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

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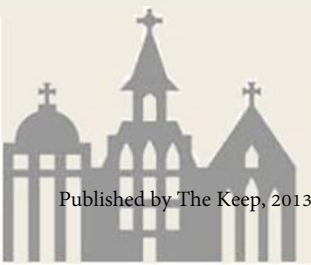
# Comparing Academic and Non-Academic Salaries: Establishing Homogeneous Groups by Discipline, Educational Credentials, and Job Category

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# 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
  - Bureau of Labor Statistics 2003 Occupational Employment Statistics Survey
- 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

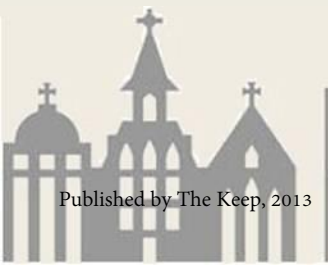
- BLS' Occupational Employment Statistics Survey allows us to distinguish between:
- Postsecondary teachers in different academic fields
  - Two broad institutional settings –public vs. private sector
  - Subfields and/or job types within each broad occupational category or profession (in the case of 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 -- 25<sup>th</sup> vs. mean vs. 75<sup>th</sup> 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: 25<sup>th</sup> vs. Mean vs. 75<sup>th</sup> 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

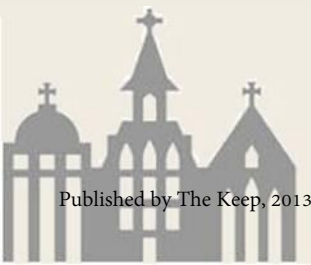




# Dealing with the educational credentials limitation

- 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?**

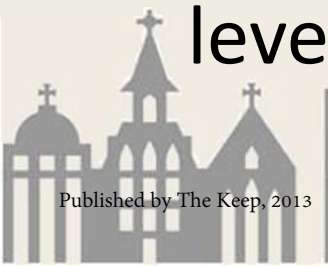
# Some Comparisons



Occupation	Occupational Industry (NAICS Number)	Private			% Diff Fac vs Occ			Public			% Diff Fac vs Occ		
		Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile
<b>Engineering occupations</b>													
<b>Chemical engineers</b>	Res & Dev: Phy, Eng, Life Sci (541710)	\$104,060	\$75,960	\$125,020	3.9	0.5	5.3	\$100,530	\$82,360	\$115,740	-5.0	-22.7	2.1
	Prof, Sci, Tech Services: Eng Services (541330)	\$110,240	\$76,360	\$129,150	-1.8	0.0	2.2						
	Chem Manuf: Pharm & Medical (325400)	\$92,780	\$75,670	\$109,020	14.3	0.9	17.4						
<b>Nuclear engineers</b>	Res & Dev: Phy, Eng, Life Sci (541710)	\$115,460	\$92,100	\$139,160	-6.6	-20.6	-5.4	\$91,900	\$74,870	\$104,770	4.0	-11.5	11.4
	Prof, Sci, Tech Services: Eng Services (541330)	\$119,320	\$92,680	\$139,090	-10.2	-21.4	-5.3						
<b>Engineering teachers, postsecondary *</b>	Education: Colleges, Univ and Prof Schools (611300)	\$108,300	\$76,370	\$132,050				\$95,740	\$67,140	\$118,240			

# 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



Occupation	Occupational Industry (NAICS Number)	Private			% Diff Fac vs Occ			Public			% Diff Fac vs Occ		
		Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile
<b>Life Sciences</b>													
<b>Biochemists and biophysicists</b>	Res & Dev: Phy, Eng, Life Sci (541710)	\$92,430	\$60,230	\$115,980	-3.4	-5.7	-8.4	\$59,970	\$42,120	\$68,890	34.6	26.7	38.2
	Chem Manuf: Pharm & Medical (325400)	\$85,190	\$63,590	\$100,900	4.7	-11.6	5.7						
<b>Microbiologists</b>	Res & Dev: Phy, Eng, Life Sci (541710)	\$71,110	\$49,250	\$89,060	20.4	13.6	16.7	\$100,280	\$76,710	\$117,760	-9.3	-33.5	-5.6
	Chem Manuf: Pharm & Medical (325400)	\$68,550	\$44,700	\$88,150	23.3	21.6	17.6						
<b>Biological science teachers, postsecondary*</b>	Education: Colleges, Univ and Prof Schools (611300)	\$89,370	\$57,000	\$106,960				\$91,760	\$57,460	\$111,530			



# Biological Sciences

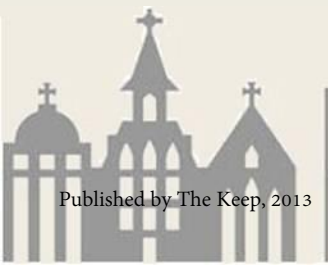
- In the private sector, postsecondary teachers
  - trail biochemists and biophysicists at the entry/early career level
  - but substantially surpass microbiologists across the board, irrespective of industry
- In the public sector, postsecondary teachers
  - surpass biochemists across the board
  -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

Occupation	Occupational Industry (NAICS Number)	Private			% Diff Fac vs Occ			Public			% Diff Fac vs Occ		
		Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile
<b>Psychology Occupations</b>													
Clinical, counseling, and school psychologists	All Industries	\$73,300	\$45,030	\$88,050	-0.9	8.5	-0.2	\$72,920	\$55,110	\$88,010	7.1	-0.7	5.7
	Health Care: Office of Mental Health practitioners (621330)	\$83,650	\$45,880	\$99,530	-15.1	6.7	-13.3						
Psychology teachers, postsecondary*	Education: Colleges, Univ and Prof Schools (611300)	\$72,670	\$49,190	\$87,860				\$78,480	\$54,710	\$93,290			



# 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



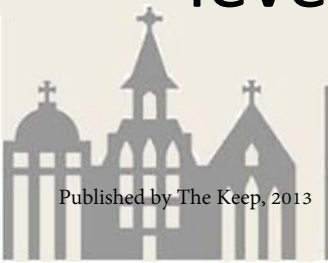


Occupation	Occupational Industry (NAICS Number)	Private			% Diff Fac vs Occ			Public			% Diff Fac vs Occ		
		Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile	Mean Salary	25%ile	75%ile
<b>Legal Occupations</b>													
Lawyers	All Industries	\$138,800	\$78,240	\$183,180	-21.8	-22.1	-21.0						
	Prof, Sci and Tech services: Legal Services (541100)	\$137,170	\$76,000	\$182,730	-20.3	-18.6	-20.7	\$129,430	\$108,700	\$155,400	-23.0	-144.8	-4.8
Judges, magistrate judges, and magistrates		N/A	N/A	N/A				\$110,940	\$58,230	\$143,550	-5.4	-31.1	3.2
Law teachers, postsecondary*	Education: Colleges, Univ and Prof Schools (611300)	\$114,000	\$64,090	\$151,330				\$105,240	\$44,410	\$148,300			



# Law

- In both the private and public sectors, postsecondary teachers substantially trail practicing lawyers
- In the public sector, however, while postsecondary 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

