ARTICLES

The Earnings of University Faculty in Health Administration: What Characteristics Influence Pay?

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Abstract

We present data from a February 2009 survey of health administration faculty members employed in programs recognized by the Association of University Programs of Health Administration or are U.S.-based academic members of the Academy of Management's Health Care Management Division. We present summary statistics for faculty salaries by rank and school of employment. Next, we examine salaries in departments with an emphasis on teaching versus departments with an emphasis on research. Lastly, we estimate the association between faculty salaries and education, experience, measures of human capital, and demographic characteristics.

Introduction

The earnings, and determinants of earnings, of academic faculty members have been of interest for decades (Gordon, Morton, & Braden, 1974). Previous research has examined: factors influencing the compensation of business school professors (Gomez-Mejia & Balkin, 1992), differences in faculty salaries by discipline (Bellas, 1997; Gordon et al., 1974), race and marital status inequalities (Gordon et al., 1974; Toutkoushian, 1998), and the effect of departmental characteristics on faculty salaries (Pfeffer & Langton, 1988). In the healthcare field, studies have examined the salaries of health economists (Cawley & Morrisey, 2007; Feldman & Morrisey,

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1990), health services researchers (Resneck & Luft, 2004), and biomedical scientists (Austin, 2006).

Academic health administration (HA) is a multidisciplinary field of social scientists, clinicians, public health experts, and those trained in the business disciplines. As a result, HA faculty can be employed in a variety of academic settings including schools of public health, health professions, business, and medicine. Given the heterogeneity in training and employment of academic HA faculty, it has been unclear how well published results for salaries in other healthcare fields generalize to HA faculty, necessitating a new salary survey focused on this unique cohort.

This paper reports the results of a survey of HA faculty that was conducted in early 2009. We report average salaries for HA faculty by rank and school of employment. We also estimate log earnings regressions in order to identify the factors associated with wages; among the factors we examine are demographic characteristics, education, experience, research productivity, and teaching load. To our knowledge, no previous study has identified the personal and professional characteristics that influence earnings among HA faculty.

Methods

DATA

In February 2009, we surveyed a large national sample of HA faculty members in the United States. The survey included questions concerning salary, employment characteristics, job satisfaction, and professional accomplishments. The questionnaire was adapted from a previous survey of health economists (Cawley & Morrisey, 2007) and included additional questions concerning mentorship, doctoral training, and perceptions regarding the work environment. The survey of HA faculty was pilot tested with a group of HA faculty members; based on their feedback individual items were revised to improve clarity, readability, and face validity.

Invitations to take the survey were sent to two groups of faculty: (1) those who are actively part of an HA program recognized by AUPHA; or (2) those who self-identified as an academic HA scholar by membership in the Academy of Management's (AOM) Health Care Management Division (HCMD). To identify faculty in AUPHA recognized programs, we scoured the websites of all accredited and non-accredited HA programs listed in the 2008-2010 AUPHA directory. Next, we extracted the names and email addresses of all full-time faculty members at the rank of instructor, assistant professor, associate professor, and full professor whose primary appointment was in the AUPHA-recognized program. To identify faculty in the

AOM's HCMD, we accessed the AOM website and queried the current list of HCMD members for U.S.-based individuals with an academic (.edu) email address. The two lists were combined and duplicates were removed.

The survey was administered online and included three waves of email solicitations inviting eligible individuals to complete the questionnaire. Given the anonymous nature of the study, no tracking numbers were utilized, and responses were not linked to names or email addresses. Data collection occurred during the calendar month of February 2009. The protocol received institutional review board (IRB) approval from the university's human subjects review committee.

A total of 631 individuals participated in the survey, which represents a 49.5% response rate. The response rate compares favorably with other recent surveys of faculty; e.g. a 2005 survey of health economists had a response rate of 32% (Cawley & Morrisey, 2007) and a 2002 survey of health services researchers had a response rate of 43% (Resneck & Luft, 2004). In general, response rates to surveys have been falling (Biener et al., 2004). However, work in the survey methods literature has found no impact of the decline in response rates on non-response bias (Curtin et al., 2000; Keeter et al., 2000) or the representation of population sub-groups (Biener et al., 2004).

STATISTICAL ANALYSIS

We begin by examining the distribution and frequency of each variable. Our main dependent variable (earnings) was derived from the question "In the last 12 month period, how much did you earn from your primary employer (including summer support and bonuses, but not housing allowance)"? This question was carefully worded to include research and summer stipends that non-12 month faculty may earn. Five individuals listed their salaries in increments of thousands (e.g., 80, 100, 115); we multiplied these five salaries by 1000.

Next, we ran frequencies and other descriptive statistics on salary by rank, school, and teaching emphasis of the respondent's department. Teaching emphasis was assessed with a five-point Likert scale response to the following question: "Teaching is a higher priority in my department than is publishing research."

In our earnings equation, log earnings was regressed on measures of education, experience, experience squared, and other measures of human capital and demographic characteristics. Our regression model is based on the standard human capital earnings function developed by Mincer (1974) and reviewed by Willis (1986). Specifically, we estimate the following equation:

$$\text{Ln } y = \beta_0 + \beta_1 s + \beta_2 x + \beta_3 x^2 + \beta_4 o + u$$

where y indicates earnings, s indicates schooling, x and x^2 represent experience and experience squared, and o is a vector of other determinants of earnings. The 'schooling' variables include indicator variables for type of doctoral degree: management or health management (reference category), health services research or health policy, economics or health economics, or other. We also include indicators for master's degree only, clinical degree (e.g., MD, DO, DDS), registered nurse (RN), and law degree (JD).

The 'experience' variables include years since highest degree was received and its square, and years with current employer and its square. The vector of 'other' variables includes indicator variables for school of employment: public health (reference group), business, health professions, medicine, and other. It also includes indicator variables for demographic characteristics such as gender, race (white as reference), Hispanic ethnicity, marital status, and whether the career of one's significant other is easy to relocate.

To control for job activities we include variables for having a 12-month contract, being tenure track, total number of published articles and its square, the number of undergraduate courses taught annually, the number of graduate courses taught annually, whether the respondent also held an administrative position (e.g., chair, program director, center director), and whether the respondent received a formal outside job offer in the past 3 years.

Two versions of the log earnings model were estimated. First, the model was estimated using the sample of respondents who had no missing data. Second, we estimated the same model for the complete sample, with missing data assigned the value of the sample mean (Tabachnick & Fidell, 1996). Both models are presented to remove concerns that imputed data may have influenced the regression estimates of the second model. Because the coefficient on an indicator variable in any regression with a logged dependent variable cannot be directly interpreted as a percentage change, we follow (Kennedy, 1998) in adjusting the coefficient by e^{β}-1, where β is the coefficient on the indicator variable in the log earnings regression.

Results

Our analysis focuses on the 469 respondents at the rank of assistant professor, associate professor or professor who work at least 20 hours per week and who provided salary information. A description of the sample appears in Table 1. Briefly, 269 (62.4%) of respondents were male; and the majority

(87.5%) were white. Average age of respondents was 52.2 years with a range from 29 to 78 years. Over a third of respondents (34%) were from school of public health, followed by schools of health professions (27.8%), business (16.5%), medicine (5.1%), and other (16.7%).

Table 1.

Description of the sample (n=469)

Variable	N (percent)
Rank	
Assistant Professor	151 (32.2)
Associate Professor	148 (31.6)
Professor	170 (36.2)
School of Employment	
Public Health	159 (34.0)
Business	77 (16.5)
Health Professions	130 (27.8)
Medicine	24 (5.1)
Other	78 (16.7)
Gender	
Male	269 (62.4)
Female	162 (37.6)
Race	
White	372 (87.5)
Black or African Am.	22 (5.2)
Asian Am.	27 (6.4)
Other	4 (0.9)
Ethnicity	
Hispanic	14 (4.5)
Mean age in years (range)	52.2 (29 – 78)

Note: numbers may not sum up to 100% due to rounding

Salary information by school type and faculty rank are provided in Table 2. The average salary for HA assistant professors was $85,435, associate professors was $102,396 and for full professors was $148,017. There is substantial variance around these means. Although at every rank the HA faculty members in schools of business have higher average earnings than the overall average (across all academic units) for their rank, this difference is statistically significant ($p<0.01$) only for assistant professors, not for associate professors or professors. In schools of public health, the earnings of associate professors ($p<.01$) and professors ($p<0.01$) were significantly higher than the overall average for those ranks. Faculty in schools of health professions had earnings that were significantly lower than the overall

average; this was true for assistant professors (p=.03), associate professors (p<0.01), and professors (p<0.01). Assistant professors in 'other' schools also have lower average earnings (p=0.03) than the average across all units at that rank. Earnings of faculty in medical schools did not differ from the overall mean at any rank.

Table 2

Mean Health Administration Faculty Salaries by Rank and School (n=425)

	FACULTY RANK		
	Assistant Professor	Associate Professor	Full Professor
Overall	$85,435 (30,527) n=133	$102,396 (29,626) n=141	$148,017 (63,306) n=151
School of Public Health	$89,026 (33,600) n=42	$114,093 (32,439) n=55	$168,007 (75,980) n=55
School of Business	$110,000 (32,015) n=20	$109,619 (20,326) n=21	$154,958 (59,657) n=24
School of Health Professions	$76,566 (16,627) n=36	$88,290 (21,294) n=40	$122,287 (31,751) n=45
School of Medicine	$82,800 (15,936) n=10	$96,333 (3,215) n=3	$149,700 (47,837) n=8
Other School	$73,580 (27,099) n=21	$93,578 (32,413) n=21	$141,612 (72,049) n=19

Note: Standard deviations are in parentheses

Table 3 explores differences in mean salaries between departments in which teaching or research is the higher priority. Our results suggest that faculty pay is lower in departments that put a higher priority on teaching. When considering all ranks, agreement with the statement "teaching is a higher priority in my department than is publishing research" was negatively associated with salaries for all units (all p<0.01) except schools of medicine. Roughly half of all respondents agreed or strongly agreed with the statement that teaching was the higher priority in their department. Agreement varied with academic unit; in schools of public health and medicine, the majority of respondents disagreed with that statement,

Table 3.

Mean Health Administration Faculty Salary by Teaching Emphasis of Department (All Ranks, n=425)

	"Teaching is a higher priority in my department than is publishing research"		
	Strongly Agree or Agree	Neutral	Strongly Disagree or Disagree
All Schools	$94,342 (31,275) n=183	$103,294 (40,842) n=31	$130,285 (57,626) n=188
School of Public Health	$101,633 (46,441) n=32	$120,000 (53,661) n=9	$134,071 (63,806) n=103
School of Business	$103,757 (20,194) n=33	$130,500 (13,329) n=4	$155,370 (57,203) n=27
School of Health Professions	$91,478 (26,309) n=83	$93,729 (22,056) n=7	$113,542 (38,250) n=28
School of Medicine	$88,867 (12,011) n=3	$79,250 (26,222) n=4	$112,273 (34,549) n=11
Other School	$85,285 (32,649) n=32	$89,571 (44,249) n=7	$111,118 (41,764) n=18

Note**:** rank distributions by school did not differ significantly; standard deviations are in parentheses

whereas in schools of health professions and 'other' schools, the majority agreed with the statement.

Table 4 provides regression results that yield insight into the determinants of HA faculty earnings. The first column presents regression results for the sample with no missing data, and the second column presents regression results for the full sample with missing values assigned the sample mean. In model 1, using the sample with no missing data, several factors are significantly correlated with earnings. Those with academic doctoral degrees in "other" fields (i.e. other than management, health management, economics, health economics, health services research, or health policy) earned 6.8% less. Respondents holding a law degree earned an average of 18.3% more, all else equal. Individuals with only a master's degree (i.e. no doctoral degree) earn 20.7% lower than their counterparts.

Table 4.

Factors influencing Salaries of Health Administration Faculty

			MODEL 1	MODEL 2
			Log Earnings With Exclusions Listwise	**Log-Earnings Missing Values Substituted with Mean**
	Variable	**Mean**	**Coefficients (S.E)**	**Coefficients (S.E)**
Education:	Doctorate in MGT or Health Adm	0.367	Reference	Reference
	Doctorate in HSR or Health Policy	0.161	-0.040 (0.047)	-0.031 (0.042)
	Doctorate in Economics or Health Econ	0.177	0.073 (0.049)	0.042 (0.042)
	Doctorate: other	0.295	-0.066 (0.039)*	0.008 (0.031)
	Clinical Doctorate (MD, DO, DDS)	0.02	0.056 (0.130)	0.064 (0.082)
	Registered Nurse (RN)	0.07	-0.044 (0.072)	0.002 (0.051)
	Juris Doctorate (JD)	0.03	0.168 (0.098)*	-0.001 (0.065)
	Master's Degree Only	0.06	-0.188 (0.076)**	-0.181*** (0.058)
	Years since earned highest degree	16.75	-0.004 (0.006)	-0.001 (0.005)
	Years since earned highest degree squared	412.62	0.00025 (0.00014)*	0.00021* (0.00011)
Experience:	Years with current employer	10.65	0.011 (0.005)*	0.007 (0.004)
	Years with current employer squared	205.28	-0.00026 (0.00015)*	0.00018 (0.00013)
	School of public health	0.393	Reference	Reference
	School of business	0.134	0.161*** (0.051)	0.137*** (0.039)
	School of health professions	0.295	-0.018 (0.041)	-0.032 (0.039)
	School of medicine	0.032	-0.069 (0.090)	-0.097 (0.039)
	School: other	0.146	-0.013 (0.051)	-0.056 (0.40)

Table 4 (cont'd).

Factors influencing Salaries of Health Administration Faculty

Demo-graphics:	Female	0.38	-0.067* (0.036)	-0.053* (0.029)
	Race: white	0.886	Reference	Reference
	Race: Black	0.047	-0.112 (0.072)	-0.072 (0.058)
	Race: Asian	0.059	-0.077 (0.065)	-0.082 (0.054)
	Race: Other	0.008	-0.156 (0.175)	-0.017 (0.137)
	Hispanic Ethnicity	0.039	-0.010 (0.083)	-0.002 (0.076)
	Married	0.803	-0.037 (0.040)	0.016 (0.034)
	Significant other easy to relocate?	0.67	0.015 (0.035)	0.002 (0.028)
Job Activities:	Has 12-month contract	0.50	0.089*** (0.034)	0.097*** (0.028)
	Not on a tenure track	0.189	-0.046 (0.046)	-0.007 (0.036)
	Total number of published articles	28.15	0.004*** (0.002)	0.004*** (0.001)
	Total number of published articles squared	1684.59	-0.00001 (0.00001)	-0.000009 (0.00007)
	No. of undergraduate course taught annually	1.83	-0.021*** (0.007)	-0.024*** (0.006)
	No. of graduate course taught annually	2.90	-0.012 (0.008)	-0.021*** (0.006)
	Has administrative position[i]	0.469	0.076** (0.034)	0.063** (0.026)
	Received formal outside job offer in past 3 yrs	0.41	0.100*** (0.033)	0.048* (0.027)
Model:	Constant		11.469*** (0.179)	11.447*** (0.162)
	Observations		254	469
	R-squared		0.622	0.519

Note: MGT is management, HSR is health services research, MD is medical doctor, DO is doctor of osteopathy, DDS is doctor of dental surgery

[i]Including department chair, program director, center director, associate dean, dean, or vice president.

*P<.10

**P<.05

***P<.01

HA faculty members working in business schools earn a 17.5% premium, and female respondents earn 6.9% less, all else equal. Those on a 12-month contract earn 9.3% more on average, and those who received a formal job offer in the past three years earn 10.5% more. Faculty members with an administrative position (department chair, program director, or center director) earn a 7.9% premium. Total number of published articles in one's career is associated with higher earnings; relative to the mean of 28.15 articles, publishing an additional five articles during one's career is associated with earning 1.69% more.[i] Even controlling for number of publications, additional teaching is associated with lower earnings; specifically, each additional undergraduate course taught per year is associated with 2.1% lower earnings. To the extent that teaching crowds out the ability to successfully publish, the full consequences from additional teaching are even higher. The point estimate on number of graduate courses taught per year is also negative but the coefficient is not statistically significant.

It is also worth noting where significant differences do not exist. We find no significant difference in earnings by type of doctorate for those trained in management or health management, health services research, economics or health economics. In addition, there are no significant differences by race, ethnicity or marital status.

Column 2 of Table 4 reports results for the model estimated using the full sample, with missing values assigned the sample mean. Results are generally similar but with the following changes in the significance of indicators. In model 2, earnings are not significantly correlated with holding a law degree or 'other' doctorate. In addition to the lower salaries associated with teaching undergraduate courses, each additional graduate course taught per year is associated with 2.1% lower earnings (again, this is holding constant number of career articles; to the extent that teaching crowds out publishing the earnings penalty for teaching is even greater). All other significant results in model 1 retained their significance in model 2.

Discussion

Our 2009 descriptive estimates of HA faculty salary can be used by programs and faculty job candidates who are negotiating compensation packages. At least as importantly, they can be used by programs to judge the overall competitiveness of their compensation practices. Moreover, our data can be used by doctoral students interested in academic careers. Finally, our data can be compared to other published reports. Average salaries by rank are lower for HA faculty than for health economists or health services researchers. After adjusting for inflation, the 2009 salaries of health economists

originally reported by Cawley and Morrisey (2007) are $96,345 for assistant professors, $109,700 for associate professors and $170,380 for professors. Likewise, the 2009 salaries of health services researchers originally reported by Resneck and Luft (2004) are $94,545 for assistant professors, $119,678 for associate professors and $160,368 for professors.

One of the principal findings of our study is that an emphasis on teaching among HA faculty is negatively associated with salary in all academic units. This finding is true for unconditional means (e.g., Table 3) within each type of unit (public health, business, and health professions) and also true conditional on all measured characteristics in our log earnings regressions. Specifically, even after controlling for career publications and other measures of human capital, additional undergraduate teaching (model 1 and 2) and additional graduate teaching (model 2) were associated with lower earnings. Ironically, it appears that in departments that emphasize teaching, or for faculty who teach relatively more courses, teaching by itself is not rewarded well relative to research productivity. In these departments, it may be that teaching is a given and merit raises are awarded on the basis of research productivity. It is also possible that faculty who are unsuccessful in research and subsequent publishing are, over time, assigned heavier teaching loads.

We also find that those with an administrative role (most frequently, in our data, program director) generally receive a wage premium. The wage premium is consistent with the findings of Cawley and Morrisey (2007) that academic health economists in administrative roles earn 12.8% more. For HA faculty, an administrative wage premium may reflect that many program directors carry out critical program duties (e.g., student recruitment, stakeholder management) that are vital to the success of the department and administrative stipends are negotiated prior to assuming the program director role. Researchers outside of healthcare have concluded that having an administrative role in a traditional economics department was associated with a significant and permanent loss in publication productivity (Goodwin & Sauer, 1995). The salary premium may therefore be compensation for lost research productivity as well as direct payment for administrative responsibility. Another possible explanation is that high-performing (and therefore high-earning) faculty, as a reward for productivity, are awarded a directorships.

Faculty members who recently received a formal outside job offer enjoyed a higher salary. This correlation has at least three possible explanations: 1) formal job offers are typically extended to the most productive high-quality (and therefore, already highly-paid) faculty; 2) such offers allow a faculty

member to receive the going market rate at their rank by moving to another institution; and 3) such offers allow faculty to negotiate a higher salary at their current institution.

Our results also indicate that a gender disparity exists among HA faculty, even after controlling for job responsibilities and productivity. Over a decade ago, researchers discussed the existence of a glass ceiling for women in academic HA departments (Pohl, 1999). At that time, the HA faculty gender salary disparity was attributed to a "complex web of gender-specific constraints…and confounded by sexist discriminatory factors" (Stoskopf and Xirasagar, 1999). The observed gender disparities observed here is not unique among academic disciplines (Ash, Carr, Goldstein, & Friedman, 2004; Perna, 2001). However, the recent salary study of health economists did not find significant differences in earnings between male and female faculty members (Cawley & Morrisey, 2007). Given the importance of this topic, we believe that future research is needed to explore this and other gender differences in our profession.

Limitations

There are several limitations to this study. First, like all studies using survey methods, the reliability of our data is a function of the willingness and ability of respondents to provide accurate information. Earnings may be considered sensitive information and respondents may either refuse to report it (9.4% of our sample refused to report earnings) or deliberately misreport it. However, given the anonymous nature of our study, we are optimistic that those that provided their salary did so accurately. So despite achieving a relatively high response rate, we recognize the possibility for response bias—particularly if those that chose to participate differed systematically from those who did not. In addition, because of the anonymous nature of our survey, we were unable to control for clustering that occurs within academic departments of respondents. Thus, it is possible that the inability to do so has affected the estimates for parameters we present. Our dependent variable is total earnings from the academic employer in the past twelve months; for those on 9-month contracts, this amount is affected by the ability and willingness to successfully apply for external funding. As 9-month contracts are more common in certain units than others (e.g. more common in schools of business than schools of medicine) this complicates comparisons of earnings across units. Comparisons of average earnings across units are also complicated by any differences in the overall quality of the academic institutions in which these units are housed. Our study is also limited by the cross-sectional nature of the data. We acknowledge that

our data from a single point in time may reflect idiosyncratic factors and events at the time of the survey (e.g. the budgets of public universities). Future studies could examine the professional life-cycle of HA faculty and determine how salaries for a specific cohort change over time. The earnings and employment conditions of HA faculty are an important topic, and we encourage future surveys in this area.

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Endnotes

[i] Like all specifications with the variable and its square, the effect is calculated as the derivative of the two terms taken together. The derivative of $aX + bX^2$ is $a + 2bX$. So, the value of an increase of five publications in Model 1, evaluated at the mean number of publications is 5 times [0.004 + 2(-0.000011)28.15]. This value is then multiplied by 100 to yield the percentage change, 1.69.