Lessons & Landmines in Conducting Faculty Salary Studies

Ying Zhou, Beverly King, Danny Barreiro-Talbert, & Hanyan Wang
East Carolina University

North Carolina Association for Institutional Research
2019 Conference
Agenda

• Before you begin: Important considerations in doing faculty salary studies
• Two salary studies conducted at ECU
  – 2014 Faculty Salary Equity Study
  – 2018 Faculty Salary Compression Study
• Lessons learned & landmines to avoid
• Questions/discussion
Before you begin: Important considerations in doing faculty salary studies

- Stakeholder Concerns
- Scope of Study
- Consensus Building/Campus Buy-in
- External/Internal Expertise

Project Management
Stakeholder Management

- Faculty Senate
- Senior administration
- Individuals with strong opinions

- ECU faculty
- Department chairs
- Equity and legal offices

**Strategies:**
- Advisory Group(s)
- Focusing on scope
- Accepting input throughout
- No competing studies
2014
Faculty Salary Equity Study
Overview

**Purpose of the Study:** examine whether there were systematic, institutional-wide gender and race/ethnicity disparities in faculty compensation

**Major Players:**
- Office of Equity and Diversity and Office of University Counsel
- Institutional Research
- Faculty Senate Leadership
- Chancellor’s Committee on the Status of Women
- Three Divisions (Chancellor’s, Academic Affairs, & Health Sciences)
- External Consulting Firm

**IR’s Role:**
- Data Collection and Validation
- Project Management and Stakeholder Management
- Assistance to the External Consultant
- Validation of Results
- Communication and Interpretation of Results
Data

• **Population**: full-time instructional faculty
• **Data Source**:
  – Official personnel data file (PDF, cleaned & supplemented)
  – Gender and race/ethnicity unknown: visual identification
  – Salary benchmarks for Health Sciences faculty
  – Faculty activity reporting system
• **Compensation**:
  – 9- or 12-month salary (with conversion as needed)
  – Stipends: included for Brody School of Medicine and School of Dental Medicine; classified by type (chair, vice chair, clinical chief, pediatric chief, program director, miscellaneous, etc.)
• **Faculty Productivity**:
  – Courses taught and student credit hours (SCHs)
  – Sponsored research and scholarship activities
  – Service activities, and awards and honors
  – Relative Value Units (RVUs) Data from Brody School of Medicine
Methodology – Salary Equity

• Multiple Predictors*
  – Academic Affairs – Department
  – Health Sciences – Salary Benchmarks
  – Tenure Eligibility
  – Academic Rank
  – Dept. Head/Supervisor
  – Years Since Hire
  – Years between Terminal Degree in the Field and Hire
  – Instructor in College of Business
  – Stipend Types (Brody & Dental)
  – Relative Value Unit (RVU) from Brody School of Medicine

• Multiple regression models
  – Academic Affairs (3 models): all faculty, tenure-eligible faculty, and fixed-term faculty
  – Health Sciences (5 models): Brody medical faculty, Brody basic sciences faculty, College of Allied Health Sciences, College of Nursing, and School of Dental Medicine
  – Libraries (1 model)

*Not all predictors were included in all models.
Additional Analyses: Academic Affairs
Faculty Productivity by Gender

• Independent Variables
  – Gender
  – Discipline
  – Tenure Eligibility
  – Academic Rank
  – Dept. Head/Supervisor
  – Years Since Hire
  – Years between Terminal Degree in the Field and Hire
  – Business Instructor in College of Business

• Dependent Variables – Sedona Entries in:
  – Articles
  – Books
  – Presentations
  – External Professional Experience
  – Service*
  – Honors & Awards*

* Female faculty reported significantly more honor/awards and service activities as compared to male faculty.
## Salary Equity: Independent Variables (in addition to gender & race/ethnicity)

<table>
<thead>
<tr>
<th>Discipline Factor</th>
<th>Academic Affairs</th>
<th>Medical/Dental</th>
<th>Other HS</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure Eligibility</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Academic Rank</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Years Since Hire</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Hire Year – Terminal Degree Year</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Dept. Head/Supervisor</td>
<td>Included</td>
<td></td>
<td></td>
<td>Included</td>
</tr>
<tr>
<td>Business Instructor</td>
<td>Included</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stipend Types (Chair, Chief, Director, etc.)</td>
<td>Included</td>
<td></td>
<td>Brody basic science</td>
<td></td>
</tr>
<tr>
<td>Clinical RVUs</td>
<td></td>
<td>Medical faculty</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Outcomes

- No systematic disparities based on gender or race/ethnicity were identified
- No major differences in AA faculty productivity based on gender
- A predicted salary was calculated for each individual
- More than 150 individuals were identified for further salary review

<table>
<thead>
<tr>
<th>Regression Model</th>
<th>R-sqr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Affairs</td>
<td>.83</td>
</tr>
<tr>
<td>Brody Medical Faculty</td>
<td>.83</td>
</tr>
<tr>
<td>Brody Basic Sciences Faculty</td>
<td>.88</td>
</tr>
<tr>
<td>Dental Medicine</td>
<td>.69</td>
</tr>
<tr>
<td>College of Allied Health Sciences</td>
<td>.73</td>
</tr>
<tr>
<td>College of Nursing</td>
<td>.83</td>
</tr>
<tr>
<td>Libraries</td>
<td>.70</td>
</tr>
</tbody>
</table>
Limitations of the Study

• No elimination of high-end outliers for regression analyses
• Stipend data
  – Not possible to distinguish permanent stipend vs. temporary stipend
  – Classification of stipends was not replicable
• Faculty productivity data:
  – Limitations with availability, reliability, consistency, and completeness of individual faculty productivity data
• Benchmark data
  – Medical Faculty: AAMC benchmarks include all types of compensation, but study included only base salary and stipends
  – Dental Faculty: ADEA data collection methodology did not specify length of employment
  – Allied Health Sciences Faculty: unable to find appropriate benchmarks for some faculty
Other Challenges of the Study

• Data clean-up
  – Race/ethnicity: Unknown
  – Terminal degree: Related to field or not
  – PDF: Interpreting/supplementing salary data

• Unable to identify useable productivity measures

• Disagreement and confusion over methodology

• Scope creep and prolonged timeline
Communication of Results

• Presentations made by consultant
• Meetings with deans and associates to explain results
• Executive summaries and full reports available on website
• Faculty forums & reports to Faculty Senate
Use of Results

• Salary review: deans asked to
  – review salary of identified individuals
  – propose adjustment considering performance
• Individualized letter to each AA faculty
• New concerns over:
  – Salary compression
  – Promotion to full professor
  – Opportunities for additional duties that carry stipends
2018
Faculty Salary Compression Study
Overview

**Purpose of the Study:** Identify cases of salary compression and inversion

**Major Players:**
- Institutional Research
- Faculty Senate Leadership
- Two Divisions (Academic Affairs and Health Sciences)

**IR’s Role:**
- Data Collection, Validation and Analyses
- Project and Stakeholder Management
- Communication and Interpretation of Results
Developing Methodology

• Literature review
  – Most common method: linear model (to predict individual salary or estimate size of compression)
  – Most common predictors: Academic rank, tenure status, administrator indicator, years in rank/at institution/in academia, CIP code, college, school/department, highest degree, market factor

• Consult with experienced professionals
  – Benchmark analysis
Data

• **Population:**
  – Academic Affairs: tenured and tenure-track faculty
  – Health Sciences & Libraries: full-time fixed term, tenured, and tenure-track faculty

• **Data Source:**
  – Official personnel data file (cleaned & supplemented)
  – Salary benchmarks for all faculty

• **Compensation:**
  – 9- or 12-month base salary (converted when needed)
  – Brody School of Medicine and School of Dental Medicine: 12-month salary, stipends, incentive pay, and other income (extra shift pay, emergency room pay, night shift differentials, etc.)
Benchmark Analyses

• Benchmark Sources
  – CUPA-HR
  – Association of American Medical Colleges (AAMC)
  – American Association of Colleges of Nursing (AACN)
  – Other professional organizations

• Issues with Benchmark Analysis
  – Lack of consistency in benchmarks from different sources (e.g., different conversion methods & categories of faculty)
  – Missing benchmarks for certain disciplines & missing CUPA-HR data (due to confidentiality restraints)
  – Reflects market including any national compression/inversion
  – Doesn’t control for any predictive variables
# Preliminary Outcomes: Academic Affairs Benchmark Analysis

<table>
<thead>
<tr>
<th></th>
<th>Full Professors</th>
<th>Associate Professors</th>
<th>Assistant Professors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>200</td>
<td>325</td>
<td>157</td>
</tr>
<tr>
<td>Lowest 25 salaries (compared to benchmark medians)</td>
<td>21</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Under 75% of benchmark medians</td>
<td>38</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Under 80% of benchmark medians</td>
<td>75</td>
<td>33</td>
<td>6</td>
</tr>
<tr>
<td>Under benchmark medians</td>
<td>159</td>
<td>290</td>
<td>122</td>
</tr>
</tbody>
</table>
Analytical Process

Data Validation
- Performed by Divisional HR
- Identifying incorrect data
- Noting factors that might impact a person’s salary
- Determining appropriate benchmarks

Exploratory Analyses
- Exploring predictors identified from lit review & advisory groups
- Removing high-end outliers (Cook’s D)
- Reviewing low-end outliers to improve model

Final Steps
- Selecting the best model based on model performance & ease of translation
- Generating a low-end outlier report (predicted > actual salary by 1 STD)
Regression Analyses: Summary

**Seven Regression Models:** Academic Affairs, Libraries, College of Nursing, College of Allied Health Sciences, Brody Medical Faculty, Brody Basic Sciences & PhD Faculty, & School of Dental Medicine

<table>
<thead>
<tr>
<th>Discipline Factor</th>
<th>Academic Affairs</th>
<th>Libraries</th>
<th>Nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Department</td>
<td></td>
<td>Benchmark</td>
<td>Benchmark</td>
</tr>
<tr>
<td>Academic Rank</td>
<td>Included</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time in Rank</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Hire Year – Terminal Degree Year</td>
<td></td>
<td></td>
<td>Tested</td>
</tr>
<tr>
<td>Supervisor Designation</td>
<td></td>
<td>Included</td>
<td></td>
</tr>
<tr>
<td><strong>R-sqr (preliminary)</strong></td>
<td>0.88</td>
<td>0.86</td>
<td>0.77-0.85</td>
</tr>
</tbody>
</table>
Lessons Learned and Landmines to Avoid
Lessons Learned 1: Advisory Groups

• Include the “right” people: both critics & champions.
• Include faculty leadership (e.g., Chair of the Faculty).
• Include professional staff with expertise in salary practices.
• Work with a wide range of statistical capabilities/understanding among members.
• Act as communication pipeline between advisory groups and senior leadership.
Lessons Learned 2: Faculty Productivity and Salaries

• Consistent metrics of productivity are not possible even with institutional-wide adoption of Sedona/Interfolio.

• Some units attempt to use enrollment change funding model to “quantify and compare” teaching productivity of individual faculty.

• Clinical faculty might be penalized for being “productive” (e.g., taking on extra shifts voluntarily).
Lessons Learned 3: Benchmarks and Local Salary Practices

• Use benchmarks to address specialties within a field for clinical faculty.

• Understand components of benchmarks: sometimes, components of benchmark may not match base salaries.

• Understand local salary practices:
  – Some units used their own funding to compensate the lack of institutional-wide promotion raises.
  – Some units used permanent stipends to compensate low base salaries.
  – Some units allow individuals to renegotiate base salaries after stepping down from an administrative position.
Lessons Learned 4: Managing Individual Concerns

• Concerns during the study:
  – Separating the study from personal experience or perception
  – No discussion of individual or individual cases
  – No premature release of information

• Concerns after the study:
  – Requests for information related to the study
  – Misuse of predicted salary as “recommended salary”
  – Faculty salary grievances
Lessons & Landmines in Conducting Faculty Salary Studies

North Carolina Association for Institutional Research
2019 Conference

Institutional Planning, Assessment and Research

- Ying Zhou: zhouy14@ecu.edu
- Beverly King: kingb14@ecu.edu
- Hanyan Wang: wangh17@ecu.edu
- Danny Barreiro-Talbert: barreirotalbertn@ecu.edu