

The Returns to Seniority in Academic Labor Markets

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Although earnings and seniority are believed positively related in most labor markets, the earnings of academics were thought to be an exception to this rule. Using the National Survey of Postsecondary Faculty, from 1993, we find that earnings and seniority are positively related once adequate controls for past labor market mobility are included among the regressors. In particular, we find that individuals who are currently tenured at their initial job have the steepest seniority profile of any group we examined. We also find a handsome premium paid to individuals who are hired-with-tenure. These results suggest a market characterized by competitive "raiding" of top faculty.

I. Introduction

Earnings increase with seniority in most labor markets, and the most cited theoretical explanation for this observed relationship is that an individual acquires human capital, both general and firm-specific, while on the job and thus becomes more productive and valuable to the employer. The human capital model of rising earnings with seniority is the product of the seminal works of Becker (1964) and Mincer (1974). Alternative theoretical underpinnings include heterogeneous job matching (Jovanovic, 1978) and agency models (Lazear, 1979).

Despite the prevalence of rising earnings with seniority in most labor markets, the earnings of faculty have been thought to be an exception. A number of studies, using both institution-level and national data sets, have found a negative relationship between seniority and earnings for college and university faculty (Gordon et al., 1974; Hoffman, 1976; Ransom, 1993; Brown and Woodbury, 1995). Following the formal monopsony model developed by Black and Loewenstein (1991), Ransom (1993) postulates that negative returns to seniority are the product of a monopsony market where employers use high moving costs as a wedge between market wages and the wages they must pay to retain more senior faculty. He tests this theory by proxying for direct and emotional costs of moving using various individual and familial characteristics, but the results of these tests are inconclusive.

In a related study, Hallock (1995) finds positive returns to seniority using 1989 data from the University of Massachusetts at Amherst. In addition, he points out that the use of a linear seniority term, rather than a quadratic, in Ransom's (1993) paper and a similar study by Hoffman (1976) may be driving their results. Hallock also finds that those hired-with-tenure receive higher salaries than those who earn tenure from within the university. He is cautious in applying his results beyond his sample, because the University of Massachusetts at Amherst is so highly unionized. Using institution-specific data from Michigan State University, Brown and Woodbury (1995) also find evidence of a declining seniority wage profile. In addition, they find significant entry-market effects on seniority wage profiles.

A recent study by Moore et al (1998) finds that the inclusion of publication quality in an earnings regression for tenured research economists at nine public universities eliminates the significant negative returns to seniority. They conclude that previous studies which found negative returns to seniority suffer from omitted variable bias by not adequately incorporating measures of faculty quality. Barbezat and Donihue (1998), using a national data set from 1988, also discover increasing wages with seniority in the aggregate academic labor market but declining wages for tenured faculty.

The conflicting results across broader data sets and institution-level results leaves open the question of the relationship between earnings and seniority among academic faculty. In particular, the relationship between seniority and earnings across fields and institutions incorporating a broad set of controls is still unknown. We fill this void by using a more recent detailed national data set of faculty across disciplines and institutional type and by decomposing the declining seniority wage profiles found in this study and the study by Barbezat and Donihue among tenured faculty. In particular, we compare the relationship of wages with seniority for those hired-with-tenure versus those who earned tenure at their current institution and those tenured faculty who have remained with the same institution throughout their careers.

II. *Data and Results*

Our data are from the 1993 National Survey of Postsecondary Faculty (NSOPF), a national, cross-sectional survey of faculty at two- and four-year, public and private, U.S. nonproprietary higher education institutions sponsored by the National Center for Education Statistics (NCES). The 1993 NSOPF surveyed 25,780 faculty and administrators from 817 higher education institutions and provides a cross-section of faculty from a broad array of colleges and universities. Our sample of faculty excludes individuals who are not full-time, regular faculty (9,847); it also excludes faculty members whose primary activity is not teaching (4,654) and observations that had non-reported basic salary, or basic salary less than \$10,000 or greater than \$300,000 (1,076); also excluded are individuals over the age of 65 or who reported seniority or experience of more than 45 years (352); and finally all individuals who had missing values for any of the other controls used in the regression analyses (1,632). Our final sample contains 8,219 faculty at 804 institutions

The NSOPF over-samples full-time females, minorities, and faculty in the humanities. To account for this over-sampling, faculty sample weights are used in all tables and regressions. Table 1 presents weighted summary measures of selected variables.

We first test for how seniority affects earnings by estimating three models of the log of basic salary, using weighted least squares (Table 2). Specification (1) is a regression of the log of basic salary on dummy variables for experience (years since highest degree), seniority (years at current institution), male, African-American, and Hispanic. Included among the regressors, but not shown, are dummy variables for primary field of teaching, public control of the institution, highest degree received (Ph D. or professional degree), length of contract in months, and region. Even in this simple regression there does not appear to be negative returns to seniority. Both experience and seniority exhibit positive returns. For example, individuals with 21 or more years of experience earn over 28 percent more than their counterparts with 2 or fewer years of experience (the omitted experience category), while individuals with 21 or more years of seniority earn approximately 21 percent more than their newly hired colleagues.¹ There is no evidence that junior faculty are paid on average more than their senior colleagues.

Specification (2) includes dummy variables for the institution's Carnegie classification. Specification (3) adds the individual's career productivity in each of the following categories: refereed journal articles, nonrefereed journal articles, book reviews, book chapters, books, manuscripts and technical reports, presentations, and software and other patented products. Inclusion of these control variables does not alter the result that there are positive and significant returns to seniority.²

Note that males consistently earn significantly more than their female counterparts, and African-Americans also earn significantly more than whites.

Following the approach of Barbezat and Donihue (1998) and Moore et al. (1998), and because the returns to seniority, experience, mobility, and tenure are all closely linked, we further limit our analysis to the returns to seniority among tenured faculty only. If there are moving costs which buffer internal wages from market increases in earnings, they would be largest among those with tenure who presumably have established more permanent ties to the community. In fact, using the 1988 NSOPF, Barbezat and Donihue (1998) find negative returns to seniority among tenured faculty (and associate and full professors, most of whom are tenured). Table 3 presents regression results for tenured faculty. Specification (1) of Table 3 includes the full complement of regressors from Table 2. We now find flatter returns to seniority. Individuals with 3 to 5 years of seniority earn approximately 4 percent more than faculty with 2 or fewer years of seniority, while faculty with 6 to 10 years of seniority earn 3 percent less, although this result is not significant. Individuals with 21 or more years of seniority earn only 5 percent more than those just starting.

Following Hallock's (1995) model, in specification (2) a dummy variable equal to one if the individual was hired-with-tenure shows that individuals who are hired-with-tenure receive almost 13 percent more than their colleagues who are granted tenure from within the institution and that the returns to seniority are now all positive and sig-

Table 1
Summary Measures of Selected Variables

Variable	Mean	Std Deviation	Minimum	Maximum
<i>Basic Salary</i>	\$43,442	\$16,425	\$10,167	\$260,000
<i>Experience</i>	15.77	9.27	1.00	45.00
<i>Seniority</i>	11.74	8.94	1.00	38.00
<i>Male</i>	0.66	0.47	0.00	1.00
<i>African-American</i>	0.05	0.22	0.00	1.00
<i>Hispanic</i>	0.03	0.16	0.00	1.00
<i>I Carnegie Classification</i>				
<i>Research I</i>	0.13	0.33	0.00	1.00
<i>Research II</i>	0.05	0.23	0.00	1.00
<i>Doctoral I</i>	0.07	0.25	0.00	1.00
<i>Doctoral II</i>	0.05	0.21	0.00	1.00
<i>Comprehensive I</i>	0.26	0.44	0.00	1.00
<i>Comprehensive II</i>	0.04	0.19	0.00	1.00
<i>Liberal Arts I</i>	0.04	0.20	0.00	1.00
<i>Liberal Arts II</i>	0.05	0.22	0.00	1.00
<i>Specialized Institutions</i>	0.05	0.22	0.00	1.00
<i>Two Year Colleges</i>	0.26	0.44	0.00	1.00
<i>Public Institution</i>	0.72	0.45	0.00	1.00
<i>Tenured</i>	0.57	0.50	0.00	1.00
<i>Hired-with-tenure</i>	0.08	0.28	0.00	1.00
<i>II Primary Field of Teaching</i>				
<i>Fine Arts</i>	0.09	0.28	0.00	1.00
<i>Business</i>	0.10	0.30	0.00	1.00
<i>Computer Science</i>	0.03	0.16	0.00	1.00
<i>Education</i>	0.07	0.26	0.00	1.00
<i>Engineering</i>	0.05	0.21	0.00	1.00
<i>Modern Languages</i>	0.11	0.32	0.00	1.00
<i>Health</i>	0.10	0.31	0.00	1.00
<i>Natural Sciences</i>	0.10	0.30	0.00	1.00
<i>Social Sciences</i>	0.13	0.34	0.00	1.00
<i>Mathematics</i>	0.06	0.24	0.00	1.00
<i>Other Fields</i>	0.16	0.37	0.00	1.00
<i>III Number of Career Publications by Type</i>				
<i>Refereed Journal Articles</i>	7.33	19.59	0.00	300.00
<i>Non-refereed Journal Articles</i>	6.73	27.19	0.00	600.00
<i>Book Reviews</i>	3.02	13.61	0.00	227.00
<i>Book Chapters</i>	1.08	3.38	0.00	40.00
<i>Books</i>	0.61	1.86	0.00	32.00
<i>Manuscripts and Reports</i>	4.88	21.67	0.00	502.00
<i>Presentations</i>	29.88	113.67	0.00	2,200.00
<i>Software and Products</i>	0.57	3.50	0.00	117.00
Number of Observations	8,219			

Table 2
Returns to Seniority for Academic Faculty
 (Dependent Variable = Log of Basic Salary)

	(1)	(2)	(3)
Intercept	9.793 ^{***} (0.027)	9.904 ^{***} (0.029)	9.904 ^{***} (0.029)
3-5 Years of Experience	0.048 ^{**†} (0.015)	0.035 [†] (0.014)	0.041 ^{**†} (0.014)
6-10 Years of Experience	0.094 ^{***} (0.014)	0.087 ^{***} (0.013)	0.087 ^{**} (0.013)
11-15 Years of Experience	0.147 ^{**†} (0.014)	0.135 [†] (0.014)	0.131 ^{**†} (0.014)
16-20 Years of Experience	0.215 ^{†††} (0.015)	0.207 ^{††} (0.014)	0.203 ^{††} (0.014)
21 or More Years of Experience	0.283 ^{†††} (0.014)	0.260 ^{†††} (0.014)	0.243 ^{†**} (0.014)
3-5 Years of Seniority	0.061 ^{†††} (0.009)	0.063 ^{†††} (0.009)	0.064 ^{†††} (0.009)
6-10 Years of Seniority	0.083 ^{†††} (0.010)	0.092 ^{††} (0.010)	0.086 ^{†**} (0.010)
11-15 Years of Seniority	0.134 ^{††} (0.011)	0.141 ^{††} (0.010)	0.135 ^{†††} (0.010)
16-20 Years of Seniority	0.158 ^{**} (0.012)	0.162 [*] (0.012)	0.159 ^{**†} (0.011)
21 or More Years of Seniority	0.212 ^{†††} (0.011)	0.221 ^{††} (0.011)	0.216 ^{††} (0.011)
Male	0.084 ^{††} (0.006)	0.080 ^{††} (0.006)	0.073 ^{**††} (0.006)
African-American	0.021 (0.013)	0.030 ^{††} (0.012)	0.034 ^{**††} (0.012)
Hispanic	0.000 (0.017)	0.006 (0.017)	0.001 (0.016)
Primary Field of Teaching	Yes	Yes	Yes
Carnegie Classification	No	Yes	Yes
Career Publication Productivity	No	No	Yes
Adjusted R-squared	0.50	0.53	0.55
Number of Observations	8,219	8,219	8,219

Notes: Standard errors in parentheses. † (††, †††) indicates significantly different from zero at the 1% (5%, 10%) level. Included among the regressors, but not shown, are dummy variables for control of institution, highest degree received, region, and length of contract in months.

Table 3
Returns to Seniority for Tenured Academic Faculty
 (Dependent Variable: Log of Basic Salary)

	(1)	(2)
Intercept	10.273*** (0.040)	10.175*** (0.040)
<i>11-15 Years of Experience</i>	0.063*** (0.012)	0.054*** (0.011)
<i>16-20 Years of Experience</i>	0.121*** (0.012)	0.103*** (0.012)
<i>21 or More Years of Experience</i>	0.166*** (0.011)	0.133*** (0.011)
<i>3-5 Years of Seniority</i>	0.038* (0.021)	0.100*** (0.022)
<i>6-10 Years of Seniority</i>	-0.031 (0.020)	0.066** (0.021)
<i>11-15 Years of Seniority</i>	-0.007 (0.020)	0.102** (0.021)
<i>16-20 Years of Seniority</i>	0.009 (0.020)	0.130*** (0.022)
<i>21 or More Years of Seniority</i>	0.049** (0.020)	0.181*** (0.022)
<i>Male</i>	0.062*** (0.008)	0.060*** (0.008)
<i>African-American</i>	0.020 (0.016)	0.019 (0.016)
<i>Hispanic</i>	-0.004 (0.021)	-0.007 (0.021)
<i>Hired-with-tenure</i>		0.128*** (0.011)
<i>Primary Field of Teaching</i>	Yes	Yes
<i>Carnegie Classification</i>	Yes	Yes
<i>Career Research Productivity</i>	Yes	Yes
adjusted R-squared	0.49	0.50
Number of Observations	4,492	4,492

Notes: Standard errors in parentheses. *** (**, *) indicates significantly different from zero at the 1% (5%, 10%) level. Included among the regressors, but not shown, are dummy variables for primary field of teaching, control of institution, Carnegie classification, career publication productivity, highest degree received, region, and length of contract in months.

nificantly different from zero.³ If being hired-with-tenure is a proxy for quality, this result is consistent with Moore et al.'s (1998) conclusion that the negative returns to seniority found in earlier studies is the product of omitted quality measures. The relatively flat returns to seniority among tenured faculty may be the product of higher earnings for those hired-with-tenure. Because this group has lower levels of seniority and higher earnings on average than those who earned their tenures from within the university, the returns to seniority appear less steep. Once the two groups are separately identified, the returns to seniority become positive and significant. The negative returns to seniority among tenured faculty found by Barbezat and Donihue (1998) is likely attributed to an omitted mobility variable.

The relationship between earnings and worker characteristics likely differs between employees hired-with-tenure and those who earn tenure at their current institution. We suspect that the monopsony effects would be most prominent for workers who have not been willing or able to change jobs. To test this we first separate our sample into two groups: those hired-with-tenure and those who earned-tenure-within-the-institution. Individuals clearly self select into these groups. We correct for this self-selection using the familiar Heckman (1979) correction. The probit selection model is identified by including among the regressors a quadratic in both experience prior to one's current job and seniority in one's most recent previous job, marital status, and number of dependents. The selection corrected estimates of the separate hired-with-tenure and earned-tenure-within-the-institution earnings equations are presented in Table 4. The coefficient on the inverse Mills ratio indicates that for both hired-with-tenure and earned-tenure-within-the-institution there is significant self-selection.

We find positive and significant returns to seniority across both groups. Among those hired-with-tenure, faculty with 3 to 15 years of seniority earn approximately 8 to 10 percent more than new hires with tenure, faculty with 16 or more years of seniority earn over 14 percent more than those with 2 or fewer years of seniority. Among the faculty who have exhibited a willingness and ability to change employers there are positive returns to seniority.

Virtually all individuals who earn tenure within their institution have at least 7 years of seniority, as expected, therefore the omitted seniority variable in this specification captures those with 10 or fewer years of seniority. Even among individuals who have earned tenure within their current institution there are positive and significant returns to seniority. Those with 11 to 15 years of seniority earn almost 6 percent more, those with 16 to 20 years of seniority earn over 10 percent more, and those with 21 or more years of seniority earn over 17 percent more than their counterparts with 10 or fewer years of seniority.

There may be two heterogeneous groups among those who earned tenure from their current institution: those who moved prior to receiving tenure, perhaps because they were denied tenure elsewhere, and those who are still in their initial job. In this case the increasing returns to seniority may be the product of heterogeneous faculty quality. The third column of Table 4 limits the analysis to tenured faculty in their initial job

Table 4

Returns to Seniority for Tenured Academic Faculty by Whether Hired-with-tenure, Earned Tenure at Current Institution, or Currently Tenured at Initial Job

(Dependent Variable: Log of Basic Salary)

	Hire Tenure	Earn Tenure	Initial Job
Intercept	10.327*** (0.119)	10.266*** (0.037)	10.393*** (0.205)
<i>11-15 Years of Experience</i>	-0.029 (0.044)	0.040*** (0.012)	
<i>16-20 Years of Experience</i>	0.082* (0.050)	0.062*** (0.014)	
<i>21 or More Years of Experience</i>	0.115* (0.059)	0.067*** (0.016)	
<i>3-5 Years of Seniority</i>	0.101*** (0.029)		
<i>6-10 Years of Seniority</i>	0.084*** (0.031)		
<i>11-15 Years of Seniority</i>	0.090*** (0.039)	0.058*** (0.011)	0.074*** (0.016)
<i>16-20 Years of Seniority</i>	0.141*** (0.051)	0.104*** (0.013)	0.154*** (0.016)
<i>21 or More Years of Seniority</i>	0.145*** (0.058)	0.174*** (0.015)	0.243*** (0.015)
<i>Male</i>	0.092*** (0.027)	0.056*** (0.008)	0.081*** (0.023)
<i>African-American</i>	-0.024 (0.043)	0.020 (0.017)	0.010 (0.023)
<i>Hispanic</i>	-0.034 (0.057)	0.006 (0.022)	0.067 (0.041)
<i>Inverse Mills Ratio</i>	-0.097*** (0.034)	0.064*** (0.022)	-0.149*** (0.194)
<i>Primary Field of Teaching</i>	Yes	Yes	Yes
<i>Carnegie Classification</i>	Yes	Yes	Yes
<i>Career Research Productivity</i>	Yes	Yes	Yes
adjusted R-squared	0.59	0.48	0.53
Number of Observations	569	3,923	1,803

Notes: See notes to Table 3.

We again correct for self-selection. In this case, the dependent variable is remaining in one's initial job. For these individuals, their seniority exactly equals their experience (there are a few exceptions where individuals were hired prior to completing their degree). Even among the faculty who have never moved and are now tenured, we find positive and significant returns to seniority. This group has the steepest profile of all groups examined in this study. Faculty with 21 or more years of seniority in their initial job earn over 24 percent more than faculty with 10 or fewer years of seniority.

As a final test of the robustness of our results, we disaggregate by gender, primary field of teaching, and Carnegie Classification for our sample of individuals who earned tenure at their current institution. These individuals clearly have rising returns to seniority (as do individuals who earned tenure at their initial job, but small sample size among this group limits further disaggregation). Table 5 illustrates that our findings of rising returns to seniority among this group of faculty are consistent across gender and primary field of teaching. Both males and females across disciplines exhibit increasing returns to seniority. Even across Carnegie Classification we generally find rising returns to seniority (although at Doctoral Universities there is some evidence of declining or flat returns to seniority). The estimates in Table 5 suggest that our results are robust across individuals and institutions among faculty who earned their tenure at their current institution.

These results contradict the monopsony theory outlined by both Ransom (1993) and Black and Loewenstein (1991). According to the monopsony argument, individuals who have been at the institution the longest and who have shown a reluctance or inability to take an outside offer in the past should have flatter wage profiles. The monopsony story makes the argument that the institution exploits an individual's reluctance to move. This reluctance is the product of "moving costs," either from direct out of pocket expenses, opportunity costs of foregone spousal income, or emotional costs associated with relocating one's family. If this were true we should observe negative returns to seniority among individuals still in their initial jobs. In fact, the best description of our findings is that there are positive returns to seniority in the academic labor market for all individuals and a premium paid to those individuals who are "raided" by competing institutions.

It is well known that raiding behavior is most pronounced at research universities. Many top programs routinely lure star academicians from other departments with lucrative salaries. Using our estimates from the first two columns of Table 4, we are able to calculate the premium paid to individuals hired-with-tenure relative to those granted tenure from within the institution. By applying the difference in the coefficients for those hired-with-tenure from those who earned tenure at their current institution to the average characteristics of faculty, by Carnegie classification, we are able to construct a hired-with-tenure premium. Table 6 shows our estimates of these raiding premiums and the percentage of tenured faculty hired-with-tenure, by the Carnegie classification of the institution. The premium is 28 percent at Research I Universities, 31 percent at Research II Universities, 28 percent at Doctoral I Universities, and between 18 and 24 percent at smaller universities and colleges. As expected, the premiums received at

Table 5
Returns to Seniority for Faculty Who Earned Tenure at Their Current Institution by Individual and Institutional Characteristics
 (Dependent variable Log of Basic Salary)

	Gender			Primary Field of Teaching					Carnegie Classification of the Institution				
	Males	Females	Social Sciences	Humanities	Natural Sci	Math & Other Fields	Research	Doctoral	Comp	Liberal Arts	Two-Year	Specialized	
<i>11-15 Years of Experience</i>	0.049 ^{***} (0.017)	0.040 ^{**} (0.016)	0.041 (0.028)	0.014 (0.025)	0.096 ^{***} (0.031)	0.035* (0.019)	0.006 (0.059)	0.071 [†] (0.036)	0.068 ^{**} (0.020)	0.025 (0.038)	0.044 ^{***} (0.017)	0.013 (0.107)	
<i>16-20 Years of Experience</i>	0.064 ^{***} (0.019)	0.075 ^{**} (0.032)	0.080 [†] (0.032)	0.044 [†] (0.026)	0.126 ^{**} (0.032)	0.058 [†] (0.022)	0.020 (0.065)	0.156 ^{***} (0.040)	0.113 ^{**} (0.022)	0.058 (0.042)	0.034 [†] (0.018)	0.177 (0.136)	
<i>21+ Years of Experience</i>	0.072 ^{***} (0.021)	0.085 ^{***} (0.023)	0.100 ^{**} (0.035)	0.078 ^{**} (0.030)	0.113 ^{**} (0.034)	0.049* (0.026)	0.031 (0.073)	0.178 (0.045)	0.131 ^{***} (0.026)	0.098 [†] (0.044)	0.054 ^{**} (0.020)	0.084 (0.122)	
<i>11-15 Years of Seniority</i>	0.061 ^{***} (0.015)	0.044 ^{***} (0.016)	0.085 ^{***} (0.028)	0.048 [†] (0.023)	0.068 ^{**} (0.023)	0.044 [†] (0.017)	0.057 (0.051)	-0.056 [*] (0.029)	0.027 (0.018)	0.045 (0.034)	0.089 ^{**} (0.015)	0.099 (0.087)	
<i>16-20 Years of Seniority</i>	0.104 ^{**} (0.018)	0.091 ^{***} (0.019)	0.087 [†] (0.033)	0.115 ^{**} (0.025)	0.110 ^{**} (0.028)	0.082 ^{***} (0.022)	0.139 ^{**} (0.058)	-0.029 (0.035)	0.053 ^{**} (0.022)	0.108 ^{**} (0.043)	0.141 ^{**} (0.018)	0.092 (0.094)	
<i>21+ Years of Seniority</i>	0.168 ^{**} (0.020)	0.178 [†] (0.021)	0.158 [†] (0.033)	0.186 ^{***} (0.027)	0.195 [†] (0.028)	0.144 [†] (0.026)	0.156 [†] (0.065)	0.027 (0.039)	0.121 ^{**} (0.024)	0.162 [†] (0.042)	0.232 ^{**} (0.019)	0.130 (0.106)	
Number of Observations	2,618	1,305	582	886	686	1,769	379	494	1,364	332	1,253	101	

Notes: See notes to Table 3

Table 6
*The Incidence and Returns to Moving with Tenure
 by Carnegie Classification*

Carnegie Classification	% Hired-with-tenure	% Increase In Earnings for Moving
Research I	25	28
Research II	18	31
Doctoral I	17	28
Doctoral II	15	18
Comprehensive I	11	19
Comprehensive II	11	22
Liberal Arts I	10	22
Liberal Arts II	16	24
Two Year College	10	22
Specialized Institution	18	24

research and top doctoral universities are larger than the premiums found at other institutions and a greater percentage of the faculty at top research institutions are hired-with-tenure. These results suggest fierce competition and bidding for top faculty and substantial earnings gains for moving with tenure, particularly among research and doctoral universities.

III Conclusion

We find overwhelming evidence that earnings rise with seniority among academic faculty, once adequate measures of past mobility are properly controlled for. These results can best be explained by Lazear's (1986) raiding hypothesis. Earlier studies which concluded that earnings are negatively related to seniority may be biased by the omission of information on whether the faculty member was raided or other measures of quality. While it appears that senior faculty earn more on average than their junior colleagues, senior faculty members who are hired-with-tenure earn significantly more than those who earn their tenure within the institution. Although earnings do increase substantially with seniority among tenured faculty within an institution, the largest earnings increases are the product of moving with tenure between institutions. These results suggest that academic labor markets are characterized by fierce competition between raiding employers as outlined by Lazear (1986).

NOTES

¹We use dummy variables for both experience and seniority in order to make our results comparable to most earlier studies, and because earlier studies such as Hallock (1995) reveal the sensitivity of the results to functional form

²Complete regression results are available on request

³We define anyone who reports having earned tenure prior to or at the time of their start date at this institution as having been hired-with-tenure

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DATA APPENDIX

<i>Basic Salary</i>	The individual's gross basic salary before taxes from his/her current institution, for the 1992 calendar year
<i>Experience</i>	Number of years since the individual received their highest degree (1993 minus year received highest degree)
<i>Seniority</i>	Number of years the individual has been at their current institution (1993 minus year began at current institution)
<i>Race/Ethnicity</i>	Dummy variables indicating whether the individual reporting being Black/Non-Hispanic or Hispanic (versus American Indian/Alaskan Native, Asian/Pacific Islands, or White/Non-Hispanic)
<i>Primary Field of Teaching</i>	Principal field or discipline of teaching
<i>Carnegie Classification</i>	1987 Carnegie Classification of the institution (Research I or II, Doctoral I or II, Liberal Arts I or II, Comprehensive I or II, Two-Year, or Specialized)
<i>Career Research Productivity</i>	The number of accepted publications in refereed journals, non-refereed journals, book reviews, book chapters, books, manuscripts and technical reports, presentations, and software or other patented products, over the individual's entire career
<i>Control of the Institution</i>	A dummy variable indicating whether the institution is public or private
<i>Highest Degree Received</i>	Dummy variables indicating whether the individual held a professional degree (M.D., D.D.S., L.L.B., etc.) or a doctoral degree (Ph.D., Ed.D., etc.)
<i>Region</i>	Dummy variables indicating residence in one of 8 regions (New England, Mid-East, Great Lakes, Plains, Southeast, Southwest, Rocky Mountain, or Far-West).
<i>Length of Contract in Months</i>	Dummy variable indicating length of contract in months (9/10 months or 11/12 months)
<i>Hired-with-tenure</i>	A dummy variable indicating that the individual achieved tenure prior to or at the time of their start date at his or her current institution
<i>Earned-Tenure-at-Current-Institution</i>	A dummy variable indicating that the individual achieved tenure after his or her start date at his or her current institution
<i>Currently-Tenured-at-Initial-Job</i>	A dummy variable indicating that the individual has been at his current institution prior to or since the time he or she received his or her highest degree (i.e. then seniority is greater than or equal to their experience)