

# SENIORITY, DISCIPLINE, AND FACULTY SALARIES: A CASE STUDY

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## **ABSTRACT**

*Since 1970s numerous studies on academic pay structures have provided evidence that there is an inverse relationship between seniority and faculty earnings. These studies used the data collected from the research-oriented major universities that emphasize research over teaching. The findings of these studies may not be applicable to teaching-oriented universities that put more emphasis on teaching. This paper attempted to re-examine the relationship between seniority and faculty pay, using the data collected from a teaching-oriented public university. Our study found that faculty pay was positively related to seniority, after controlling for rank and discipline. This positive relationship is statistically significant and opposite to the findings of the previous studies.*

## **INTRODUCTION AND PREVIOUS FINDINGS**

The basic microeconomic theory postulates that in a competitive labor market, the profit-maximizing firm will set the wage rate equal to the marginal revenue product of labor which in turn is determined by the marginal product of labor. Eventually, the productivity of labor determines the wage rates of workers.

Human capital theory suggests that workers with longer seniority with their current employer have higher earnings than other workers with the same total labor market experience. It is obvious that the longer a worker stays with the same company, through learning-by-doing process, the more the accumulated firm-specific knowledge and skills that a worker will acquire. In other words, productivity of workers rises with their seniority. Meanwhile, there are turnover and training costs, stability per se can raise an employee's value to the company.

The importance of seniority in increasing workers' earnings is well established in the literature of nonacademic workers. Several empirical studies of academic labor markets, however, find a negative relationship between seniority and academic salaries. In general, academic salary has been found to rise with experience and to be positively related to measures of productivity that is consistent with findings for nonacademic markets. Since 1970s, however, numerous studies on academic pay structures have provided evidence that there is an inverse relationship between seniority and faculty earnings. In these studies, seniority is defined as the number of years employed at one's current institution, while experience measures the number of years since receipt of highest degree (Ph.D. in most cases.)

There are abundant explanations for this anomalous seniority-earnings relationship. Ransom (1993) suggested that faculty members with greater seniority, on average, may have lower productivity, resulting in a negative return to seniority. Barbezat and Donihue (1998) found that the estimated effect of seniority on salary is negative among tenured/senior faculty, but positive for untenured/junior faculty. The authors suggest that the tenure system, a unique institutional feature of academia, is related to an employer's willingness to compensate seniority. Tenure system reduces faculty's mobility and increases monopsony

power of the employer. The result may be that additional years of service with the institution are no longer rewarded.

Human capital theory suggests that job change generally increase earnings. Workers learn about their comparative advantage in the labor market by sampling many jobs. Barbezat and Hughes (2001) hypothesize that job mobility is more likely to have a negative effect on salary in the pre-tenure period, when more of the moves may be involuntary, such as tenure denial, failure to be reappointed, or contract termination. Conversely, post-tenure moves might have a higher probability of being voluntary and therefore, may increase academic salary. Thus involuntary and voluntary moves have opposite effects on salary. In most cases, voluntary moves are the consequences of raiding, high quality faculty are bid away. Since quality faculty are frequently raided, seniority and salary are inversely related for younger faculty and positively related for older ones, who may have been raided earlier in their careers. Thus, Moore et. al. (1998) argued that the negative seniority-earnings relationships in the previous studies resulted from the failure of these studies to control for the quality of faculty research. They demonstrated that once research productivity is accounted for, faculty pay is no longer significantly related to seniority.

Another factor that affects the faculty pay structure is unionization. Previous studies indicated that seniority tends to be inversely related to faculty salary. For unionized faculty, however, seniority had a positive effect on compensation. Barbezat (1989) found that unionization increased the return to seniority and decreased the return to several measures of merit, including number of publications and general post-degree experience. The author also found that salary differentials across academic disciplines were smaller at unionized institutions.

With few exceptions, the previous studies mentioned above have reached the same conclusion that faculty pay was inversely related to seniority. Their explanations are associated with two characteristics: research productivity of faculty and monopsony power of the universities. Their samples are restricted to research-oriented major universities that emphasize research over teaching. The empirical results from these studies may not be comparable with those associated with teaching-oriented regional universities that put more emphasis on teaching. Institutions of higher education differ in such dimensions as research expectation, emphasis on teaching, service responsibility, collegiality, faculty support and amenity. Thus the models and data used in the previous studies and their findings may not fit all types of universities.

In general, the academic salary structure is not monolithic. It varies substantially from one institution to another and even from one department to another. Research activity may be more heavily rewarded in elite institutions, administrative activities in four-year colleges, and teaching skills in junior colleges. Furthermore, market situations of supply and demand for faculty among disciplines play a significant role in the determination of faculty salaries. The purpose of this paper is to reassess the relationship between the seniority and faculty pay, using the data collected from a teaching-oriented public university.

## **DATA AND ANALYTICAL MODEL**

The sample used in this study consists of 200 full-time instructional faculty at Alabama State University (ASU), a publicly supported, four-year university. Currently the university enrolls about 6,000 students. It is located in a midsized city with a population of 220,000. The university is comprised of seven colleges: Liberal Arts and Social Science, Business Administration (COBA), Education, Health Sciences, Science, Mathematics and Technology, Visual and Performing Arts, and University College. Except for a few areas in Education and Health Sciences that grant advanced degrees, including Ph.D. in three areas, the university offers mostly bachelor degrees. According to the classification system for institutional type, developed by the Carregie Foundation for the Advancement of Teaching, ASU is a comprehensive university I. The qualification for this type is that the university must offer graduate education through master degree and enrolls at least 2,500 full time students.

The data on salary and other characteristics of faculty were collected during the 2006-07 academic year. The university has not adopted any merit reward system. Every year, faculty members receive an across-the-board raise regardless of rank, race, sex, experience, productivity, or other factors. The raises are on a nine-month basis. However, for new faculty, the differences in starting salaries among

individuals are significant. Personal bargaining skill and market situation are the two major factors in the determination of a new faculty's salary. Other factors include previous teaching and nonteaching experiences, doctorate in teaching field, and rank.

Due to market conditions, a high demand for faculty in the areas of business administration and health sciences and a limited supply, the university offers higher salaries to attract faculty in these two areas. New faculty in these two areas who hold an earned doctorate degree in their teaching field will receive supplements in addition to their regular salaries. These supplements depend on rank and academic discipline. Thus, the academic labor market is highly segmented by discipline. Barbezat and Hughes (2001) found that faculty earned higher-than-average salaries in the fields of business, health and engineering. Hoffman (1976) reached the same conclusion.

In this paper, we focused our investigation on the relationship between faculty pay and seniority. Based on the above description of the institutional process of salary determination, the explanatory variables are confined to the following factors: number of years employed at ASU, rank, and discipline. Ordinary least squares regression was used to quantify the effects of the explanatory variables on salary. Specifically, the regression model was constructed as follows:

$$Y = b_0 + b_1x_1 + b_2x_{2i} + b_3x_{3i} + e$$

where

- $Y$  = natural logarithm of 2006-07 academic year salary
- $x_1$  = number of years employed at ASU (seniority)
- $x_{2i}$  = ranks ( $i = 1, 2, 3$ , representing three faculty ranks; instructor serves as reference group)
- $x_{3i}$  = disciplines ( $i = 1, 2, 3, 4, 5, 6$ , representing six different disciplines or colleges; COBA serves as reference group)
- $e$  = disturbance term.

The regression results are presented in Table 1.

### III. Analysis of Empirical Findings

Table 1 indicates that most variables, except for the discipline in health sciences, are significant at the one percent level. Particularly, this study found that seniority has a highly significant impact on faculty pay, which is opposite to those found in the previous studies by various authors as cited in the previous sections. Although years of service at the university are rewarded, the returns are not spectacular. Due to salary compression, the reward to each additional year's service at the university is small, only 0.4% or \$259. Salary compression is defined as the shrinking difference of pay being given to new comers as opposed to the amount paid to the experienced regulars. Kassem (1971) reported that the problem is shared by virtually all organizations, businesses, and professions. The obsolete pay structure, not regularly reviewed and revised, is the root cause of salary compression.

Another reason for the scanty return to an additional year of seniority is that the university implemented a salary augmentation plan in 2006, which made a significant salary adjustment for those faculty whose salaries have been below the minimum level, arbitrarily set by the university, for their respective rank. Since the adjustment was based solely on rank, salary differentials within the rank were substantially reduced, which in turn reduced the marginal effect of an additional year of seniority. The 2006 salary augmentation plan reinforces the effect of salary compression.

College was included in this model to account for possible difference in market supply and demand for the various disciplines. The reference group for discipline is the College of Business Administration (COBA). The faculty in the COBA were the best paid after accounting for the other variables in the model. The negative coefficients on the discipline variables are to be expected. On the average, they earned 15% more than the faculty members in other colleges. The COBA faculty were offered higher

salaries at the time of hire. The faculty in COBA received two exclusive supplements for critical teaching areas. Market adjustment factor (MAF) was designed to retain the existing faculty and reduce the turnover rate. There has been a high demand for business faculty, particularly in the areas of accounting and marketing, and it is therefore quite easy for these faculty members to leave the university for high salaries. Furthermore, business faculty tend to have higher opportunity costs since they are also in demand in nonacademic sectors. The amount of MAF depends on discipline and rank. The supplements for critical teaching areas were designed to attract new faculty members to COBA. The supplements depend on market conditions and the bargaining skills of the individuals.

The reference group for academic rank is instructor. As expected, positive coefficients on rank are positive. Full professors are the highest paid faculty, their salaries are approximately 54% higher than instructors' salaries, associate professors earn 30% higher, and assistant professors earn 15% higher.

Table 2 presents the descriptive statistics in dollar amounts for all variables included in salary equation. As expected, the average salary for COBA's faculty is \$72,288, the highest among seven colleges, and the full professors are the highest paid faculty. Their average salary is \$82,540. Except for the rank of assistant professor, the average salaries for COBA's faculty are the highest in each rank among seven colleges.

ASU is a teaching-oriented institution; faculty members do not have "publish or perish" pressure. Faculty devote their time and effort to advise and counsel students. In general, each faculty member carries a heavy teaching load of 12 credit hours: four courses, three preparations. In addition, each faculty member is assigned to advise about 30 students. Most faculty members serve on various university-wide or collegiate committees. After undertaking these tasks, not surprisingly, faculty have little time/energy for research.

It is the conventional wisdom that different types of institutions set different performance standards, and offer different rewards for teaching and research depending on the dominant institutional task. The faculty salary structure at ASU defies this conventional wisdom. Though publication and research are encouraged, the salary structure of this university does not include these variables. Furthermore, the university stresses quality of teaching, but does not reward faculty members for their teaching ability. Publication and teaching ability will affect salary indirectly, primarily by enabling faculty to be promoted to a higher rank. Publication and teaching are also two key factors in tenure consideration.

## CONCLUDING REMARKS

Though ASU is not unionized, its pay structure works much as the unionization would provide. Barbezat (1989) asserted that unionization increased the return to seniority and decreased the return to merits. Across-the-board-raise pay scheme tends to substitute seniority for merit in academic salary and promotion. Faculty annual performance evaluation becomes a routine business with no consequence; particularly does not affect faculty salaries. Though publication is required for promotion and tenure, the evaluation committees would accept any publications submitted by the faculty candidates without consideration of quality. To meet promotion and tenure requirements, some faculty members published their papers in the journals that will publish any paper submitted as long as the submission and publication fees are paid.

Our study is confined to a single university; it is believed however, that our findings might not be unique. Based on personal observations, most public, regional or comprehensive four-year universities and colleges adopt across-the-board-raise pay structure which would result in the same results as those found in this study.

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TABLE 1– DETERMINANTS OF FACULTY SALARIES

Variables	Coefficients	Standard Error	t-values
Intercept	10.8019	0.033413	323.29*
Seniority	0.0042	0.000882	4.72*
Ranks			
Full Professor	0.5440	0.029493	18.45*
Associate Professor	0.3017	0.024749	12.19*
Assistant Professor	0.1572	0.026536	5.92*
Disciplines			
Liberal Arts & Social Sciences	-0.1476	0.033784	-4.37
Education	-0.1196	0.033316	-3.59*
Health Sciences	-0.0660	0.044035	-1.50
Science, Mathematics & Technology	-0.1928	0.037075	-5.20*
Visual & Performing Arts	-0.1490	0.039066	-3.59*
University College	-0.1900	0.032843	-5.79*

Adjusted R<sup>2</sup> = 0.7691    F\* = 166.75    n = 200

Note: \* significant at .01% level

TABLE 2 – AVERAGE SALARIES BY RANKS AND DISCIPLINES

Colleges	Full Professor		Associate Prof.		Assistant Prof.		Instructor		Total	
	Count	Average	Count	Average	Count	Average	Count	Average	Count	Average
Business Administration	6	88,016	6	74,360	3	60,381	3	48,594	18	72,288
Liberal Arts & Social Sciences	13	80,162	11	62,703	4	50,048	8	44,636	36	63,587
Education	11	87,392	16	62,027	13	53,413	2	50,724	42	65,466
Health Sciences	1	86,291	3	66,715	6	60,924	2	41,515	12	61,251
Science, Math & Technology	9	77,635	7	60,477	2	41,033	4	43,535	22	62,648
Visual & Performing Arts	3	82,023	4	65,385	12	52,023	1	50,522	20	59,120
University College	5	79,866	14	57,465	10	52,242	21	42,454	50	52,356
Total Count / Average	48	82,540	61	62,588	50	53,400	41	43,989	200	61,267