

Administrative Compensation in Private Nonprofits: The Case of Liberal Arts Colleges

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In for-profit institutions executive compensation often is theorized to reflect the profit maximizing objectives of the institution. The executive is an agent of the principal. In nonprofits the objective of the principal is much more difficult to define or quantify. This paper examines the link between compensation and nonprofit institutions. The test case is private liberal arts colleges. The findings are that college presidents' compensation depends positively on the academic reputation of the institution, faculty salaries, and the net price of the product, and negatively on the alumni giving rate. Financial success is not as important as academic prowess in determining payment and academic prowess is multi-dimensional. Neither hierarchy nor credentialing seems important. Applying the model to other administrators proves problematic because of the way the data are reported. Numerous estimation techniques are applied to the censored sample. For academic deans the most important determinant of payment is faculty salary. Development officers' compensation depends on faculty salaries, net price, and enrollment and depends weakly on the institution's reputation. Overall, the model proves least effective in explaining the payments for finance officers; the same determinants that proved effective in determining the president's compensation determine those of finance officers.

Introduction

The earliest theories of labor developed by Hicks (1966) and Marshall (1923) emphasized the derived nature of factor demand. Product price and marginal productivity work to affect labor demand. There is a clear connection between the demand for the product and the demand for the factor.

In the private for-profit sector there have been several studies attempting to link the compensation of executives to the performance of the firm. Modern theories of executive compensation arise in the context of complex work environments where

* Special thanks are due to George M. Perkins with whom I have worked on the subject of private nonprofits and two anonymous referees for some very useful suggestions.

the owners (principals) and executives (agents) have incomplete information and must arrive at contractual terms of employment.¹ The Holmstrom and Milgrom (1994) model summarizes the issues involved. The principal monitors the agent (executive) using measures of performance. In the case of college administrators, such measures might be total endowment revenue, endowment earnings, the reputation of the institution, etc. The performance of these measures is assumed to be a function of the effort expended by the agent. The optimal incentive scheme or compensation package yields benefits to the principal, while the effort expended by the agent has associated costs. Some forms of compensation with clearly defined property rights are transferable, while others are nontransferable. In the private sector stock options would be transferable, while in private nonprofits all property might be held by the principal. Holmstrom and Milgrom point out that the sustainability of nonprofits implies they may have some merit. Low-powered incentives and bureaucratic constraints may prove an efficient form of compensation where output is not easily measured. Nontransferable returns may be enjoyed by the agent or dissipated, but they can not be assumed by the principal. Examples might be the pleasure the agent receives from doing a certain job or doing something in a certain way or associating with certain colleagues.

Prendergast (1999) surveys the literature on the relation between the organization (principal) and the employee (agent). Agents respond to incentives and principals construct contracts to induce desired responses. He observes that in the context of agents with difficult to measure or complex multidimensional outputs, incentive mechanisms may lead to multitasking. Agents will concentrate on those aspects of their jobs that are linked most closely to their compensation. To prevent this, organizations may prefer not to establish contracts based on incentives. Prendergast finds conflicting evidence on the relation between the noisiness of the output measure and the use of incentive contracts.

This paper examines the relation between executive compensation and institutional attributes, bureaucratic constraints, in not for profit private institutions (private liberal arts colleges).² Special attention is given to what Milgrom and Roberts (1992) refer to as *middle-level executives*. They conclude that incentives are less common among such executives than those higher up in the hierarchy, though they admit there has not been a great deal of study of this group.

The Market for Private Nonprofit Liberal Arts Administrators

Studies of compensation in nonprofits are limited. Roomkin and Weisbrod (1999) look at the relationship between executive compensation and incentives in

¹ For a summary of the literature, see Murphy (1999), Prendergast (1999), Abowd and Kaplan (1999), or Garen (1994).

² For a general discussion of the organizational structure of private liberal arts colleges see: O'Connell and Perkins (2002) and (2003).

for-profit and nonprofit hospitals. Their conclusion is that nonprofit hospitals pay executives less and rely less on bonuses than do for-profit hospitals. Roomkin and Weisbrod's work suggests that the objective of nonprofits is more complex and less measurable, implying that managerial compensation will be less related to performance. Compensation may be lower because there is less uncertainty in the nonprofit than in the for-profit sector.

Ehrenberg, Cheslock, and Epifantseva (2001) studied the compensation of college presidents in over 400 colleges and universities from 1992-1993 through 1997-1998.³ They conclude that there is little relation between changes in the compensation of presidents and various measures of institution performance. My analysis differs from Ehrenberg, Cheslock, and Epifantseva in that president compensation is compared to that of other executives within the organization. The analysis is restricted to only private liberal arts colleges. Educational institutions differ; combining different types may introduce many factors that would be difficult to measure.⁴ To a considerable degree, in terms of executives, schools such as the University of Wisconsin and Holy Cross are different forms of economic organization with different objectives. Similarly, engineering schools, business schools, and professional schools may not be comparable. For these reasons, only private liberal arts colleges granting BA degrees are included.

Unlike Roomkin and Weisbrod, I am able to capture the characteristics of the institutions to a much greater degree. The following college officers are examined: college presidents, academic deans, vice-presidents for finance, and vice-presidents for development.⁵ For each of these individuals, data were available from the *Chronicle of Higher Education* on their salary, and benefits. Data are for the year 1995-1996. The compensation data for each institution are reported for the five highest paid administrators.⁶ The implications of this selection process are examined below.

To measure the non-financial worth of the institution, I use the reputation score (Reputation) as determined by other administrators and reported in *U.S. News and World Report* ranking of liberal arts colleges.⁷ Several measures of institutional

³ I only became aware of this work after I had formulated my own specification of the model. In the case of college presidents, the results are similar.

⁴ It should be pointed out that Ehrenberg, Cheslock, and Epifantseva break down their data by institution type in other versions of the paper.

⁵ In some cases the dean might also be the vice-president for academic affairs. Instead of a vice-president for finance, there might be a business manager. In a small number of colleges there was a provost. In each case I have tried to take the person that was either the president, dean, head of business, or head of development.

⁶ The data in the *Chronicle* are derived from IRS non-profit form 909. I am grateful to an anonymous referee for pointing out the potential problems with the data.

⁷ This may not be completely independent of the institution's financial viability if other administrators take such matters into account. In some estimates the raw ranking was used;

financial performance were tried: total tuition and fees, endowment, earnings on endowment, and endowment yield (Endowment Yield). Only endowment yield is included in the reported results.⁸ The alumni/a giving rate (Alum Giving) is used as another measure of institutional worth. To test whether debt versus equity has any effect the debt-equity ratio was tried.^{9,10} Financial data were obtained from the Integrated Postsecondary Education Data System (IPEDS). To account for size, total enrollment was included (Enrollment). Especially in the cases of executives other than the president it was very difficult to get information on credentials. In all cases it was possible to determine gender which is represented by a binary variable (Gender) with one for woman. Finally, for each institution the total tuition and fees less financial aid per student (Net Price) was included to examine the derived nature of the demand for factors.¹¹ Faculty salaries (Faculty Salary) are included to measure relative costs among institutions and the relation between executive and faculty salaries.¹²

Milgrom and Roberts (1992), building on Ronald Coase, talk about the costs of transmitting efficiency-enhancing information through organizational hierarchies. The size of the hierarchy and the organizational complexity affect the ability to measure performance and to link compensation to contribution. Lazear (1995) argues that different hierarchical structures may imply different methods of compensation. Tournament theory pits workers against one another in the pursuit of higher positions. Different organizational structures may imply different responsibilities for nominally the same executive or supervisor. Peterson's, *Directory of College & University Administrators* lists eighty-six possible administrative officers. For each

however, this is available only for some of the schools included. The lowest score was 1.5 and the highest was 3.9.

⁸ Revenue and earnings on endowment were multicollinear with other financial variables and excluded in the reported results. Endowment yield is defined as the percentage change in the market value of the endowment between the beginning and the end of the 1995-1996 fiscal year.

⁹ Hart (1995) argues that in the absence of complete contracts, the ownership of physical assets matters in terms of the efficiency of investment decisions. The implication seems to be that managers with greater stakes in an organization will invest more effort. Executives who do not have property rights in the institution are likely to exert less effort. In the private sector Hart hypothesizes that managers may choose more debt rather than equity to make the organization less attractive to outsiders.

¹⁰ IPEDS provides information on outstanding debt, the market value of assets and total liabilities. Total assets minus liabilities is used as a measure of equity. The debt-equity ratio is defined as the ratio of debt to equity. In no case is it significant.

¹¹ Both net price and its log were tried. The results did not differ significantly. The results for the log of net prices are reported.

¹² Both faculty salaries and their logs were tried. The logs of salaries yielded slightly higher significance levels and are reported in the table. Faculty salaries from both the *Chronicle* and IPEDS were tried. Those reported are calculated from the IPEDS data.

institution the number of administrative officers (Hierarchy) was included as a measure of the administrative bureaucracy or hierarchy.

The total sample consisted of 133 private liberal arts colleges listed as Baccalaureate I in the 1994 Carnegie Classification.¹³ Table 1 summarizes the data set. Although the sample is made up of only private liberal arts colleges, the table shows considerable variability in their conditions. Presidents have the greatest compensation, followed by finance officers, development officers, and deans. Relative to for-profit executives, benefits are a smaller fraction of total compensation.¹⁴ This may indicate less use of incentive mechanisms.

Table 1—Summary Statistics 1995-1996

Variable	Mean	Standard Deviation
President Compensation	179,066	45,886
President Salary	153,762	34,063
President Benefits	25,304	18,685
VP Finance Compensation	125,668	47,645
VP Finance Salary	108,648	27,474
VP Finance Benefits	17,020	11,257
VP Development Compensation	116,437	25,832
VP Development Salary	99,497	14,744
VP Development Benefits	16,940	10,453
Dean Compensation	114,383	24,330
Dean Salary	98,769	18,480
Dean Benefits	15,614	8,100
Academic Reputation	2.374	0.73
Total Revenue	25,472,615	14,249,365
Total Assets	224,724,847	188,196,293
Endowment	132,302,289	143,285,317
Endowment Earnings	4,078,080	4,705,248
Debt-Equity Ratio	0.455	1.684
Alum Giving Rate	0.38	0.1178
Enrollment	1669	803

Although estimates were done for both salary and compensation (salary plus benefits), only the results for salary are reported. The inclusion of benefits did not significantly affect the results. Table 2 reports the regression results for the natural logarithm of salaries with White heteroscedastic standard errors. The estimates for college presidents are reported in column (1). Academic reputation is significant in

¹³ In the regressions some observations had to be deleted because of data omissions.

¹⁴ Roomkin and Weisbrod found that in 1992 CEOs in for-profit hospitals had a ratio of bonus to total compensation of approximately 30 percent. In the nonprofit it was approximately 16 percent.

the salary equation. The positive link between salary and a subjective multidimensional measure is consistent with the idea of nonprofits having complex objective functions. Ehrenberg, Cheslock, and Epifantseva did not include a measure of reputation in their analysis. The negative coefficient for alumni giving may reflect what Holmstrom and Milgrom had in mind for a nontransferable return. Strong alumni/a support may make the job of president easier, justifying a lower compensation. The status associated with such institutions may also serve as a compensating differential. Strong support may reduce the financial risk and uncertainty leading to lower compensation. Measures of the financial health of the institution do not have a significant impact on the payment to the president. Endowment yield is negative, but insignificant. Enrollment has a positive, but weak, impact on compensation and salary. Being a woman had a positive but insignificant effect on payment,¹⁵ while the size of the hierarchy has a negative effect. Ehrenberg, Cheslock, and Epifantseva found that enrollment and endowment had positive and significant effects when all institutions were combined.

Faculty salaries (in logs) have a significant positive impact. The connection between the president's salary and faculty salaries is consistent with both an internal salary structure and the idea that the president is *primus inter pares*. Ehrenberg, Cheslock, and Epifantseva found a similar relation when they included the average salary of a professor. Net tuition was positive and significant, supportive of the idea that the demand for the factor is derived from that of the product. Ehrenberg, Cheslock, and Epifantseva do not include any measure of product price.¹⁶

Despite the efforts to minimize multicollinearity, the relatively small number of significant coefficients may be symptomatic.¹⁷ While multicollinearity does not bias the estimated coefficients, it does cause problems in interpreting the estimates. Using the simple coefficient of determination, the strongest (between .4 and .5) linear relation is between academic reputation, the alumni giving rate, and the log of faculty salaries. Certainly this is not unexpected: colleges with good reputations are supported by their graduates and can afford to pay faculty well. Even in the presence of collinearity the three regressors are significant. The absence of significance in other cases is not due to linearity among regressors. Neither gender nor organizational complexity appears important.

¹⁵ The American Council on Education indicates that 20.4 percent of the presidents in Baccalaureate Institutions were women in 1998 compared with 16.1 percent in 1986.

¹⁶ The American Council on Education does an annual survey of college presidents providing detailed information. In the interests of confidentiality only summary measures are made available to the public. Slightly less than half of the college presidents are listed in *Who's Who in American Education*. A binary variable for being listed was included. It is not significant. For a restricted sample of college presidents variables for age and terminal degree prove not significant.

¹⁷ I would like to thank an anonymous referee for pointing this out.

When the same model is applied to deans, the sample size declines from 133 to 98. As indicated in Table 2, column 2, the only significant determinants are endowment yield and faculty salaries. The close relation between faculty salaries and that of the dean is not unexpected. The dean often has faculty status and is often seen as one of the faculty. There appears to be little significant relationship to institutional factors, hierarchy, or net price. The interpretation of the coefficients is suspect because of the loss of observations from 133 to 98. The major reason for the loss was that salary data for deans were not available. As mentioned, salaries of the top five administrators are reported in the *Chronicle*. If the dean is not one of the top paid administrators, the observation is excluded. The salaries are truncated at the level of the lowest paid of the top five administrators.

Greene (2000) points out that excluding the observations without salary data is equivalent to estimating the model with an omitted nonlinear variable. To examine the potential impact of this exclusion, several censored sample estimation techniques were tried. While the data are reported for the five highest paid administrators, the only available censoring point was the lowest salary reported by the institution. This allows the censoring point to differ among institutions. If an administrator's salary is below the fifth highest salary, however, he or she would be excluded from the sample. This adds to the censoring problem what is referred to as *truncation*.¹⁸ In some cases the techniques used to estimate the model allow for the fact that the sample is censored and truncated. The censored normal Tobit technique using the actual censored values (CNA Tobit) and the censored logistic model using the actual censored values (CLA) permit truncation. The estimates differed very little between the truncated and simple censored models. The censored logistic model using an index of the censored variable (CLI) does not account for the truncated sample. The results are reported in columns 3, 4 and 5 of Table 2. One must be very cautious in comparing the coefficient estimates among the different models. The coefficients do not represent the simple marginal effects. What is of interest is the change in the significance of regressors among the estimation techniques. Academic reputation becomes more significant while faculty salaries continue to be significant. The overall goodness of fit falls slightly. In the third part of Table 2 the model is applied to vice presidents for development. The loss in observations using OLS is greatest for development officers (79 of 133). Despite this there is consistency among the estimates. Academic reputation is significant and positive throughout. Alumni giving is negative and significant in three of the four estimates. Endowment yield is negative and becomes less significant. Enrollment is consistently positive and significant as are faculty salaries.

¹⁸ For a discussion of censoring and truncation see Wooldridge (2002).

Table 2

Variable	President	Dean				VP Development				VP Finance			
	OLS Coeff.	OLS Coeff.	CNA Tobit Coeff.	CLA Coeff.	CLI Coeff.	OLS Coeff.	CNA Tobit Coeff.	CLA Coeff.	CLI Coeff.	OLS Coeff.	CNA Tobit Coeff.	CLA Coeff.	CLI Coeff.
C	7.1594*	4.5965*	5.1045*	4.5073*	4.0649*	7.0979*	6.3389*	6.1677*	5.7210*	5.4302*	5.4302*	5.4379*	5.4379*
	5.0638	3.3438	3.9809	3.676	3.0448	3.9704	3.8064	3.8559	3.5078	2.0738	2.1634	2.5051	2.5051
Reputation	0.1773*	0.0342	0.0597**	0.0611**	0.0468	0.1223*	0.1140*	0.1276*	0.1346*	0.1581*	0.1581*	0.1476*	0.1476*
	4.7459	0.8986	1.6689	1.815	1.2701	3.1706	2.8407	3.4961	3.5935	2.6915	2.8078	3.2080	3.2080
Alum Giving	-0.0045*	0.0013	0.0001	-0.0007	0.0001	-0.0033**	-0.0026	-0.0035**	-0.0039*	-0.0067*	-0.0067*	-0.0051*	-0.0051*
	-2.4393	0.7595	0.0386	-0.4327	0.0809	-1.7144	-1.3174	-1.8344	-1.9641	-2.5942	-2.7062	-2.6332	-2.6332
Endowment Yield	-0.0035	0.0053*	0.0038	0.0046*	0.0046**	-0.0058**	-0.0031	-0.0029	-0.0035	-0.0062	-0.0062**	-0.0034	-0.0034
	-1.382	2.0513	1.5379	1.9588	1.8522	-1.6661	-1.0423	-0.9041	-1.0502	-1.6338	-1.7043	-1.1603	-1.1603
Enrollment	0.0178	0.0068	0.0054	0.007	0.0003	0.0557*	0.0613*	0.0579*	0.0650*	0.0648**	0.0648**	0.0413	0.0413
	0.7406	0.2611	0.2171	0.2994	0.0101	2.2154	2.3894	2.4911	2.7538	1.8058	1.8838	1.5147	1.5147
Gender	0.016	-0.0257	-0.0126	-0.0218	-0.0092	-0.0073	-0.0029	0.0082	0.0119	-0.0563	-0.0563	-0.0707	-0.0707
	0.4483	-0.9083	-0.4577	-0.8364	-0.3309	-0.2076	-0.0806	0.2366	0.3364	-0.8545	-0.8914	-1.3922	-1.3922
Faculty Salary	0.3412*	0.59*	0.5331*	0.5987*	0.6516*	0.3370**	0.4133*	0.4284*	0.4751*	0.4972**	0.4972*	0.4935*	0.4935*
	2.3864	4.1608	4.0212	4.7402	4.7746	1.7976	2.4051	2.5659	2.7727	1.9280	2.0113	2.3287	2.3287
Hierarchy	-0.0027	0.001	-0.0002	0.0009	0.0011	-0.0017	-0.0022	-0.0014	-0.0022	-0.0019	-0.0019	-0.0007	-0.0007
	-0.9469	0.3817	-0.0975	0.3611	0.4601	-0.6082	-0.7951	-0.5024	-0.8160	-0.5012	-0.5229	-0.2692	-0.2692
Net Price	0.1045*	0.0267	0.0442	0.0286	0.0116	0.0719	0.0596	0.0565	0.0505	0.0770	0.0770	0.0689	0.0689
	2.3591	0.6551	1.0868	0.762	0.2966	1.1916	1.0422	1.0070	0.8735	1.2056	1.2577	1.5911	1.5911
R-squared	0.5671	0.5382	0.4846	0.4794		0.5434	0.4779	0.4744		0.4356	0.4356	0.4185	
Adjusted R-squared	0.5392	0.4967	0.4428	0.4371		0.4912	0.4233	0.4194		0.3914	0.3853	0.3666	
S.E. of regression	0.1634	0.131	0.1451	0.1458		0.1314	0.1541	0.1546		0.2062	0.2072	0.2103	
Sum squared resid	3.3123	1.5277	2.3367	2.3603		1.2082	2.0422	2.0561		4.3366	4.3366	4.4687	
Log likelihood	56.8454	64.8422	67.1041	70.0209	39.1978	53.0266	48.5963	49.3073	31.8548	22.4528	22.4528	40.0168	40.0168
Included obs.	133	98				79				111			

Notes: The dependent variable is the natural log of salaries. Both Net Price and Faculty Salaries are in logs. Enrollment is divided by 1,000. Endowment is divided by 1,000,000. CAN Tobit refers to censored normal Tobit using actual values. CLI refers to censored logit using an index. CLA refers to censored logit using actual values. The censored value refers to the lowest salary reported by an institution. * significant at 5 percent. ** significant at 10 percent

Overall, measured by R^2 , the model doesn't fit as well for vice presidents for finance, but the estimates are consistent among the procedures. Reputation has a positive and significant effect in all the estimates. Alumni giving is negative and significant throughout, while faculty salaries are positive and significant throughout. No other variables are consistently significant.

Summary and Conclusions

This paper examines how administrators in private nonprofit liberal arts colleges are paid. More particularly, it examines the principal-agent relation between institution performance and executive pay. The conclusions are surprising. The chief executive's salary is dependent on the academic reputation of the institution. The financial aspects of the institution as measured by endowment yield do not seem to play a big role. Alumni/a support may be a compensating factor reducing compensation and salary. The salary of the president is linked to faculty salaries and to net price. For the chief academic officer, the dean, faculty salaries are the most important factor for both compensation and salary. This supports the idea that the dean is someone who has worked his/her way through the faculty ranks and the importance of maintaining internal salary consistency. Reputation is less important than in the case of the president. Endowment yield, possibly measuring ability to pay, has some effect.

Development officers' payment, like that of the president, depends importantly on the academic reputation and negatively on alumni giving. Both enrollment and faculty salaries play a role, but price does not. Finance officers salaries are not affected by the endowment yield or net price, but they do depend on reputation, alumni giving, and faculty salaries. Gender has a negative but insignificant effect for all positions except that of president, and organizational complexity does not seem important.

Where the product is difficult to measure, its value is not completely captured by price. Other measures of worth such as academic reputation and alumni support have significant effects on factor payments. There is evidence of internal salary structures within private liberal arts colleges, indicated by the role that faculty salaries play. In addition, faculty salaries may serve as a proxy for the alternative market value of the input. Size (Enrollment) matters, especially in the case of development officers and, to a lesser extent, finance officers. Neither the size of the administration nor the gender of the administrator is significant.

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