April 2013

Comparing Academic and Non-Academic Salaries: Establishing Homogeneous Groups by Discipline, Educational Credentials, and Job Category

Martin Finkelstein  
Seton Hall University

Kevin Iglesias  
Seton Hall University

Valerie Martin Conley  
Ohio University

Follow this and additional works at: http://thekeep.eiu.edu/jcba

Recommended Citation  

This Proceedings Material is brought to you for free and open access by The Keep. It has been accepted for inclusion in Journal of Collective Bargaining in the Academy by an authorized editor of The Keep. For more information, please contact tabruns@eiu.edu.
Comparing Academic and Non-Academic Salaries: Establishing Homogeneous Groups by Discipline, Educational Credentials, and Job Category

Martin Finkelstein and Kevin Iglesias,
Seton Hall University
Valerie Martin Conley,
Ohio University
Overarching questions and assumptions

• How does the academic profession “stack up” against other professions in terms of its attractiveness to the best and brightest of the next generation?

• While only one element in the relative attractiveness of academe as a career option, compensation is certainly an important one – and one that is, relatively speaking, identifiable and quantifiable.
In the past, there has been very limited study of comparative compensation

- Schuster and Finkelstein (2006) cited two sources to compare average aggregated annual salaries of full-time faculty to lawyers, medical professionals, computer and information scientists, engineering professionals, life and physical scientists
  - the AAUP’s 2000-01 Annual Report on the Economic Status of the Profession

- They found that faculty salaries averaged 25.5% less overall than the weighted index of these occupations, ranging from 10% less than life and physical scientists to 51% less than medical professionals

- A dismal picture for the most talented prospective recruits
Limitations of past comparisons

• **Academic side:** All academic fields aggregated in ways that ignore substantial differences among disciplines and professional fields (and overly weighted by low-paid humanities and social sciences)

• **Non-academic side:** Use of gross averages does not allow breakdowns within broad occupations by:
  – educational credentials (i.e. advanced degree)
  – specific subfield within the broader occupational category, Meaning what? Difference between nuclear/petroleum engineering and civil engineering?
  – rank or seniority
  – institutional setting, i.e. public vs. private?

• All traditional determinants of compensation from a human resource perspective;

• So we cannot quite compare apples to apples (don’t quite have common metrics)
Another step towards a set of common metrics

• BLS’ Occupational Employment Statistics Survey allows us to distinguish between:
  • Postsecondary teachers in different academic fields
    • Two broad institutional settings – public vs. private sector
    • Subfields and/or job types within each broad occupational category or profession (in the case of academics, their discipline)
  • Industry of occupation through the use of the NAICS Can we explain? It’s a little vague
    • Group organizations and institutions based upon primary output, e.g.
    • Provide for standardized job types across all industries e.g.
    • Can differentiate between specialized organizations, for example, hi-tech companies and knowledge management firms.
  • Levels of seniority -- 25th vs. mean vs. 75th percentile in the distribution
The following analysis draws comparisons for 2009 and 2011

- Organized first by academic field—comparing lawyers who teach at a university to lawyers who practice; psychologists in private practice to those who teach at a university
- Organized next by institutional setting: private vs. public sector
- Organized, then, by specific industry: e.g.???
- Organized as well by seniority: 25th vs. Mean vs. 75th percentile
Such an analysis allows us to...

- Compare postsecondary teachers to non-academics
  - in the *same field*
  - at the *same level of seniority*
  - in the *same sector*.

- Also, we may be able to better address differences in educational credentials.
Dealing with the educational credentials limitation

• Less of a problem in comparing professors to lawyers and physicians
  • *Each requires a terminal degree*
  • *These degrees are non-substitutable*
  • *Reflect approximately the same number of years of formal education, i.e. 20*

• For other fields, job categories that are likely to require advanced graduate education were selected
  • *For example*: Nuclear Engineer; Clinical Psychologist; Biochemist

• Further, specific industries are used as a filter to create more homogenous subgroups for comparison.
  • *For non-academic job categories*, specific industries providing knowledge capital or requiring greater educational credentials were selected, i.e. consulting services
  • *For academic occupations*, industry filters allow for 4 year, comprehensive, research and professional institutions only to be used (excluding community colleges and proprietary institutions)

• Also, Federal pay scales add another level of commonality (homogeneity) because...
  – GS-11 rates represent the ground floor for PhD holders
  – Take into account market factors, such as locality and scarcity How is this relevant to the comparison with postsecondary teachers?
Some Comparisons
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Occupational Industry (NAICS Number)</th>
<th>Private</th>
<th>Public</th>
<th>% Diff Fac vs Occ</th>
<th>Private</th>
<th>Public</th>
<th>% Diff Fac vs Occ</th>
<th>Private</th>
<th>Public</th>
<th>% Diff Fac vs Occ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Salary</td>
<td>25%ile</td>
<td>75%ile</td>
<td>Mean Salary</td>
<td>25%ile</td>
<td>75%ile</td>
<td>Mean Salary</td>
<td>25%ile</td>
<td>75%ile</td>
<td>Mean Salary</td>
</tr>
<tr>
<td>Engineering occupations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical engineers</td>
<td>Res &amp; Dev: Phy, Eng, Life Sci (541710)</td>
<td>$104,060</td>
<td>$75,960</td>
<td>$125,020</td>
<td>3.9</td>
<td>0.5</td>
<td>5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof, Sci, Tech Services: Eng Services (541330)</td>
<td>$110,240</td>
<td>$76,360</td>
<td>$129,150</td>
<td>-1.8</td>
<td>0.0</td>
<td>2.2</td>
<td>$100,530</td>
<td>$82,360</td>
<td>$115,740</td>
</tr>
<tr>
<td></td>
<td>Chem Manuf: Pharm &amp; Medical (325400)</td>
<td>$92,780</td>
<td>$75,670</td>
<td>$109,020</td>
<td>14.3</td>
<td>0.9</td>
<td>17.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear engineers</td>
<td>Res &amp; Dev: Phy, Eng, Life Sci (541710)</td>
<td>$115,460</td>
<td>$92,100</td>
<td>$139,160</td>
<td>-6.6</td>
<td>-20.6</td>
<td>-5.4</td>
<td>$91,900</td>
<td>$74,870</td>
<td>$104,770</td>
</tr>
<tr>
<td></td>
<td>Prof, Sci, Tech Services: Eng Services (541330)</td>
<td>$119,320</td>
<td>$92,680</td>
<td>$139,090</td>
<td>-10.2</td>
<td>-21.4</td>
<td>-5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering teachers, postsecondary</td>
<td>Education: Colleges, Univ and Prof Schools (611300)</td>
<td>$108,300</td>
<td>$76,370</td>
<td>$132,050</td>
<td></td>
<td></td>
<td></td>
<td>$95,740</td>
<td>$67,140</td>
<td>$118,240</td>
</tr>
</tbody>
</table>

Journal of Collective Bargaining in the Academy, Vol. 0, Iss. 8 [2013], Art. 3

http://thekeep.eiu.edu/jcba/vol0/iss8/3

SETON HALL UNIVERSITY
Engineering

• In the private sector, postsecondary teachers
  – are quite comparable to chemical engineers and even surpass those in the chemical manufacturing sector
  – they trail nuclear engineers, but primarily at the entry or early career level

• In the public sector, postsecondary teachers trail especially at the entry or early career level
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Occupational Industry (NAICS Number)</th>
<th>Private</th>
<th>% Diff Fac vs Occ</th>
<th>Public</th>
<th>% Diff Fac vs Occ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Salary</td>
<td>25%ile</td>
<td>75%ile</td>
<td>Mean Salary</td>
<td>25%ile</td>
</tr>
<tr>
<td>Life Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biochemists and biophysicists</td>
<td>Res &amp; Dev: Phy, Eng, Life Sci (541710)</td>
<td>$92,430</td>
<td>$60,230</td>
<td>$115,980</td>
<td>-3.4</td>
</tr>
<tr>
<td></td>
<td>Chem Manuf: Pharm &amp; Medical (325400)</td>
<td>$85,190</td>
<td>$63,590</td>
<td>$100,900</td>
<td>4.7</td>
</tr>
<tr>
<td>Microbiologists</td>
<td>Res &amp; Dev: Phy, Eng, Life Sci (541710)</td>
<td>$71,110</td>
<td>$49,250</td>
<td>$89,060</td>
<td>20.4</td>
</tr>
<tr>
<td></td>
<td>Chem Manuf: Pharm &amp; Medical (325400)</td>
<td>$68,550</td>
<td>$44,700</td>
<td>$88,150</td>
<td>23.3</td>
</tr>
<tr>
<td>Biological science teachers, postsecondary*</td>
<td>Education: Colleges, Univ and Prof Schools (611300)</td>
<td>$89,370</td>
<td>$57,000</td>
<td>$106,960</td>
<td></td>
</tr>
</tbody>
</table>
Biological Sciences

• In the private sector, postsecondary teachers
  – trail biochemists and biophysicists at the entry/early career level
  – but substantially surpass microbiologists across the board, irrespective of industry

• In the public sector, postsecondary teachers
  – surpass biochemists across the board
  – but trail microbiologists, especially at the entry/early career level
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Occupational Industry (NAICS Number)</th>
<th>Private</th>
<th></th>
<th>Public</th>
<th></th>
<th>% Diff Fac vs Occ</th>
<th>% Diff Fac vs Occ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Salary</td>
<td>25%ile</td>
<td>75%ile</td>
<td>Mean Salary</td>
<td>25%ile</td>
<td>75%ile</td>
<td>Mean Salary</td>
</tr>
<tr>
<td>Psychology Occupations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical, counseling, and school psychologists</td>
<td>All Industries</td>
<td>$73,300</td>
<td>$45,030</td>
<td>$88,050</td>
<td>-0.9</td>
<td>8.5</td>
<td>-0.2</td>
</tr>
<tr>
<td></td>
<td>Health Care: Office of Mental Health practitioners (621330)</td>
<td>$83,650</td>
<td>$45,880</td>
<td>$99,530</td>
<td>-15.1</td>
<td>6.7</td>
<td>-13.3</td>
</tr>
<tr>
<td>Psychology teachers, postsecondary*</td>
<td>Education: Colleges, Univ and Prof Schools (611300)</td>
<td>$72,670</td>
<td>$49,190</td>
<td>$87,860</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Psychology

• In the private sector, postsecondary teachers
  – surpass practicing psychologists at the entry/early career level
  – but lose that advantage by mid-career

• In the public sector, postsecondary teachers
  – do slightly better than practicing clinical and school psychologists, except at the entry/early career level
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Occupational Industry (NAICS Number)</th>
<th>Private</th>
<th>% Diff Fac vs Occ</th>
<th>Public</th>
<th>% Diff Fac vs Occ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean Salary</td>
<td>25%ile</td>
<td>75%ile</td>
<td>Mean Salary</td>
</tr>
<tr>
<td>Legal Occupations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lawyers</td>
<td>All Industries</td>
<td>$138,800</td>
<td>$78,240</td>
<td>$183,180</td>
<td>-21.8</td>
</tr>
<tr>
<td></td>
<td>Prof, Sci and Tech services: Legal Services (541100)</td>
<td>$137,170</td>
<td>$76,000</td>
<td>$182,730</td>
<td>-20.3</td>
</tr>
<tr>
<td>Judges, magistrate judges, and magistrates</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>$110,940</td>
<td>58,230</td>
</tr>
<tr>
<td>Law teachers, postsecondary*</td>
<td>Education: Colleges, Univ and Prof Schools (611300)</td>
<td>$114,000</td>
<td>$64,090</td>
<td>$151,330</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Law

• In both the private and public sectors, postsecondary teachers substantially trail practicing lawyers

• In the public sector, however, while post-secondary teachers trail judges at the early and mid-career level, they have caught up with and even surpassed judges at the senior level
Summary

- The relative advantage (or disadvantage) of postsecondary teachers vis-à-vis other professionals in their field in terms of compensation
  - Varies by field (considerable in law, less so in engineering)
  - Within field varies by subfield and industry
  - Varies by sector (a disadvantage in the private sector may be an advantage in the public sector)
  - Varies by career stage (while in a few instances, the advantage or disadvantage spans the careers, in several cases it is primarily an entry level phenomenon)
Next Questions