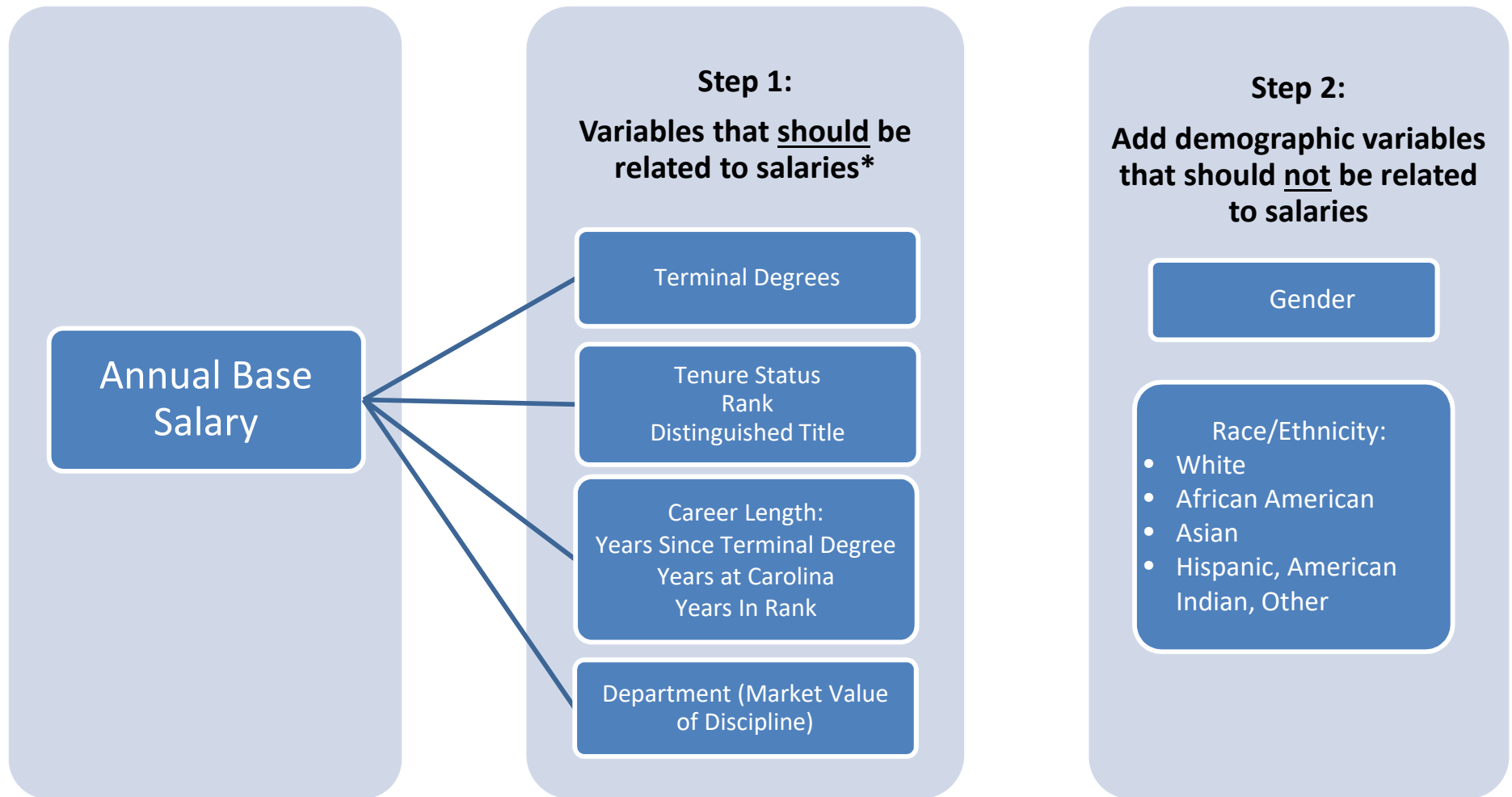*of* NORTH CAROLINA
at CHAPEL HILL

Methods

- **Question:** Are race/ethnicity and gender associated with salary after taking into account factors that <u>should</u> predict salaries, such as rank, discipline, career length, etc.

- **Multiple Regression Analysis** – Goal is to build a statistical model that reliably predicts salary based on a set of predictor variables
  - Adopted from American Association of University Professors (AAUP) recommendations
  - Reviewed and endorsed by a 2012 panel of UNC-Chapel Hill faculty and staff from:
    - Biostatistics – Prof. Amy Herring
    - Medicine – Prof. Adaora Adimora
    - Music – Prof. David Garcia
    - Physics & Astronomy – Prof. Laurie McNeil (Chair)
    - Psychology & Neurosciences – Prof. Abigail Panter
    - Statistics & Operations Research – Prof. Doug Kelly
    - University Counsel – Assoc. Vice Chancellor David Parker
    - Institutional Research & Assessment – Dr. Lynn Williford

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Model for Examining Group Differences in Salaries Across the Population

Annual Base Salary

Step 1:

Variables that should be related to salaries*

- Terminal Degrees
- Tenure Status / Rank / Distinguished Title
- Career Length: Years Since Terminal Degree / Years at Carolina / Years In Rank
- Department (Market Value of Discipline)

Step 2:

Add demographic variables that should not be related to salaries

- Gender
- Race/Ethnicity:
  - White
  - African American
  - Asian
  - Hispanic, American Indian, Other

*Notably missing from this list are measures of faculty productivity and the impact of their work.

Results for Academic Affairs Schools

- 83.6% of the variation in salaries was accounted for by the set of variables reflecting education, appointment status, career length, and department.

- Adding gender and race/ethnicity to this model did not make a significant contribution to our ability to explain the variance in salary over and above education, appointment status, career length, and department variables. Gender and race/ethnicity increased the variance accounted for by *less than one-tenth of a percentage point (0.10%)*.

Academic Affairs:
Group Differences Estimated by this Model

Total Population	1,265	100.0%	Salary Difference*	Compared to:
Female	524	41.4%	-$2,271	Male
Black/African-American	74	5.8%	$3,989	White
Asian	111	8.8%	$2,367	White
Hispanic, American Indian, Others	104	8.2%	-$1,739	White

*None of the differences were statistically significant at p<.05.

Results for Health Affairs Schools (without SOM)

- 76% of the variance in salaries was accounted for by the set of variables reflecting education, appointment status, career length, and department.

- Adding gender and race/ethnicity to this model did not make a significant contribution the variance explained by the education, appointment status, career length, and department variables. Gender and race/ethnicity increased the variance accounted for by *less than two-tenths of a percentage point (0.20%).*

Health Affairs without SOM:
Group Differences Estimated by this Model

Total Population	524	100.0%	Salary Difference*	Compared to:
Female	300	55.1%	-$4,604	Male
Black/African-American	35	6.4%	-$1,337	White
Asian	59	10.8%	-$5,303	White
Hispanic, American Indian, Others	44	8.1%	-$1,862	White

*None of the differences were statistically significant at p<.05.

Typical Process for School- and Department-Level Follow Up Analyses

- Provost's Office provides deans with data on their faculty used in the analysis and the residuals estimated for each faculty member.

- **Residual** -- the difference between an individual's actual salary and the salary that was predicted by the regression model.

- Goal – To identify individual faculty with large negative residuals and determine if performance and/or other information exists within the school that would explain this difference.

- Residuals are calculated for faculty as follows:
  - Dollar difference between actual salary and that predicted by the model
  - Standardized residuals – dollar values converted to standard units that make it somewhat easier to compare residuals in terms of relative magnitude.
    - Faculty with a residual that is greater than 1.5 standard deviations below the mean will be flagged for review at the school/department level with explanations submitted to Provost.