J. OF PUBLIC BUDGETING, ACCOUNTING & FINANCIAL MANAGEMENT, 18 (4), 395-419 WINTER 2006

EXECUTIVE COMPENSATION IN NONPROFIT ORGANIZATIONS: EVALUATING TEXAS INDEPENDENT SCHOOL DISTRICTS USING STRUCTURAL EQUATION MODELING

Gary Giroux and Victor Willson*

ABSTRACT. The purpose of this paper is to model the determinants of executive compensation of school district superintendents using structural equation models (SEM). These chief executives have unique characteristics and function in a complex environment, due in part to the political nature of the position. SEM has not been used widely to test archival data using economic theory. The complex environment of superintendent salaries is a test case for the viability of the SEM approach. The success of SEM depends on the development of a strong theoretical base. The theory developed assumes that compensation should be based, in part, on fiscal and academic performance, indicating that accounting-related information including performance measures should be important in this context. In this case, a complex theoretical structure was reduced to a relatively simple model: superintendent salary can be best explained with three direct effects (enrollment, teacher salary, and the local tax percentage) plus indirect effects by including two additional factors (white percentage and percent economically disadvantaged). Performance did not influence salary, suggesting that future superintendent compensation contracts should consider financial- and education-based performance measures.

INTRODUCTION

Executive compensation is a significant area of concern, especially for chief executive officers (CEOs) in corporations and other

* *Gary Giroux, Ph.D, CPA, and Victor Willson, are Shelton Professor of Accounting, and Professor of Educational Psychology and of Teaching, Learning, and Culture, respectively, Texas A&M University. Professor Giroux's primary research interests are in financial analysis, auditing, and governmental accounting.* Professor Willson's *primary research is statistical modeling of social science data and children's intellectual development, and he teaches courses in experimental design, psychometrics, and structural equation modeling.*

entities. Compensation structure has been linked to the corporate excesses of the last decade, including most corporate scandals. However, the executive compensation structure of nonprofit CEOs has been generally overlooked. . What is the incentive structure of these CEOs and how does it impact on executive performance? Since nonprofit organizations represent some 40% of gross domestic product, the performance of CEOs is important.

This paper looks at one group of nonprofit CEOs, superintendents of Texas independent school districts (ISDs). These are CEOs of highly structured and regulated nonprofit organizations, considered vital to the public interest. Superintendents are public servants appointed by elected school boards and subject to review both directly by the school boards and state regulators and indirectly by the public. Despite the high degree of government regulations of school districts, the evaluation of hiring procedures for superintendents, annual performance evaluation, and compensation are handled locally with little regulation involved. This is in stark contrast to the comparable decisions on teachers and other school district administrators regarding both performance evaluation and compensation

Examining executive compensation in nonprofit organizations is important for several reasons. First, the relationship of the governing board to the CEO is highly political. The school board members are elected by the public and may have unique agendas (e.g., religious-based). In this case, what the school board expects may or may not be in the best interests of the school district. Second, the governing board can reward CEOs generously or terminate them almost immediately. Considerable flexibility exists on CEO policy and reward structures. Third, the role of the CEO and the relationship to the board can result in disastrous consequences under some circumstances, usually because of poor corporate governance practices. Therefore, the compensation of the CEO in nonprofit organizations and the impact of the performance of these organizations may be similar to corporate counterparts in some respects.

Base compensation of superintendents should be related to performance measures. Standard performance measures are likely associated with district size and wealth, student performance (such

as attendance, testing results, and graduation rates), and relative financial health and stability of the district. The purpose of this paper is to evaluate superintendent salaries in the context of these performance categories.

State regulators have a particular interest in superintendent salary. The Texas Education Agency (TEA) regulates Texas school districts. Funding school districts is a substantial portion of the state budget ($21 billion in Texas in 2004, 34% of the state's overall budget).The TEA gathers and monitors annual superintendent base salary information. However, there is little direct state regulation. Although performance pay is the majority of corporate CEO compensation, rewards are only loosely tied to performance for superintendents, if at all (Hanushek, 1996). An obstacle to bonuses for superintendents is the lack of a clear definition of what defines improved performance worthy of a bonus (Ehrenberg, Chaykowski, & Ehrenberg, 1988). Results of this study suggest that salaries are not based on either education or fiscal performance and these should be considered for future policy-making decisions.

Because of the complex environment, structural equation modeling (SEM) is used for model building and empirical analysis. Although common in behavior studies, SEM is not widely used for testing economic models with archival data. We believe this is the first paper to analyze compensation using SEM. The only accounting paper we found on governmental/nonprofit analysis was Cheng (1992). SEM is a powerful technique, especially when testing complex environments with substantial direct and indirect effects. The SEM results are compared to OLS regression to demonstrate the relative advantages and possible limitations. The SEM results indicate a complex relationship across theoretical constructs and empirical results that are not obvious when using OLS.

The next section provides background information on the executive compensation literature, Texas school districts, and an analysis of superintendents in the Texas school districts. The third section develops the models used for analysis. Section four describes the sample. Section five reviews the research method, followed by results in section six. The last section concludes.

BACKGROUND

Texas School Districts

The Texas Education Agency (TEA) is a state agency that provides leadership and monitors the activities of independent school districts (ISDs) in Texas. The TEA was started in 1949 with the Gilmer-Alkin Act. The TEA serves as fiscal agent to distribute state and federal funds to the districts and administers the data collection system that centralizes all state school-related data. The data for this analysis was obtained from the TEA.

In fiscal year 2000/01 there were 1,040 Texas independent school districts (ISDs), not including 201 charter schools. There were 4.0 million students, 42% white, 41% Hispanic, and 14% African-American (with 49.3% of the student population considered economically disadvantaged). A school superintendent runs each district. Fifty-one percent of the ISD staff are teachers, with an average salary of over $38,000. Total annual revenue for Texas schools was $25.9 billion or $6,445 per student. Of this amount, 53% comes from local sources and 43% from the state, with federal and other sources making up the remainder (Texas Education Agency, 2003).

Each ISD is governed by an elected school board, which appoints a superintendent as the chief executive officer for the district. There is relatively little guidance provided by state regulation other than formal certification of superintendent data. Contract terms for superintendents can vary substantially from one district to another. The primary compensation for the superintendent is the base salary, with limited additional funding for various perquisites. Only base salary is publicly available. The superintendent usually has the same basic health care, pension and other benefits as other school district employees. Key issues include the limited pool of available competent superintendents, salary concerns (e.g., salary is usually much higher than teachers), and political factors (e.g., relationship to school board, teachers, administrators, students, parents and the public). Superintendent salaries have increased an average $10,000 over the last three years, with student test scores actually declining over the period (Texas Education Agency web page).

Executive Compensation Literature

The executive compensation literature concentrates on base pay and bonuses and usually attempts to explain changes in compensation using earnings and other performance indicators, including stock return. The evidence is compelling that compensation tends to be performance-based and more recent studies tend to focus on specific impact of certain earnings-related factors, such as separating "above the line" (operating earnings) versus "below the line" (including such categories as non-recurring items) earnings measures.

Healy (1985) looks at bonus contracts, based on proxy statements of the 250 largest corporations. The essential point is that bonuses are paid in a range. In other words, compensation plans can have upward (maximum bonus) & lower bounds (usually no bonus—also associated with "big bath"). Empirical results show that the relationship is direct for positive bonus regions (measured by accounting accruals), but negative at both upper and lower bounds.

In Lambert and Larcker (1987) the essential relationship is that change in executive compensation (salary plus bonus) = change in return on equity (ROE) + stock return (RET). Results indicate that compensation is highly related to ROE, less to RET. The paper also tests relative weights using β_{RET} / β_{ROE} (see Table 2, p. 101). As part of their analysis, they included a confirmatory factor analysis latent variable model.

Lanen and Larcker (1992) examine changes in executive compensation to environmental and corporate strategy shifts in the electric utility industry. A dummy variable was used as the dependent variable to identify utilities adopting performance-based executive compensation contracts (49 adopting versus 65 not adopting), explained by incentive regulations, production efficiency, and diversification outside the industry. Confirmatory factor analysis finding suggest that performance-based compensation related to regulatory changes and production efficiency.

Following Larker, Dechow, Huson and Sloan (1994) models CEO compensation as a function of pretax income before restructuring charges and restructuring changes and find compensation positive and significant to pretax income, but negative and significant for restructuring charges. They interpret the findings as indicating the

compensation committee partially shields CEO compensation from the effects of restructuring charges.

Young (1997) modeled school superintendent salary based on concepts of procedural justice and distributive justice. The model was based on school size, economic base (tax value, tax rate), district wealth, and experience. As expected, size was the most important variable, followed by experience. These relationships were associated with procedural justice, essentially a measure of fairness.

In Gaver and Gaver (1998), compensation (salary + bonus) = earnings before nonrecurring items (separate var. for losses) + nonrecurring gains – nonrecurring losses. Performance measures compare "above" versus "below the line" earnings. Results indicate that compensation is positive for above the line earnings but shielded from below the line losses.

In Baber, Kang and Kumar (1999) CEO Compensation = Earnings Levels + Earnings Changes. The importance of earnings persistence (i.e., compensation not a function of transitory earnings changes) is emphasized. The basic model is change in compensation (Δ Comp) = [UE(R) + UE(X) + UE(Δ X)], where UE is unexpected, R is stock return & X is earnings. Results indicate that R is significant, Δ X is significant, but X is non-significant. Thus, rising compensation is based on the unexpected increases in stock return and increases in earnings. The level of earnings does not increase compensation.

According to Matsunaga and Park (2001) missing earnings benchmark can lead to lower bonuses. In their model, (Δ CEO Bonus / Prior year Salary) = Δ ROA + RET + dummies (where dummies are various measures of quarterly earnings, surprise, or losses). ROA is return on assets and RET is stock return. Essentially, all variables are significant, including the dummies. Thus, missing the earnings targets as measured by the dummy variables reduces the bonus, after controlling for earnings and stock price effects.

Baber, Daniel and Roberts (2002) is a particularly important study, because of the focus on non-profit firms. The most important finding is that earnings are not important for determining executive compensation. The model is small, but the econometrics testing is interesting. The basic model is: %Δ Comp = % Δ Revenue + Δ Yield (see p. 682), comparing the current and previous years. Yield relates percentage change in program spending to percentage change in

overhead spending. The descriptive analysis is interesting, including CEO compensation, CEO compensation / revenue, change in CEO compensation, etc. There are comparisons to levels, changes and percentage changes and the relation of CEO compensation, revenues, & program spending. The study also compares below average to above average organizations and monitored vs. non-monitored (by national oversight bodies).

Nagar (2002) uses a simultaneous equations approach, in which delegation and incentives are determined jointly. High delegation is associated with high growth, volatility and thus results in higher incentive pay. Factor analysis is used to analyze delegation. Operating performance includes growth, volatility (standard deviation in net income), innovation measures, and size. The presence of delegation was positive and significant for determining compensation; however, the extent of delegation did not affect compensation.

Structural Equation Modeling in Accounting Literature

There is relatively little accounting literature using SEM modeling. Most SEM accounting articles are behavioral, primarily using survey instruments. No articles that we are aware of model executive compensation using SEM and only Cheng (1992) uses archival data, although Lambert and Larcker (1987) and Lanen and Larcker (1992) use confirmatory factor analysis to study corporate executive compensation using archival data.

Smith and Langfield-Smith (2004) review twenty management accounting articles that use SEM. Most of these are behavioral using questionnaires. Advantages of SEM cited by Smith and Langfield-Smith (2004) include the range of goodness of fit statistics available for analysis, the ability to specify error variances, the inclusion of moderating variables and other indirect effects, and the simultaneous analysis across the full model. Major focus in the management accounting literature includes participative budgeting, environment and control systems, budgeting, and organizational commitment.

Several auditing papers use SEM. Kalbers and Fogarty (1993) look at audit committee effectiveness relative to power (defined as the ability to succeed even against resistance). Analysis is based on survey instrument to external auditors, internal audit directors and

chief financial officers of 90 companies. Diligence and legitimate power are significant direct effects of committee effectiveness. Shafer et al (1999) use a survey of CPAs to analyze the effectiveness of formal sanctions as incentives to maintain auditor independence. Litigation risk and peer-review risk are found to increase independence. Johnstone (2000) use 150 Big 5 partners to run an experiment on client acceptance decisions; significant direct effects are client business risk evaluation and auditor business risk evaluation, while auditor risk evaluation is a significant indirect effect.

Shapeero, Koh and Killough (2003) use SEM to analyze CPA underreporting of chargeable hours and premature sign-offs on uncompleted procedures, based on a questionnaire sent to auditors. Job level and locus of control are significant direct effects for both. Donnelly, Quirin and O'Bryan (2003) also look at premature sign-offs and other dysfunctional behavior (including not providing sufficient evidence and altering audit procedures) by surveying auditors. Performance, locus of control, and turnover intentions are significant direct effects of dysfunctional behavior.

Cheng (1992) is the only governmental paper using SEM that we discovered, which used SEM to explain state government accounting choice. Theoretical constructs include socioeconomic factors, political competition and other political factors, contracting, federal influence, and auditing. Five direct effects and several indirect effects explain 1986 and 1978 accounting disclosure choice.

MODEL DEVELOPMENT

Following the relevant literature on executive compensation, the purpose of the model is to explain the level of superintendent base salary. Salary is set annually by the school board for the fiscal year starting in September and should be based on expected performance. Therefore, superintendent salary should be a function of district size and wealth, education performance, financial performance and various control factors.

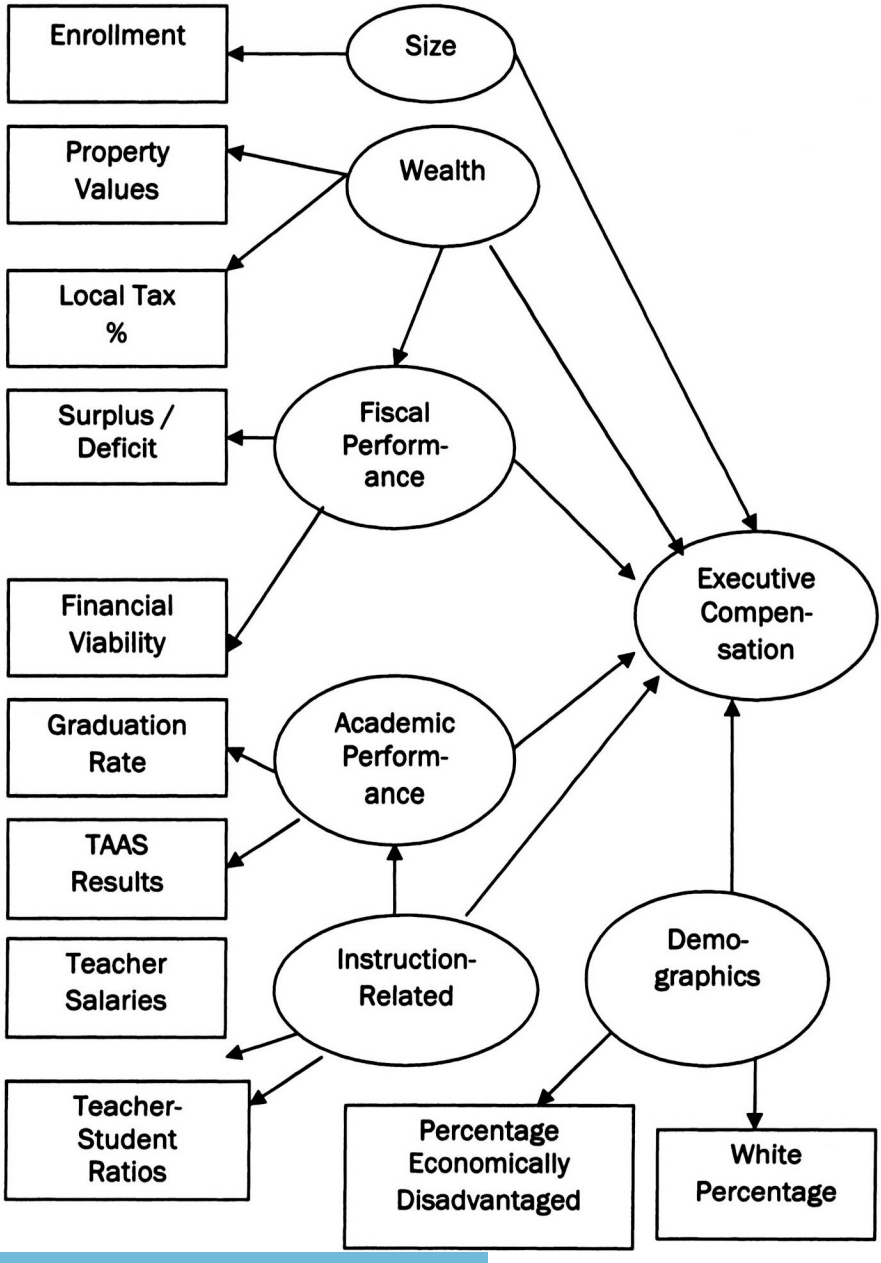
Five theoretical constructs are expected to influence executive compensation in school districts: (1) district size, (2) community (district) wealth, (3) fiscal performance of the school district, (4) academic performance of the district, and (5) instruction-related factors. Other factors may be important as control variables. Our

theoretical path model is presented in Figure 1. The theoretical constructs are considered latent (unobserved) variables and are represented by ovals. Specific empirical surrogates to measure the latent variables are placed in boxes.

The most important explanatory factor for executive compensation is expected to be district size. Larger districts are more complex, with bigger operations and substantial budgets. These districts are expected to have larger administrative staffs and more formal policies, including corporate governance. Student enrollment is used as a size measure. A direct relationship is expected. Economic models (e.g., Tiebout, 1956) suggest that people and businesses organize in clusters. Families often move to areas of comparable affluence, with consideration of school district ratings. The general movement of the relatively affluent to the suburbs is well documented (e.g., Musgrave, 1959). The comparative wealth of the geographic jurisdiction of the school district should influence many factors related to education, including superintendent salary. The primary measure of wealth is the taxable assessed value of real property in the district.

Another factor related to district wealth is the relative funding percentages from local property taxes and other sources. School districts are expensive to operate and funding comes primarily from local and state taxes, with additional funding from federal sources and charges for services. The state of Texas does not have an income tax and the primary tax sources are sales tax at the state level and property tax at the local level. Historically, state funding was relatively constant on a per-student basis, while local funding varied substantially because of relative wealth and other factors. Thanks, in part, to lawsuits, the state of Texas has been attempting to provide more equitable funding. The result has been more financial equity on a per-student basis, but tighter budget constraints at virtually all districts. Relatively "wealthy" districts now receive little or no state funding (and may have additional obligations to "poorer" districts, called "Robin Hood provisions"), while all districts have additional obligations based on state and federal laws and regulations. In summary, the percentage of funding from specific sources should be a measure of relative wealth. The most critical is local property taxes. No direction is predicted.

FIGURE 1
Conceptual Superintendent: Salary Model



Partly because of changes in regulations on funding, fiscal performance has been an increasingly important factor when evaluating school districts and should be especially important when analyzing superintendent performance. Fiscal performance is evaluated based on funding levels (sources and amounts of revenue) and financial viability measures. Financial viability (FV) is defined as fund balance (a measure of equity) divided by total revenues. A common rule of thumb is that FV should be at least five percent; that is, fund balance should be at least five percent of revenues (McLelland & Giroux, 2000). Lower percentages, particularly negative ratios can be considered signs of fiscal stress. Surplus/deficit (SD) is a non-profit measure of the bottom line defined as revenues divided by expenditures. A ratio of one indicates a balanced budget and surpluses (ratios above one) are expected. Ratios below one indicate deficit spending, a sign of potential fiscal stress. A positive relationship is expected.

Districts with fiscal slack should pay superintendents higher salaries, while those suffering from fiscal stress would be expected to pay superintendents relatively lower salaries. Note that these fiscal performance measures don't differentiate between relative rewards for performance and executive pay based on available slack. However, indirect effects—a perspective available with SEM—could provide additional evidence of likely causation (e.g., based on covariation with academic performance). These mediating effects can be computed by multiplying the standardized path coefficients together. If there are multiple indirect paths, the sum of all indirect paths is the total indirect effect.

The output from the school system is academic performance. The schools provide a safe environment for learning, with the expectation that the standardized testing, graduation rates and other factors can measure teaching effectiveness. Graduation rates are measures as number of graduates divided by potential number of students who could graduate. The standardized test taken by all Texas school children was the Texas Assessment of Academic Skills (TAAS) test, which measures expected minimum competence in reading, mathematics and writing (since replaced by the Texas Assessment of Knowledge and Skills or TAKS). Executive compensation is expected to benefit from outstanding academic performance and a direct relationship is expected. Academic

performance is expected to benefit from fiscal performance and instruction-related factors.

Instruction-related factors are expected to relate directly to superintendent salaries and indirectly through academic performance. Major instruction-related factors include average teacher salaries and teacher-student ratios. These factors should be related to higher quality instruction and, therefore, improved academic performance. A direct relationship with superintendent salaries and indirectly through academic performance is expected.

Other factors can affect superintendent salaries either directly or indirectly. The most significant is expected to be white percentage (number of white students as a percentage of total student population), used to capture any effect related to white relative to minority populations, and percentage of economically disadvantaged students. The impact of these demographic/economic factors is unknown and no direction is predicted.

SAMPLE

The sample is based on all Texas independent school districts for which data were available for the fiscal year ended August 31, 2001, initially 1,033 ISDs. All information comes from various TEA files. Districts with fewer than 100 students were eliminated, due to missing data and unusual relationships. All districts where the superintendent's salary was less than the full time equivalent salary (i.e., the job was considered "part-time") were deleted. This resulted in a sample of 781 districts. Other districts were eliminated in the multivariate analysis based on missing data, extreme values and other factors.

METHOD

The variable of interest is superintendent salaries for 2001. Superintendent salary is expected to be based on the theoretical constructs identified in the model development above. Eleven empirical variables are initially used to test this theoretical model. Descriptive statistics for these variables include mean, standard deviation, and range.

Executive Compensation Levels Models

Multivariate analysis will use a structural equation modeling (SEM) procedure. Model development will be partially based on correlations as measures of potentially significant relationships; consequently, a correlation matrix is shown and evaluated. Multivariate analysis includes SEM and an OLS regression analysis for comparison.

Initial analysis focused on change models as noted in the literature on compensation for CEOs in the commercial sector. This approach was dropped after descriptive and correlation analysis indicated little change over one to four year periods (1998-2001) in compensation. Consequently, all analysis uses levels models.

Figure 1 is used as the starting point to develop an SEM levels model. This is a path diagram based on the theoretical model building described above. There are six theoretical constructs, each representing a latent variable (presented in the ovals). Specific empirical surrogates to test these relationships are in the rectangles, with expected relationships shown by arrows. These relationships will be refined through the iterative SEM process.

Correlation analysis is used to understand basic empirical relationships across the variables under study. Significant correlations will be use as the starting point for converting the theoretical model to SEM testing. Significant relationships will be used to construct a new path diagram to be empirically tested using CALIS, the SEM program available on SAS. The analysis takes multiple iterations to determine the best available model, using maximum likelihood (ML) estimation. A key consideration is the various indirect effects that are modeled using SEM, but would be ignored when using standard regression procedures. Statistical diagnostics based on covariance analysis are extensive and the final model should include all significant relationships of theoretical interest.

The initial executive compensation model, based on the variables in Figure 1 and correlations (i.e., to identify significant relationship), contains the following equations:

Executive Compensation:

Superintendent Salary = Enrollment + Local Tax % + Financial Viability + Graduation Rate + Texas Test Performance (TAAS) + Teacher Salary + White % + % Economically Disadvantaged

Fiscal Performance:

Local Tax % = Tax Values per Student

Financial Viability = Local Tax % + Tax Values per Student

Academic Performance:

Graduation Rate = Texas Test Performance (TAAS) + Teacher/Student Ratio + White % + % Economically Disadvantaged

Texas Test Performance (TAAS) = Teacher/Student Ratio + White % + % Economically Disadvantaged

Instruction-Related:

Teacher Salary = Enrollment + Teacher/Student Ratio + White % + % Economically Disadvantaged

The SEM approach provides the preliminary results, including a thorough set of diagnostics. The overall model is evaluated with a set of goodness of fit tests, such as the goodness of fit index. The model fit is evaluated with the standardized coefficient estimates based on maximum likelihood. The exogenous variables are not evaluated, but the covariances of exogenous variables are reviewed to determine if these relationships should be incorporated in the overall model. Additional tests are used to consider all potential fits of variables not in the original model and the impact of the error terms. The key is significant relationships. Insignificant relationships generally are deleted and all significant relationships are included (these are usually done one variable at a time since all relationships are tested simultaneously). Overriding all decisions is the theoretical fit to the model.

As expected, the initial model was disappointing. Most goodness of fit tests was poor and many of the independent variables were insignificant. For example, only teacher salary and tax value per

student had significant t-values for explaining superintendent salary. Many of the standard errors were extremely low, because of magnitudes and wide ranges. Because of these factors, variables were standardized using z-scores (the value – mean) / standard deviation). There also were relatively large correlations among the exogenous variables, which required some additional analysis (e.g., the squared-correlation between enrollment and teacher/student ratio was 38.7%). Consequently, many additional runs were made to refine the model. The final model is summarized in Figure 2. It is a much simpler model, based on significant and theoretically defensible relationships. Five of the eleven original variables are in the final model. Only three of these directly explain superintendent salary: enrollment, teacher salary, and local tax. White percentage and percentage of economically disadvantaged have no direct effect on superintendent salary but influence salary indirectly through teacher salary. Teacher salary also serves as a mediating variable for enrollment.

Comparisons to OLS Regression

OLS regression is used for comparative purposes. Regression runs include the initial (based on Figure 1) and final models from the SEM analysis. The independent variables are as described above.

RESULTS

Results include an analysis of both univariate and multivariate analysis. Univariate tests include a descriptive analysis and correlations. Multivariable results are based on the SEM model, which are compared to OLS regression results. Univariate results are summarized in Tables 1 (descriptive) and 2 (correlations). SEM results are summarized in Figures 2 and OLS results summarized in Table 3.

Univariate Testing

There are 757 Texas ISDs analyzed. Variables used for analysis are summarized in Table 1. The average superintendent's salary is over $ 89,500 in 2001. Salaries ranged from $35,480 to $298,000. Salaries varied by ISD size group, with average superintendent salary of $75,000 for small (those with fewer than 3,000 students) and $129,000 for large districts, a statistically significant difference.

TABLE 1
Descriptive Analysis (n=757)

Variable	Mean	St.andard Deviation	Minimum	Maximum
Salary, 2001	$89,525.03	32989	35,480	298,000
Enrollment	4,415.7	11096	111	163,562
Tax Value Per Student	$247,986.3	280083	18,179	2,929,029
Local Tax %	40.6%	0.222	0	95.6
Financial Viability	17.6%	0.160	-0.266	1.647
Surplus/Deficit	99.9%	0.076	0.351	1.851
Graduation Rate	87.7%	7.808	55.6	100.0
Texas Test Performance (TAAS Test)	96.5%	3.259	79.0	100.0
Average Teacher Salary	$36,742.2	2486.6	29,614	45,504
Teacher Student Ratio	12.63	2.12	5.6	17.5
White %	61.6%	25.94	0.1	99.3
% Economically Disadvantaged	6.4	0.016	0.004	0.153

Eleven variables were used as independent variables to explain superintendent salaries. Average enrollment was 4,416, with a range of 111 to 163, 562 (note that districts with fewer than 100 students were deleted because in most cases the superintendent was a part-time position). The average tax value per student (based on district assessed value of property) was $248,000, with a substantial range of less than $20,000 to almost $3 million. The local tax percentage was 40.6%, ranging from zero to 95.6%. There are three major sources of revenues: local property taxes, state funding, and federal funding. Local property taxes tend to be the largest single source, but this varies by district. In general, larger percentages are associated with wealthier districts.

The two financial viability variables are the financial viability ratio (fund balance divided by total revenues) and the surplus/deficit ratio (revenues divided by expenditures). Financial viability averaged 17.6%, ranging from -26.6% to 164.7%. Generally, a ratio under 5% suggests potential fiscal stress. Based on this criterion, 53 districts were stressed. Surplus/deficit was a net "balanced budget" at 99.9%, but ranged from a deficit of 64.9% to a surplus of 85.1% (44.4% had deficits in 2001).

The two measures of academic performance were graduation rate and TAAS results. The average graduation rate (percentage of those expected to graduate) was 87.7%, with a minimum 55.6% and maximum of 100.0%. The Texas test performance was based on the TAAS test and measures the percent of students passing the tests. This average was 96.5% and ranged from 79.0% to 100.0%.

Two instruction-related variables include teacher salaries and the average teacher/student ratio. The average district teacher salary was $36,742, varying from $29,614 to $45,504. The average teacher/student ratio was 12.6, and ranging from 5.6 to 17.5. White percentage also was evaluated, averaging 61.6% and ranging from 0.1% to 99.3%. The percent of economically disadvantaged averaged 6.4%.

Correlations based on Pearson's are summarized in Table 2. Correlations are a major factor in determining the initials SEM models. Many variables were correlated with superintendent salary for 2001. The variables significant at .0001 included enrollment, local tax %, financial viability, graduation rate, Texas test performance, teacher salary, white percentage, and percentage of economically disadvantaged. The negative correlation between superintendent salary and graduation rate was unexpected. Also significant were surplus/deficit and teacher/student ratio.

Measures of fiscal performance include local tax percentage and financial viability. Local tax percentage was significantly related to enrollment, property values, financial viability, teacher salary,

TABLE 2
Correlation Matrix (Pearson's) (n=757)

Panel A					
	Enroll.	Tax Value	Local Tax	FV	SD
Superintendent Salary	83.1*	1.7	28.1*	-14.9*	-8.0**
Enrollment	-	-2.0	17.9*	-12.5**	-6.9
Tax Value		-	71.7*	42.5*	-2.9
Local Tax %			-	14.9*	-1.6
Financial Viability				-	-4.3
Surplus Deficit					-

TABLE 2 (Continued)

Panel B						
	Grad %	TAAS	Teacher Salary	Teacher Student	White %	% Econ Disad
Superintendent Salary	-31.2*	25.8*	58.4**	57.2*	-28.8*	-32.5*
Enrollment	-26.7*	-22.2*	44.2*	39.5*	-27.8*	-25.8*
Tax Value	13.2**	8.0**	33.4*	-32.9*	8.7**	22.2*
Local Tax %	4.3	5.9	45.3*	-1.8	8.4**	10.6**
Financial Viability	9.4**	1.7	6.7	-27.1*	-2.9	-1.7
Surplus Deficit	3.4	2.5	-10.0**	-5.5	5.2	3.0
Graduation %	-	41.3*	-16.9*	-33.0*	39.4*	46.5*
TAAS Pass Rate		-	-12.0**	-26.6*	44.2*	18.9*
Average Teacher Salary			-	35.1*	-26.5*	-8.6*
Teacher Student Ratio				-	-18.7*	-47.5*
White %					-	19.9*
% Econ. Disadvant.						-

* Significant at .0001*; Significant at .05 *

teacher/student ratios, white percentage, and percentage of economically disadvantaged. Financial viability was significantly related to enrollment, property values, local tax percentage, graduation rate, and teacher/student ratio. Surplus deficit is correlated with teacher salary. Academic performance is measured using graduation rate and Texas test performance. Graduation rate is significantly correlated with enrollment, property values, financial viability, Texas test performance, teacher salary, teacher/student ratio, white percentage, and percentage of economically disadvantaged. Teacher salary measures instruction-related factors. It is correlated with enrollment, property values, local taxes, surplus/deficit, graduation rate, Texas test performance (with unexpected negative signs for both academic performance ratios), teacher/student ratio, white percentage, and percentage of economically disadvantaged. Teacher/student ratio is correlated with enrollment, property values, financial viability, graduation rate, TAAS test, teacher salary, white percentage, and percentage of

economically disadvantaged. White percentage is correlated with enrollment, property values, local tax, graduation rate, TAAS test, average teacher salary, teacher/student ratio, and percentage of economically disadvantaged. Percent economically disadvantaged is correlated with enrollment, property values, local tax, graduation rate, TAAS test, average teacher salary, teacher/student ratio, and white percentage. In summary, the large number of correlated variables suggests the complexity of modeling superintendent salary.

Multivariate Testing

The initial SEM analysis for the levels models was based on the theoretical framework and an analysis of the correlation matrix. Latent structures using confirmatory factor analysis performed poorly and were rejected. This analysis uses only empirical (manifest) variables. The specific model used was presented above, based on the variables correlated with superintendent salary and the five theoretical constructs related to the expected intervening factors of size, wealth, fiscal performance, academic performance, instruction-related, and demographics. As expected, the initial results were poor and the analysis modified until the best fit was obtained.

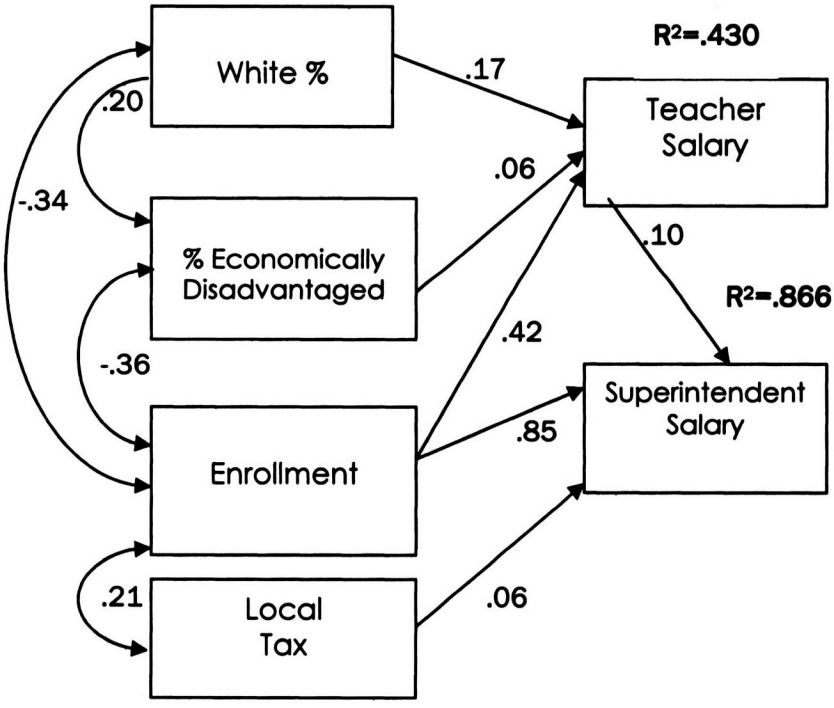
The final superintendent salary model is presented in Figure 2 with standardized coefficients. Four of the basic theoretical constructs are represented in the final model: size as measured by enrollment; fiscal performance as measured by local taxes; academic performance as measured by graduation rate; instruction-related as measured by teacher salary; plus white percentage and percentage of economically disadvantage as measures of demographics (both are indirect effects in the final model). Superintendent salary has an R^2 of 86.6%, with three direct effects: enrollment, teacher salary, and local tax. Teacher salary is a mediating variable and incorporates the indirect effects of white percentage, percentage of economically disadvantaged, and enrollment.

There are several significant covatiations across the exogenous variables. Enrollment negatively covaries with both white percentage and percentage of economically disadvantaged and positively with local tax percentage. This suggests that large districts tend to have fewer white students, more economically disadvantaged students, and rely more on local tax as a percentage of total tax. These

relationships suggest that favorable academic performance is more difficult to achieve at larger districts.

Several goodness-of-fit tests are included with Figure 2. The final model was based on optimizing the goodness of fit indices. The chi-

FIGURE 2
Superintendent Salary Model—Based on Standardized Coefficients



Chi Square	4.87
Df	2
Sig.	.087
CFI	.9987
NFI	.9987
RMSEA	.0435
RMSEACI	.094
n	759

square statistic tests the null hypothesis that the model fits the data. A good fit should result in a small χ^2 and a relatively large p value; e.g., greater than .05 (Hatcher 1996, p. 185). Hu and Bentler (1998) propose a set of fit indices for good fit, with CFI and TLI above .95 and RMSEA below .06. While there has been some criticism of these as standards, they clearly support good fit. By adding Local Tax to the model, χ^2 drops to 4.87, with a p value of .087. Hatcher also suggests that the χ^2 value divided by degrees of freedom should be less than 2. The value is 2.44 (4.87 / 2), close to the cutoff of 2. Alternatives to the chi-square test include Bentler's Comparative Fit Index (CFI) and Bentler and Bonnett's Normalized Fit Index (NFI). Values above .90 are consistent with an acceptable fit. The values for both are above .99.

Regression results for superintendent salary are summarized in Table 3. The regression models include all the variables in the final SEM models. The model has four significant variables, including enrollment, local tax percentage, average teacher salary, and white

TABLE 3
Regression Analysis with Coefficients (t-values)
Dependent Variable: Superintendent Salary for 2001

Variable	Expected Sign	Results
Enrollment	+	626.9 (49.59)*
Local Tax %	?	8426.7 (3.66)*
Average Teacher Salary	+	1416.1 (6.04)*
White %	?	35.16 (1.89)**
% Economically Disadvantaged	?	-3152.1 (-1.19)
Intercept		3511.1
R^2		86.7%
F Value		980.54*
n		757

Notes: * Significant at .01; ** Significant at .1

percentage. The adjusted R^2 is 86.7%, slightly higher than the R^2 of the SEM model. (Since the OLS model has all the variables used for SEM, the R^2 will almost always be higher than SEM.) The three direct effects from the SEM model are significant, but white percentage is also significant. This is misleading, since in fact white percentage is an indirect effect through teacher salary. In summary, the SEM results present a more balanced presentation of compensation results, including both direct and indirect effects of the relevant variables.

CONCLUSIONS

This paper focuses on the salary of school district superintendents in Texas. The purpose was to model the determinants of salary in this complex environment. Structural equation modeling was used to determine if this is an appropriate use of SEM using archival data and economic modeling.

The theoretical model included six theoretical constructs: district size, district wealth, school district fiscal performance, school district academic performance, instruction-related factors, and demographics. Eleven empirical surrogates were used to test the theoretical model. The objective was to test alternative paths, with the intent of optimizing the SEM fit indices. The final model was relatively parsimonious and included only five of the eleven original variables. Three were direct effects: enrollment, local tax percentage, and teacher salary. Teacher salary was a moderating variable with white percentage, percentage of economically disadvantaged, and enrollment. By solving all model components simultaneously, a better understanding of the complex relationships is possible.

The measures of fiscal viability consistently were unrelated to the rest of the model and were discarded. Graduation rates and student test scores (TAAS) did not contribute to prediction of superintendent salary and dropped. The fact that these direct performance measures are statistically insignificant to salary is distressing. Executive salaries for CEO of commercial firms have significant performance incentives. This lack of incentives is a serious problems with superintendent contracts. Without meaningful incentives between superintendent salary and academic and fiscal performance, there is no motivation for superintendents to pay

attention to achievement at the district level beyond maintaining existing standards. School boards and state regulators should consider the need for incentives-based contracting of superintendents.

The results suggest that SEM is a viable approach for economic modeling using archival data in a non-profit context. Further SEM testing is suggested for future research. For example, audit economics relationships require complex modeling, which should be a good fit to SEM procedures.

REFERENCES

Baber, W., Daniel, P., & Roberts, A. (2002, July). "Compensation to Managers of Charitable Organizations: An Empirical Study of the Role of Accounting Measures of Program Activities." *Accounting Review*, *77* (3): 679-693.

Baber, W., Kang, S. & Kumar, K (1999, October). "The Explanatory Power of Earnings Levels vs. Earnings Changes in the Context of Executive Compensation." *Accounting Review*, *74* (4): 459-472.

Cheng, R. (1992). "An Empirical Analysis of Theories on Factors Influencing State Government Accounting Disclosure." *Journal of Accounting and Public Policy*, *11*: 1-42

Dechow, P., Huson, M. & Sloan, R. (1994, January). "The Effect of Restructuring Charges on Executives' Cash Compensation." *Accounting Review*, *69* (1): 38-156.

Donnelly, D., Quirin, J. & O'Bryan, D. (2003). "Auditor Acceptance of Dysfunctional Audit Behavior: An Explanatory Model Using Auditors' Personal Characteristics." *Behavioral Research in Accounting*, *15*: 87-110.

Ehrenberg, R., Chaykowski, R., & Ehrenberg, R. (1988, April). "Determinants of the Compensation and Mobility of School Superintendents." *Industrial and Labor Relations Review*, *41* (3): 386-403.

Gaver, K. & Gaver, J. (1998), "The Relation between Nonrecurring Accounting Transactions & CEO Cash Compensation." *Accounting Review*, *73* (2): 235-253.

Hanushek, E. (1996, Fall). "Measuring Investment in Education." *The Journal of Economic Perspectives*, *10* (4): 9-30.

Hatcher, L. (1998). "Using SAS PROC CALIS for Path Analysis: An Introduction." *Structural Equation Modeling*, *3* (2): 176-192

Healy, P. (1985). "The Effect of Bonus Schemes on Accounting Decisions." *Journal of Accounting and Economics*, *7* (1): 85-107.

Hu, L., & Bentler, P. (1998). "Fit Indices in Covariance Structure Modeling: Sensitivity to Underparameterized Model Misspecification." *Psychological Methods*, *3* (4): 424-453.

Johnstone, K. (2000, Spring), "Client-Acceptance Decisions: Simultaneous Effects of Client Business Risk, Audit Risk, Auditor Business Risk, and Risk Adaptation." *Auditing: A Journal of Practice & Theory*, *19* (1): 1-26.

Kalbers, L. and T. Fogarty (1993), "Audit Committee Effectiveness: An Empirical Investigation of the Contribution of Power." *Auditing: A Journal of Practice & Theory*, *12* (1): 24-49.

Lambert, R. & D. Larcker (1987), "An Analysis of the Use of Accounting & Market Measures of Performance in Executive Compensation Contracts." *Journal of Accounting Research*, *25* (Supplement): 85-125.

Lanen, W., & Larcker, D. (1992). "Executive Compensation Contract Adoption in the Electric Utility Industry." *Journal of Accounting Research*, *30* (1): 70-93.

Matsunaga, S. & Park, C. (2001, July). "The Effect of Missing a Quarterly Earnings Benchmark on the CEO's Annual Bonus." *Accounting Review*: *76* (3): 313-332.

Musgrave, R. (1959). *The Theory of Public Finance*. New York: McGraw-Hill.

Nagar, V. (2002). "Delegation & Incentive Compensation." *Accounting Review*, *77* (2): 379-395.

Shafer, W., Morris, R., & Ketchand, A. (1999). "The Effects of Formal Sanctions on Auditor Independence." *Auditing: A Journal of Practice & Theory*, *18* (Supplement): 85-102.

Shapeero, M., Koh, H., & Killough, L. (2003). "Underreporting and Premature Sign-off in Public Accounting." *Managerial Auditing Journal*, *18*: 478-489.

Smith, D., & Langfield-Smith, K. (2004), "Structural Equation Modeling in Management Accounting Research: Critical Analysis and Opportunities," *Journal of Accounting Literature*, 23, 49-86.

Texas Education Agency (2003). "Data Resources and Research." [Online]. Available at www.tea.state.tx.us.

Tiebout, C. (1956). "A Pure Theory of Local Expenditures," *Journal of Political Economy*, *64* (5): 416-424.

Young, I. (1997). "Dimensions of Employee Compensation: Practical and Theoretical Implications for Superintendents." *Education Administration Quarterly*, *33* (4): 506-525.