

FACTORS INFLUENCING SCHOOL DISTRICT FINANCIAL REPORTING PRACTICES

Rajiv D. Banker, Beverly S. Bunch, and
Robert P. Strauss

ABSTRACT

School districts account for approximately 36 percent of local government expenditures and almost 3.6 percent of the U.S. gross national product; however, they have received little attention in the governmental accounting literature. This paper addresses this gap by developing an empirical model to explain observed variations in school district financial reporting practices. Regression models based on data from 127 large school districts are estimated to test theoretical constructs and findings based on prior research. The results suggest that monitoring factors, specifically the existence of state statutes requiring GAAP conformance and the use of an indepen-

Research in Governmental and Nonprofit Accounting, Vol. 5, pages 27-56.

Copyright © 1989 by JAI Press Inc.

All rights of reproduction in any form reserved.

ISBN: 0-89232-975-0

dent CPA, are the most important determinants of variations in school district reporting practices. This paper also explores the differences in estimation results for districts of different size, and the sensitivity of estimation results to different measures of financial reporting. In addition, cluster analysis is utilized to better understand how school district officials think about the selection of financial reporting practices.

I. INTRODUCTION

This paper develops an empirical model to explain observed variations in financial reporting practices by school districts. Previous studies have focused on developing positive theories to explain variations in financial reporting practices of municipal and state governments (e.g., Zimmerman, 1977; Ingram, 1984). Little empirical work has been conducted, however, concerning reporting behavior of school districts.

Although school districts have received little attention in the governmental accounting research literature, they account for a large component of local government finances. In fiscal 1985, school districts had outstanding long-term debt of \$36.8 billion and spent \$142.2 billion (approximately 36 percent of local government expenditures and 3.6 percent of the U.S. gross national product). School district property taxes account for 42 percent of all property taxes collected (U.S. Bureau of the Census, 1986).

The principal objective of this paper is the development of a school district financial reporting model to test empirically theoretical constructs and findings from prior research, which addressed reporting practices of city and state governments. A second objective is to add to the existing knowledge about methodologies useful for addressing governmental financial reporting issues. The principal objective is achieved through the development and testing of a regression model for 127 large school districts. This part of the paper also splits the school district sample in half by enrollment size and examines how the model results differ for larger districts versus smaller districts. The second objective is met through the development and testing of different financial reporting indices and the utilization of cluster analysis to gain insights as to how school district officials think about the selection of financial reporting practices.

This paper is structured as follows. Section II uses prior research as a basis for the development of an operational statistical model to explain variations in the school districts' financial reporting practices. Section III presents the results from estimating the operational model using data for 127 large school districts. This section also includes the results from the models for districts of different sizes, an analysis of the impact of utilizing different types of indices to measure financial reporting conformance and a description of the results from applying

cluster analysis to the school district data. Section IV concludes the paper with a discussion of the implications of the empirical results and suggestions for future research.

II. DEVELOPMENT OF A SCHOOL DISTRICT FINANCIAL REPORTING MODEL

A. The Basic Model

The model developed in this paper seeks to explain variations in school district financial reporting by examining characteristics of school districts that may influence the selection of reporting practices. The general model expresses a financial reporting index as a linear function of factors that may influence reporting practices. Prior studies on state and city financial reporting practices are used as a basis for the identification of potentially important explanatory factors.

Prior research suggests that the following groups may have an interest in financial reporting by governmental units: higher levels of government (Baber, 1983; Evans and Patton, 1983; Ingram, 1984), investors and bond analysts (Zimmerman, 1977; Baber, 1983; Evans and Patton, 1983; Ingram, 1984), appointed officials (Zimmerman, 1977; Ingram, 1984); voter coalitions (Zimmerman, 1977; Ingram, 1984), and the press (Zimmerman, 1977; Ingram, 1984). In addition to the demands by these parties, prior studies note that political factors (Zimmerman, 1977; Ingram, 1984; Baber, 1983), personal benefits obtained from upholding professional standards (Evans and Patton, 1983; Baber, 1983; Ingram, 1984) and the costs of developing a financial reporting system (Evans and Patton, 1983; Ingram, 1984) may also influence the financial reporting practices of governmental units. Evans and Patton (1987) have developed formal signaling and monitoring models that analyze why and how factors such as debt and political competition may influence the selection of financial reporting practices.

The nature of the operations, finances and political environment of school districts suggest that some of the factors from prior studies may be more important than others. The oversight of higher levels of government is hypothesized to be an important factor for school districts. As Campbell and Mazzoni (1976) indicate, "States occupy a pivotal position in arrangements that have evolved for educational guidance in the United States because they are constitutionally responsible for the establishment, support, and supervision of the public schools."

School districts, compared to state and city governments, rely on higher levels of government for a larger percentage of their total revenue. On average, school districts receive 46 percent of their revenues from the state government and 6 percent of their revenues from the federal government. In contrast, city governments receive 16 percent of their revenues from the state government and 7

percent from the federal government. State governments rely on federal funds for approximately 19 percent of total revenues. Therefore, the greater reliance by school districts on higher levels of government, both in terms of operations and financing, suggests that the oversight by higher levels of government, particularly state governments, may be an important factor in explaining the variation in school district reporting practices (U.S. Bureau of the Census, 1986).

Differences in the political environment for a school district are also hypothesized to impact the relative importance of factors that have been cited in studies on city and state government reporting factors. For a school district, the main interest groups consist of parents and teachers, both of which are more inclined to focus on the educational aspects of the decision-making process as opposed to financial information disclosed in financial reports (see, for instance, the study of the Oakland Unified School District by Levy et al., 1974). Therefore, political factors may be less influential in explaining school district reporting practices than in explaining reporting practices by other types of government.

In summary, the school district reporting model is based primarily on factors identified in prior studies on state and city government reporting practices. For school districts, political factors are expected to be less important, and oversight by higher levels of government is expected to be more important relative to findings in prior studies on other types of governments.

B. Measurement of Financial Reporting Practices

Previous studies have adopted various approaches for defining reporting practices. The indices vary in terms of the items that were included, whether the items were weighted, and whether a distinction was made between total and partial disclosure.

Two of the indices employed in this paper are similar to those used by Ingram (1984) for his research on state reporting practices. Ingram ranks 18 major accounting practices that are recommended by GAAP according to the number of states that conformed. He then eliminates the practices with the highest and lowest conformance and uses the remaining 12 practices to formulate an index representing the proportion of practices a state follows. He also develops 2 other indices; 1 consisting of 8 of the 12 practices and another binary index with a category for each of high and low conformance. States that conformed to 5 or more of the 12 practices are categorized as having high conformance and states that conformed to 3 or less practices are categorized as having low conformance. (States that followed 4 practices are not considered in that part of the study.) Ingram notes that if the indexing procedure is critical, then the results should "vary observably" across models. In his study, the different disclosure indices lead to similar results.

The models in this paper are based on financial reporting indices which were developed using generally accepted accounting principle requirements as a

benchmark. The main index used in this study consists of 24 generally accepted accounting principles. These practices include the major financial statements required for each fund (excluding Trust Funds and Internal Service Funds), the statements for the 2 account groups, and information that GAAP indicate should be included in the notes to financial statements (see Table 1). The index is measured as the percentage of the generally accepted accounting principles which a school district follows.¹ Several limitations of this index should be noted: (1) the index does not incorporate the quality or extent of disclosure of specific statements or notes, (2) each component of the index is equally weighted, and (3) the index does not make a distinction between statements or notes that were not included because they are inapplicable versus statements or notes that were not included for other reasons. A variation of the main index is developed in a later section of the paper which addresses the latter point.

Since the number of practices included in developing the index is somewhat

*Table 1. GAAP Practices in the Indices
(percent of school districts that conformed)*

<i>Financial Statements</i>	
General Fund Balance Sheet	91
General Fund Revenue and Expenditure Statement	98
General Fund Budget vs. Actual Expenditures	69
Special Revenue Fund Balance Sheet	58
Special Revenue Fund Revenue and Expenditure Stmt	62
Special Revenue Fund Budget vs. Actual Expenditures	40
Capital Projects Fund Balance Sheet	72
Capital Projects Fund Revenue and Expenditure Stmt	77
Debt Service Fund Balance Sheet	65
Debt Service Fund Revenues and Expenditures	75
Enterprise Fund Revenue and Expenditure Statement	39
Fixed Asset Account Balance Sheet	49
Changes in Fixed Assets	31
Long-Term Debt Balance Sheet	54
Changes in Long-Term Debt	33
<i>Notes</i>	
Pension	71
Depreciation	58
Leases	45
Debt Service Requirements	41
Description of Funds	46
Modified Accrual	43
Contingent Liabilities	35
Unpaid Vacation	24
Encumbrances	37

arbitrary, it is important to verify that the results are not overly sensitive to how the index is measured. In Ingram's study, his index of 12 practices had a 0.98 rank-order correlation with an index consisting of 8 practices. The 24-practice index in this study has a correlation of 0.95 with an index consisting of the 16 practices with the highest conformance rate and a correlation of 0.86 with an index consisting of the 8 most conformed to practices.

A binary index, similar to the one used by Ingram, is also developed. To obtain groups of approximately equal size, the 65 school districts that conformed to more than 13 practices are placed in the high category and the 62 districts that followed less than 13 practices are placed in the low category. The results of a logit model using this binary index is compared to the results of the regression model that uses the 24-practice index to determine if the results are sensitive to different indexing procedures.

Another test of the sensitivity of the method for the measurement of financial reporting is to separate the index into two parts, one consisting of the percentage of financial statements that were presented, and the other consisting of the percentage of financial notes to statements that were presented. The correlation between the Statement Index and the Notes Index is 0.51. This suggests that school district reporting practices may be different for financial statements compared to financial notes. Therefore, in addition to the Overall Index model, a Statement Index model and a Notes Index model are also included in this study.

C. Factors Influencing Financial Reporting Practices

Our discussion of potential explanatory factors primarily draws on five related studies: Zimmerman's paper (1977) on municipal accounting practices, Evans and Patton's work (1983) on participation in the Government Finance Officers Association's Certificate of Conformance program, Baber's study (1983) on state auditing practices, Ingram's study (1984) on state financial reporting practices, and Evans and Patton's (1987) paper on the impact of signaling and monitoring factors on public accounting practices.

1. *Higher Levels of Government*

Funds from higher levels of government may be accompanied by various accounting and/or auditing requirements.² Therefore, higher levels of government may influence a school district's choice of financial reporting practices.

As creations of the state, school districts are usually subject to state disclosure requirements. State requirements regarding school district accounting, reporting, and auditing vary with some states having fairly extensive requirements, and a few states having only a few, or even no, requirements. According to a survey by the Government Finance Officers Association (1983), 42 states have statutory requirements governing the preparation of financial statements by school districts. However, only 24 of these states require that such statements be prepared in accordance with GAAP.

As a proxy for how influential the demands and expectations from the state and federal governments will be on school district conformance, our school district model uses a measure similar to the one Ingram uses—state and federal revenue as a percentage of total revenue. A school district with a higher percentage of intergovernmental revenue, *ceteris paribus*, is expected to conform more to GAAP due to the demands of the higher levels of government.

A dummy variable has also been included to represent whether or not a school district is located in a state that requires financial reporting practices to be in accordance with GAAP. These data were obtained from the GFOA survey (1983).³ Unfortunately, the survey does not indicate to what extent, if any, the state monitors the school districts to ensure compliance, nor does it indicate whether all, or just parts, of GAAP are required. Therefore, the correlation between the financial reporting practice index and the state requirement is less than one. (The dummy variable has a value of 1 if the district is in a state that requires GAAP, and 0 otherwise.)⁴

2. Investors and Bond Analysts

Investors and bond analysts also may be interested in school district finances. Prospective investors and bond analysts use financial information to assess the riskiness of a school district's bonds, while existing creditors may monitor the financial condition of the school district as a means to protect their current investments. Standard and Poor's has indicated that failure to employ generally accepted accounting practices is considered a negative factor when a bond rating is assigned to a municipal bond issuer (*New York Times*, May 7, 1980).

A model developed by Evans and Patton (1987) also suggests that the amount of debt may be related to the selection of financial reporting practices since governments with higher levels of debt will be more likely to select financial reporting practices to serve as a signal of the quality of the government's financial management. A government with higher levels of debt has a greater incentive to use a signal that is expected to decrease the amount of interest on the debt.

Ideally, as Evans and Patton (1983) note, one would like to include a variable that represents how much debt the governmental unit plans to issue; however, since this information is not readily available this empirical model uses the school district's total long-term debt outstanding as the proxy for the demands from bond analysts and investors.⁵ A school district with a higher debt level is expected to be more concerned with the demands and expectations of bond analysts and investors.

3. Auditors

External auditors are another major group of individuals influencing the level of financial disclosure of school districts and conformance to GAAP. In a survey of 157 CPAs conducted by Copeland and Ingram (1979), the most frequently cited reasons why municipalities do not conform to GAAP were: (1) insufficient

auditor and client knowledge regarding governmental accounting standards, and (2) a lack of incentives for proper disclosure for both auditors and municipalities.

Since the AICPA requires CPAs who serve as independent external auditors to note whether a school district is in conformance with GAAP, it seems reasonable to expect these auditors, and the school districts that they audit, to be more knowledgeable regarding governmental accounting standards and have more incentives to conform to GAAP. School districts that anticipate or know they will have an independent CPA auditor may be more likely to conform to GAAP than districts that do not use an independent CPA, since they may want to avoid receiving a qualified or adverse audit opinion for failure to conform to GAAP. Therefore, these school districts would be expected to have a higher financial reporting index.

A dummy variable is included in this model with a value of 1 if the district was audited by an independent CPA and a 0 for all other types of auditors, including internal and state auditors.⁶ In the GFOA survey (1983), 16 percent of the states indicated that only state auditors conduct school district audits; 32 percent of the states responded that only independent CPAs conduct school audits; and 42 percent of the states said that either independent CPAs or state auditors conduct the audits. The remaining states did not reply or indicated some other type of auditors.

4. Coalitions

Other groups potentially interested in financial disclosure of school districts include residents, interest groups, the press, employees and students. These groups may be interested in monitoring the overall performance of the school district and obtaining information about the district's general financial condition. They also may be interested in the district's ability to afford increased services.

Zimmerman (1977) argues that voters have little incentive to monitor government officials. He notes that individual voters are unable to concentrate ownership in public property and that high transaction costs make it difficult to capture the future consequences of the present actions of governmental officials in terms of capitalized value of property. On the other hand, Zimmerman hypothesizes that the formation of coalitions could lead to an increase in the demand for financial information. Ingram (1984) notes that coalitions have incentives to maximize their share of the government's expenditures and therefore may demand information to determine resource availability and uses. Ingram tests Zimmerman's coalition hypothesis and reports that the formation of coalitions is a factor that helps explain variations in state government financial reporting practices.

Unfortunately, the potential for coalition formation is a difficult concept to measure. This study uses enrollment as a proxy for the potential for coalition formation since enrollment may reflect school district employee or parent coalitions. Evans and Patton (1983) suggest another reason for including a variable to

represent the size of the governmental unit. They state that size tends to be correlated with a wide variety of municipal reporting phenomena, although theoretical explanations for these effects are not well developed. Therefore, they include population as a control variable in their study.

5. *Professionalism*

In addition to demands by external parties for financial disclosure, the level of a school district's conformance to GAAP may be influenced by the extent to which the school district officials are professionally trained and career-motivated to strive to conform to professional standards. Evans and Patton (1983) note that the receipt of a GFOA Certificate of Conformance can be used as a signal of the quality of management. As Ingram (1984) notes, this same reasoning could be applied to conformance to GAAP since administrators who desire to be recognized as professionals of high quality may accrue personal benefits from their governmental unit's conformance to GAAP. In contrast, school district officials who lack adequate training may not conform to GAAP if they are uninformed regarding GAAP provisions.

Theoretically, the degree of professionalism of the school officials seems to be an important variable; however, in practice it is difficult to measure. As a proxy of professionalism, Evans and Patton (1983) use a dummy variable to reflect whether or not a city official served on the GFOA Executive Board or the NCGA during a certain time period. Ingram (1984) uses salaries of state officials and a dummy variable representing whether the state employs a CPA as the independent external auditor as surrogates for managerial professionalism.

Since no good measure of the professionalism of school district officials could be identified, this study does not include a variable specifically designed to represent this theoretical factor. However, as Ingram (1984) suggests, whether or not a governmental unit uses a CPA may be a proxy for professionalism since it seems reasonable that government officials with more professional training are likely to better understand the importance and desirability of using an independent CPA. So the CPA variable previously noted in this study could represent the influence of a CPA conducting the audit or it could be a proxy for professionalism.

6. *Political Factors*

Prior studies note the potential importance of political factors in explaining variations in governmental financial reporting practices. Zimmerman (1977) notes that politicians have incentives to use the financial reporting as a means to try to decrease interest costs.⁷ The resources that would have been used for debt may then be used for other more politically popular purposes. Therefore, the Debt variable included in the school district model could be a surrogate for demands by investors and/or the incentives of politicians.

Baber (1983) argues that elected officials supply monitoring facilities to dem-

onstrate execution of pre-election promises, and the incentives to supply monitoring facilities increase as political competition increases. Baber primarily addresses auditing as a means of monitoring, but monitoring facilities could also be interpreted to include financial disclosure practices. Approaching the same issue from the demand side, Ingram (1984) notes that a political party is a type of coalition which has incentives to monitor the behavior of the opposition. Evans and Patton (1987) have developed a monitoring model in which an increase in political competition leads to a larger investment in the monitoring system.

A dummy variable representing whether or not the school district has a deficit is included in the empirical model as a political variable. Proceeding analagous to Baber's argument that elected officials supply monitoring to demonstrate execution of pre-election promises, it also may seem reasonable to expect politicians to select reporting practices to try to conceal negative performance. This hypothesis suggests a negative sign for the deficit variable since, all else equal, a school district with a deficit would be expected to have incentives to disclose less financial information.⁸

Another dummy variable was included to reflect whether the school district is a subunit of another local government (1 if independent, 0 if dependent). One would expect a school district that is a subunit of a larger government, e.g., a city, to be associated with a larger array of political issues. The political pressure may result in more financial disclosure by dependent districts than by independent districts. Also, comparison of the school district practices in this paper to practices by city governments as reported in other papers (Ernst & Whinney, 1979; Haseman and Strauss, 1981) suggests that, in general, city governments tend to have higher disclosure levels than school districts. Therefore, another reason why a dependent school district may have higher financial disclosure than an independent district is because it is a subunit of a city government. Thirty-three states have solely independent school districts, 5 states have only dependent school districts, and 12 states have both independent and dependent districts (Bureau of the Census, 1983). For the school districts in our sample that are located in a state with both independent and dependent districts, we checked Census data for the individual districts to identify the type of district.

7. Cost of a Financial Reporting System

Ingram (1984) states that the cost of modifying a financial system to facilitate conformance to GAAP also may be a factor that influences the financial reporting practices. The cost, he notes, depends on the current status of the system (including personnel) and the resources available for modifying the system. The costs of developing and revising a system must be weighed against the benefits of GAAP conformance. The fiscal ability of a school district to implement a financial system that would facilitate conformance to GAAP is surrogated by revenues per student.⁹

A summary of the relationship between the theoretical and operational models is presented in Table 2.

Table 2. Financial Reporting Model

<i>Theoretical</i>	<i>Operational</i>	<i>Expected Sign</i>
External Demands		
state/federal gov't	intergov'tal revenue as % of total revenue	+
	state GAAP (0/1)	+
investors	outstanding long-term debt (in million dollars)	+
auditors	CPA (0/1)	+
coalitions	enrollment (in 10,000s)	+
Internal Incentives		
professionalism	CPA (0/1)	+
Political Factors	outstanding long-term debt (in million dollars)	+
	independent district (0/1)	-
	deficit (0/1)	-
Ability to Pay	revenue per student (in hundred dollars)	+

III. DATA AND EMPIRICAL RESULTS

A. Sample Selection and Data

Each of the 411 school districts with enrollments of 15,000 or more were sent a letter requesting a copy of their 1979 financial report.¹⁰ Upon receipt of the annual reports, a form was completed for each school district describing the district's financial reporting practices and audit characteristics. The data on state reporting requirements were obtained from a survey administered by the Government Finance Officers Association (1983). The rest of the data were obtained through Census publications.

Usable data were obtained for 127 districts. Difference of means tests for respondents versus nonrespondents were conducted using enrollment, revenue, outstanding long-term debt, and whether the district is located in a state that has GAAP requirements. The test results indicate no statistically significant differences between the means for the two groups for each of these variables.¹¹

B. Descriptive Statistics

Table 3 shows the median, mean, standard deviation, and coefficient of variation for each of the indices and independent variables. On average, school districts conform to 55 percent of the practices included in the Overall Index, while the average conformance to the Note Index is lower (44%) than the average conformance to the Statement Index (61%). About two-thirds of the school districts are audited by a CPA and one-half of the districts are located in states that requires financial reporting in conformance with GAAP.

Table 3. Descriptive Statistics

	<i>Median</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Coefficient of Variation</i>
Overall Disclosure Index (%)	58	55	21	.38
Note Disclosure Index (%)	44	44	26	.59
Statement Disclosure Index (%)	67	61	22	.36
Intergovernmental Revenue (%)	58	55	16	.29
Revenue per Student (in \$100s)	19.23	19.14	5.07	.26
Long-term Debt Outstanding (in \$1,000,000s)	18.95	28.12	38.90	1.38
Deficit (0/1)	0	.36	.48	1.33
State GAAP Requirements (0/1)	1	.50	.50	1.00
Independent District (0/1)	1	.60	.49	.82
CPA (0/1)	1	.69	.47	.68
Enrollment (in 10,000s)	2.93	4.91	6.32	1.29

C. Correlated Variables

Ingram (1984) uses principal component analysis of the independent variables in his state financial reporting model to address a multicollinearity problem. As a result, Ingram notes that it is difficult to use his model's results to identify the importance of specific variables since most of the largest correlations between the independent variables and the accounting practices are grouped within one component.

A test developed by Belsley, Kuh and Welsch (1980) was applied to the data in this study to determine if multicollinearity was also present in the independent variables for the school districts. This test uses "condition indices" as a measure of the magnitude of collinearity between variables.¹² Belsley, Kuh and Welsch suggest that condition indices around 5-10 are associated with weak dependencies, while indices of 30-100 suggest moderate to strong linear relations. As Table 4 shows, the largest condition index for the school district data was 23.9 and the others were each less than 10. These results suggest that multicollinearity is not a major problem in the school district data. (The only independent variables that fall in a questionable area are the Revenue/Student and Intergovernmental Revenue variables.¹³) Therefore, the independent variables are not grouped, thereby allowing for direct interpretation of each independent variable.

Correlation between the independent variables and the alternative dependent variables are shown in Table 5. State GAAP and CPA have correlations with each of the indices that are statistically significant at a 10 percent significance level. In addition, the correlation coefficient for the Debt variable with the

Table 4. Belsey-Kuh-Welsch Test Results for the Presence of Multicollinearity

Condition Index	Portion Explained by								
	Intercept	Rev	% IG	Debt	Enroll	CPA	State	Deficit	Indep
1.0	.0004	.0012	.0015	.0064	.0056	.0047	.0075	.0070	.0056
2.6	.0001	.0002	.0018	.1912	.1683	.0026	.0013	.1607	.0113
3.1	.0001	.0016	.0001	.0227	.0978	.0036	.2215	.4773	.0080
3.4	.0006	.0009	.0034	.1022	.0307	.1766	.0639	.0525	.1872
4.0	.0008	.0007	.0059	.1828	.1302	.0398	.2552	.1968	.2380
4.2	.0003	.0054	.0032	.4046	.3716	.0107	.4036	.0670	.0044
5.3	.0022	.0213	.0662	.0012	.0034	.4783	.0097	.0000	.3489
8.8	.0008	.3495	.3301	.0665	.0105	.0217	.0307	.0267	.0105
23.9	.9948	.6190	.5878	.0226	.1819	.2619	.0065	.0122	.1860

Overall and Note Indices is statistically significant, and the Independent District variable's correlation coefficient with the Note Index is statistically significant at a 10 percent level. The signs of the correlation coefficients between each of the conformance indices and the Debt, Enrollment, Deficit, State GAAP and CPA variables are consistent with the expectations noted in Table 2.

Table 5. Correlation Coefficients between - Independent and Dependent Variables

	Overall Index	Note Index	Statement Index
% Intergov'tal Revenue	-.06 (.51)	-.07 (.43)	-.04 (.67)
Revenue/Student	.02 (.83)	.12 (.17)	-.06 (.52)
Debt	.20 (.02)	.23 (.01)	.13 (.14)
Enrollment	.06 (.48)	.08 (.38)	.04 (.68)
Deficit	-.09 (.29)	-.04 (.66)	-.11 (.21)
State GAAP	.26 (.00)	.25 (.00)	.20 (.02)
Independent District	-.07 (.40)	-.18 (.04)	.02 (.85)
CPA	.33 (.00)	.36 (.00)	.23 (.01)

Significance probabilities are noted in parentheses.

D. Regression Results

The results of the regression model are presented in Table 6. The CPA and State GAAP variables are the only variables that are statistically significant in each of the three models (using a 10% significance level). The signs of the coefficients for the Debt, Intergovernmental Revenue, CPA and State GAAP variables are as expected in each of the models. The signs for the other independent variables are not as expected in at least one of the three models; however, none of these is statistically significant at the 10 percent level.

The importance of the CPA and State GAAP variables suggests that monitoring efforts may be more influential than other types of factors in explaining variations in school district financial reporting practices. Although state financial reporting requirements appear to have an effect on a school district's reporting practices, the amount of state and federal aid does not appear to be a major factor in explaining variations. The results suggest that school district officials are more likely to disclose information recommended by GAAP when required to do so by the State, but otherwise may not view scrutiny by the state and federal governments as a motivator to adhere to GAAP.

These results are interesting since GAAP conformance is required by only 24 of the 42 states that have statutory requirements governing the preparation of financial statements by school districts (MFOA, 1983). The existence of State financial reporting standards that do not require conformance to GAAP might be hindering school districts' ability and willingness to employ generally accepted accounting practices.

Our analysis indicates that a school district's use of an independent CPA is an important factor regardless of whether it is required by the state in which the district is located. This conclusion is based on a regression model which has the same independent variables as the model presented in Table 6 except that the CPA variable has been replaced by three dummy variables: (1) the state requires the use of a CPA, (2) the state requires the use of a state auditor, and (3) the state allows the use of more than one type of auditor (or does not have any requirements regarding the auditor) *and* the school district selects a CPA. With these dummy variables, the base case is that the state allows the use of more than one type of auditor *and* the school district does not select a CPA. The regression results are reported in Table 7.

The two variables, (1) State Requires Independent CPA, and (2) No State Requirement and the District Selects a CPA, are each statistically significant at the 5 percent level, but the variable State Requires State Auditor is not statistically significant at the 10 percent significance level. Hypothesis tests indicate that at a 10 percent significance level, the null hypothesis that the 2 CPA variables (State Requires Independent CPA and District Selects CPA Without a State Requirement) are equal is not rejected, but that the null hypothesis that the two state requirement variables (State Requires Independent CPA and State Requires State Auditor) are equal is rejected.

Table 6. Regression Results

OVERALL	= 29.55 + .10 Debt + .02 Rev/St + .12 %IG Rev + .55 Indep
	(2.10)* (1.98)* (.06) (1.04) (.14)
	- 2.72 Deficit + .01 Enroll + 15.87 CPA + 9.57 State
	(-.76) (.03) (3.90)* (2.73)*
	R ² = .215
	F Value = 4.05*
NOTE	= -.06 + .13 Debt + .64 Rev/St + .17 %IG Rev - 4.67 Indep
	(-.00) (2.16)* (1.36) (1.15) (-.98)
	+ 1.35 Deficit + .14 Enroll + 21.40 CPA + 12.21 State
	(.30) (.36) (4.27)* (2.82)*
	R ² = .267
	F Value = 5.38*
STATEMENT	= 47.31 + .08 Debt - .35 Rev/St + .10 %IG Rev + 3.68 Indep
	(2.98)* (1.40) (-.81) (.73) (.84)
	- 5.17 Deficit - .07 Enroll + 12.56 CPA + 7.99 State
	(-1.28) (-.19) (2.74)* (2.02)*
	R ² = .133
	F Value = 2.25*
ESSENTIAL	= 35.68 + .10 Debt - .27 Rev/St + .21 %IG Rev + 4.41 Indep
	(2.21)* (1.86)** (-.62) (1.66)** (1.04)
	- 4.73 Deficit + .03 Enroll + 13.79 CPA + 7.90 State
	(-1.18) (.07) (3.06)* (2.07)*
	R ² = .162
	F Value = 2.66*

t-statistics are noted in parentheses

*significant at 5% level

**significant at 10% level

Key:

<i>name</i>	<i>variable</i>
Overall	index consisting of both financial statements and notes
Note	index consisting only of financial notes
Statement	index consisting only of financial statements
Essential	index consisting only essential reporting practices
Debt	long-term debt outstanding
Rev/St	revenue per student
% IG Rev	state and federal revenue as a percentage of total revenue
Indep	independent school district
Deficit	financial deficit
Enroll	enrollment
CPA	external CPA conducted the audit
State	State GAAP requirements

Table 7. Regression Results for a Model with a Revised CPA Variable

	<i>Coefficient</i>	<i>t-statistic</i>
INTERCEPT	32.43	2.23*
DEBT	.04	.73
REVENUE	.00	.03
% INTERGOV'TAL REVENUE	.03	.21
INDEPENDENT DISTRICT	.88	.21
DEFICIT	-1.46	-.38
ENROLLMENT	-.05	-.89
STATE GAAP REQUIREMENT	7.68	1.94*
STATE REQUIRES INDEPENDENT CPA	21.34	3.49*
STATE REQUIRES STATE AUDITOR	11.51	1.49
NO STATE REQUIREMENT AND DISTRICT SELECTS CPA	22.08	3.13*
R ²	.20	

*statistically significant at the 5% level

**statistically significant at the 10% level

The statistical significance of each of the CPA variables and the results of the hypothesis tests suggest that the important aspect is whether a district uses an independent CPA rather than the lesser factor of whether the state requires the district to use an independent CPA.

The use of a CPA could be interpreted as a monitoring factor. However, as Ingram (1984) suggests, it also could be a surrogate for professionalism. Since both independent CPAs and state auditors conduct school district audits in 42 percent of the states, the development of a model to explain auditor choice might help clarify the underlying construct for the CPA variable. Further research on an auditor selection model in the public sector could eventually improve the results for financial reporting models. A better understanding of auditor choice may indicate that a need exists for representing financial reporting and auditor choices by a simultaneous choice model. It seems reasonable to expect a two-way causation model since a school district that conforms to GAAP may be more likely than a district that does not conform to select an independent CPA.

The State GAAP and CPA variables are positive and statistically significant in both the Note Index and the Statement Index regressions; however, the signs for four other independent variables are inconsistent (and statistically insignificant) in these two models. The size of a school district's debt has a positive impact in both models; however, the debt variable is statistically significant at a 5 percent level in the Note model but not in the Statement model.

The results of the school district models are difficult to compare to Ingram's (1984) model since he uses principal component analysis. In his study, Debt, Revenue, Intergovernmental Revenue and Population are grouped into one component. That component has a positive sign and is statistically significant at a 10 percent level. The CPA coefficient is positive in Ingram's study, but not statistically significant.

One possible criticism of both Ingram's work and the results reported in this paper is that the models do not distinguish between practices that are not followed because they are inapplicable, and practices not followed for other reasons. To address this problem, an Essential Index has been formulated, which is applied only to school districts that have debt outstanding. (All but 10 of the school districts in the sample had debt outstanding.) This index consists only of statements and notes that every school district with debt should report, i.e., General Fund statements, Debt Service Fund statements, Long-Term Debt Account statements, and applicable notes.

The results of the Essential Index model (see Table 6) are fairly consistent with the Overall Index results. In the Essential Index model, one additional variable—Intergovernmental Revenue—is statistically significant, plus the sign changes for the Revenue/student coefficient. In general, the results from using the Essential Index confirm the results obtained from using the Overall Index, which incorporates 24 practices.

To explore the potential differences between school districts of different sizes, we split the sample in half. The upper one-half consists of 63 school districts each with enrollments greater than 29,500 students, while the lower one-half includes 64 school districts each with less than 29,500 students. Relative to the smaller school districts, the larger school districts have more debt outstanding (a mean of 52.1 million compared to 18.3 million for the smaller districts), are more likely to be located in a state that requires GAAP (58 percent are in a GAAP state compared to 44 percent of the smaller districts), and are less likely to be audited by a CPA (65 percent were audited by a CPA compared to 72 percent for smaller districts). The debt differences are statistically significant, but the state GAAP and CPA differences are not statistically significant (at a 10 percent significance level).

In general, we anticipated that the model would be more useful for explaining variations in large school district reporting practices as opposed to variations in small district reporting practices. Large districts were hypothesized to be more visible and subject to more scrutiny by outside sources. Smaller districts were hypothesized to be subject to factors that were not adequately captured by the factors included in the model.

Table 8 shows the results of models which applied the 24-practice Index and the Essential Index to each of these groups.¹⁴

The amount of variation in reporting practices explained by the model is much higher for the larger districts than for the smaller districts. In comparing these estimation results to those from Ingram's (1984) study on state financial report-

Table 8. Regression Model Results by Enrollment Size

	Overall Index		Essential Index	
	Larger	Smaller	Larger	Smaller
INTERCEPT	35.16*	.81	43.57*	16.35
DEBT	.12*	-.03	.12*	.08
REVENUE	.06	.24	.27	-.01
% INTERGOV'TAL REVENUE	-.09	.34**	-.03	.48*
INDEPENDENT DISTRICT	3.49	.13	6.65	5.26
DEFICIT	.42	-3.40	-.55	-6.43
ENROLLMENT	-.13	9.00	-.11	2.69
CPA	23.15*	9.88	20.65*	7.11
STATE REQUIREMENT	5.72	9.10	4.90	4.38
R ²	.438	.133	.337	.138
F Value	5.25*	1.05	3.11*	1.04

*statistically significant at the 5% level

**statistically significant at the 10% level

ing practices, it is interesting to note that the R² for the Overall Index for the 127 school districts is lower than that for Ingram's (1984) model, but the R² for the larger districts is comparable. Currently there is no adequate theory to explain the differences for districts of different sizes, but these results suggest that future empirical research needs to explicitly allow for these differences.¹⁵ Further, it may not be adequate to use an intercept dummy variable to capture the possible differences caused by the size of the governmental entity; the coefficients for some of the independent variables may also differ appreciably with the size of the governmental entity.

The CPA variable and the Debt variable are statistically significant (at a 10 percent significance level) in the models for the larger districts, but not in the models for the smaller districts. Larger districts may be more inclined than smaller districts to issue debt in the national market, where interest costs may be partially impacted by the extent of financial disclosure. The receipt of an unqualified opinion from a CPA auditor also may be viewed as more important by school officials in larger districts since they may be more concerned with obtaining lower interest costs or increasing perceptions of professionalism.

The Intergovernmental Revenue variable is the only statistically significant variable in the models for the smaller districts. A comparison of signs suggests that intergovernmental aid has a positive impact on disclosure practices of smaller districts, but not larger districts. One possible explanation is that the larger districts already follow the practices required by the receipt of grants, while the smaller districts follow the grant-required practices only upon receipt of the grants. The signs also indicate that the presence of a deficit decreases disclosure for smaller districts, but has much less of an impact on larger districts. The latter observation could be attributable to the notion that larger districts are less able to

“hide” their problems due to their public visibility. The sizes of the coefficients for the Enrollment variable suggest that enrollment size may be an influential factor within a particular range, but above a certain enrollment level an increase in enrollment may not have much impact on the financial reporting practices of school districts.

Table 9 presents the results of the logit regression model for the dichotomous index. The model predicts the right conformance category 66 percent of the time, as compared to 51 percent for a naive model.

The interpretation of a coefficient for an independent variable when using a logit model is influenced by all the values of the independent variables. As shown in Table 10, a base case scenario based on the median values for each independent variable predicts that the probability that a school district with those characteristics will be in the high financial reporting category is 0.65. Table 10 also shows the model's revised predictions as certain independent variables are changed. Not using a CPA auditor and/or not having State GAAP requirements have a considerable effect on the financial reporting practices of school districts.

A comparison of the results of this logit model to the results of the continuous dependent variable regression model for the Overall Index indicates that the signs of the coefficients are the same for the Debt, Independent District, CPA and State GAAP variables, but are different for the remaining variables. So the results from this alternative way of measuring financial reporting practices confirm the signs of the variables that are the most important in the continuous regression models.

Table 9. Logit Regression Results

	Coefficient	t-statistic
intercept	-.848	-.54
DEBT	.010	1.55
REVENUE	-.007	-.18
% INTERGOV'TAL REVENUE	-.002	-.17
INDEPENDENT	.016	.04
DEFICIT	.054	.13
ENROLLMENT	-.013	.37
CPA	.724	1.58
STATE REQUIREMENT	.847	2.16*

* 5% significance level

**10% significance level

-2 Log Likelihood = 163.02

$\chi^2 = 12.96$ $p < .11$

Proportion correct classifications:

Naive Model	.51
Full Model	.66

Table 10. Logit Scenarios

Scenario Values	
intercept	1
DEBT	18.95
REVENUE	19.23
% INTERGOV'TAL REVENUE	58
INDEPENDENT DISTRICT	1
DEFICIT	0
ENROLLMENT	2.93
CPA	1
STATE REQUIREMENT	1
<i>Probability of Being in High Reporting Category</i>	
Base Case Scenario	.65
Revisions	
If No CPA	.47
If No State GAAP Requirement	.44
If No CPA and No State GAAP Requirement	.28

Table 11. Logit Regression Results

	Larger Districts		Smaller Districts	
	Coefficient	t-statistic	Coefficient	t-statistic
intercept	-3.631	1.28	-4.014	1.14
DEBT	.018	1.85	-.028	1.27
REVENUE	.066	1.03	.014	.17
% INTERGOV'TAL REV.	-.030	1.23	.014	.69
INDEPENDENT	.976	1.26	-.817	1.25
DEFICIT	-.095	.11	.001	.01
ENROLLMENT	-.034	.49	1.549	1.73**
CPA	3.148	3.11*	.358	.50
STATE REQUIREMENT	1.202	1.65**	.971	1.45

* 5% significance level

**10% significance level

Larger Districts
 -2 Log Likelihood = 51.40
 $\chi^2 = 35.54$ $p < .01$

Proportion Correct Classifications
 Naive Model .54
 Full Model .89

Smaller Districts
 -2 Log Likelihood = 79.72
 $\chi^2 = 8.75$ $p < .36$

Proportion Correct Classifications
 Naive Model .53
 Full Model .71

Table 11 presents the results of logit models for the two different enrollment groups of school districts. As was true for the continuous regression models, the CPA variable is important in the results for the larger districts, and is much less influential for the smaller districts. The State GAAP requirement is statistically significant in the model for larger districts. The Enrollment variable is the only statistically significant variable in the model for the smaller districts. The importance of the Enrollment variable is consistent with the size of the Enrollment variable coefficient in the continuous dependent variable regression results for the smaller districts.

The logit model has a higher accuracy prediction rate for the larger districts compared to that for the smaller districts (89% vs. 71%). The accuracy for each of these models is higher than the prediction accuracy (66%) for the model for the 127 districts considered as a whole. Using the median values of each group for the independent variables indicates that the probability of a median school district in the larger district category being in the high conformance category is .79, while the comparable probability for the median district in the smaller district category is only .39 (see Table 12). Not using a CPA decreases the

Table 12. Logit Scenarios for Enrollment Groups

	Scenario Values	
	Larger Districts	Smaller Districts
intercept	1	1
DEBT	24.14	16.18
REVENUE	17.92	19.70
% INTERGOV'TAL REV.	58.60	57.42
INDEPENDENT	1	1
DEFICIT	0	0
ENROLLMENT	4.77	2.19
CPA	1	1
STATE REQUIREMENT	1	0

	Probability of Being in High Reporting Category
<i>Larger Districts</i>	
Base Case Scenario	.79
Revisions	
If no CPA	.10
If no State GAAP Requirement	.54
If no CPA and no State GAAP	.05
<i>Smaller Districts</i>	
Base Case Scenario	.39
Revisions	
If State GAAP Requirement	.63
If no CPA	.31
If State GAAP Req. and no CPA	.54

probability of being in the high conformance category for both larger districts and smaller districts; however, the effect is much more pronounced for the larger districts.

E. Related Practices

The differences in the results for the Note Index model versus the Statement Index model suggest that school district officials do not view all generally accepted accounting principles in the same manner. To better understand what motivates a school district to follow certain practices and not others, cluster analysis was used to identify which individual practices appear to be related, i.e., when knowing whether or not a school district conforms to one particular practice is useful information in predicting whether or not that same school district conforms to another individual practice.

Table 13. Cluster Analysis

	<i>R² With Own Cluster</i>	<i>Next Highest</i>	<i>R² Ratio</i>
CLUSTER 1			
Gen. Fd. Budg. vs Actual	.2982	.1302	.4366
Gen. Fd. Rev & Expds	.0248	.0175	.7069
Spec. Rev Fd. Bal. Sheet	.7115	.0725	.1019
Spec. Rev Fd. Rev & Expds	.7248	.0089	.0123
Spec. Rev Rd. Budg. vs Actual	.7136	.0525	.0735
CLUSTER 2			
Capital Proj. Rev & Expds	.3423	.0798	.2330
Capital Projects Bal. Sheet	.5286	.2448	.4631
Debt Service Rev & Expds	.5066	.0229	.0452
Debt Service Bal. Sheet	.6727	.1067	.1586
Long-Term Debt Bal. Sheet	.4677	.0897	.1917
Long-term Debt Changes	.2020	.0497	.2462
CLUSTER 3			
Gen. Fd. Bal. Sheet	.2121	.1593	.7513
Fixed Asset Bal. Sheet	.3554	.0638	.1795
Fixed Asset Changes	.2418	.0086	.0357
Enterprise Fd. Rev & Expds	.2408	.0745	.3094
Modified Accrual	.1584	.0634	.4002
Funds Described	.3183	.0258	.0811
Depreciation	.4758	.1050	.2206
Contingent Liabilities	.3171	.0492	.1553
Encumbrances	.2671	.0625	.2341
Notes-Debt Service	.1987	.0966	.4863
Pensions	.1744	.0530	.3038
Leases	.2444	.0392	.1605
Unpaid Vacation	.2456	.0405	.1650

Cluster analysis is a means of grouping data in a manner that is suggested by the data itself rather than by some a priori basis. The purpose of cluster analysis is to group the data in a way in which items in a given cluster are similar, and objects in different clusters are dissimilar. A hierarchical algorithm suggested by Ward (see Milligan, 1980) is employed for determining the clusters. Beginning with clusters corresponding to individual observations, two clusters are merged together at each iteration to minimize the within-cluster sum of squares until the specified number of clusters is obtained.

Table 13 presents the results of the cluster analysis. The column labeled "own cluster" shows the squared correlation of the financial practice with its own cluster component, whereas the column labeled "next highest" contains the next highest squared correlation of the financial practice with a cluster component other than its own. The third column represents the ratio of the "next highest

Table 14. Cluster Analysis for Smaller Districts

	<i>R² With Own Cluster</i>	<i>Next Highest</i>	<i>R² Ratio</i>
CLUSTER 1			
Gen. Fd. Bal. Sheet	.3579	.0974	.2723
Gen. Fd. Rev & Expds	.1271	.0054	.0427
Debt Service Bal. Sheet	.5692	.1040	.1827
Debt Service Rev & Expds	.3636	.0092	.0254
Capital Projects Bal. Sheet	.3469	.2050	.5910
Capital Proj. Rev & Expds	.4313	.0572	.1326
Long-Term Debt Bal. Sheet	.3469	.2050	.5910
Leases	.2680	.1310	.4890
CLUSTER 2			
Spec. Rev Fd. Bal. Sheet	.8539	.0749	.0878
Spec. Rev Fd. Rev & Expds	.7527	.0130	.0173
Spec. Rev Rd. Budg. vs Actual	.6899	.1168	.1693
Encumbrances	.1205	.0280	.2327
CLUSTER 3			
Gen. Fd. Budg. vs Actual	.2427	.1231	.5071
Enterprise Fd. Rev & Expds	.3599	.0858	.2388
Long-Term Debt Changes	.3052	.0779	.2553
Fixed Asset Bal. Sheet	.3306	.1023	.3093
Fixed Asset Changes	.2487	.0101	.0408
Modified Accrual	.3448	.1391	.4034
Funds Described	.2246	.0411	.1831
Depreciation	.4484	.1755	.3914
Contingent Liabilities	.3119	.0551	.1766
Notes-Debt Service	.1280	.0109	.0852
Pensions	.1501	.0230	.1533
Unpaid Vacation	.2885	.0098	.0339

cluster" value to the "own cluster" value. Smaller ratios are associated with "better" clustering.

The nature of the groupings of individual practices may provide information about the way in which school district officials think about what practices to follow. For the purposes of this paper, the number of clusters was restricted to three.¹⁶ The three clusters can generally be described as: (1) Statements for the General Fund and Special Revenue Fund, (2) Statements for the Capital Projects Fund, Debt Service Fund and the Long-Term Debt Account, and (3) Notes and miscellaneous statements.¹⁷ These groupings suggest that school district officials primarily may think about financial reporting practices in terms of statements versus notes. These results appear consistent with the differences in the regression results for the Note Index and the Statement Index.

Tables 14 and 15 show the results of applying the cluster technique to the two

Table 15. Cluster Analysis for Larger Districts

	<i>R² With Own Cluster</i>	<i>Next Highest</i>	<i>R² Ratio</i>
CLUSTER 1			
Gen. Fd. Budg. vs Actual	.3279	.0914	.2787
Gen. Fd. Rev & Expds	.0594	.0189	.3184
Spec. Rev Fd. Bal. Sheet	.5584	.0618	.1107
Spec. Rev Fd. Rev & Expds	.6854	.0084	.0123
Spec. Rev Rd. Budg. vs Actual	.5803	.0528	.0910
Capital Proj. Rev & Expds	.2567	.1981	.7720
Modified Accrual	.0274	.0133	.4863
Pensions	.3453	.1393	.4035
CLUSTER 2			
Debt Service Bal. Sheet	.6937	.1485	.2141
Debt Service Rev & Expds	.6030	.0547	.0906
Fixed Asset Bal. Sheet	.2489	.1743	.7001
Long-Term Debt Bal. Sheet	.6877	.0356	.0518
Long-Term Debt Changes	.2568	.0035	.0138
CLUSTER 3			
Gen. Fd. Bal. Sheet	.2546	.1389	.5454
Capital Projects Bal. Sheet	.4027	.2031	.5043
Fixed Asset Changes	.1231	.0546	.4435
Enterprise Fd. Rev & Expds	.1841	.0405	.2198
Funds Described	.3849	.0435	.1130
Depreciation	.5740	.0151	.0263
Contingent Liabilities	.3707	.0653	.1761
Encumbrances	.4276	.1173	.2744
Notes-Debt Service	.3998	.1525	.3814
Leases	.1320	.0267	.2025
Unpaid Vacation	.3265	.0207	.0633

groupings of school districts based on enrollment size. In general, the results for each group consist of two statement clusters and one note cluster with a few statements intermingled.¹⁸ The breakdown between the statement clusters differs for the larger districts versus the smaller districts. The clustering for the smaller districts segregates the Special Revenue Fund statements from statements for other funds, while the larger district clustering tends to segregate the statements related to debt.¹⁹ The latter clustering seems consistent with the regression results for the larger districts that showed debt as a statistically significant variable.

IV. CONCLUSION

The regression results suggest that monitoring factors, specifically state requirements and the usage of CPAs as auditors, are more important than other types of factors in explaining variations in school district reporting practices. The importance of the state oversight was expected since states play a major role in the oversight and financing of school district operations.

Previous studies also have found the CPA auditor and state GAAP variables to be positively associated with financial reporting practices (see Table 16); however, in these studies the results were not statistically significant at a ten percent significance level. These results suggest that the monitoring by CPA auditors and the state government may be more important for school districts than for other types of governmental units.

Another monitoring factor, the amount of government debt, was found to be statistically significant with a positive sign in the school district financial reporting model. This finding is consistent with the positive statistical significance of the debt variable in Evans and Patton's (1987) model on participation in the GFOA Certificate of Conformance Program. However, Baber (1983) found that debt was statistically insignificant in explaining variations in state audit budgets. This suggests that government officials perceive that investors are concerned with some types of financial reporting practices to a greater extent than they are with other types of financial practices.

Prior studies (Zimmerman, 1977; Baber, 1983; Ingram, 1984) have found political factors to be determinants of financial reporting practices. The lack of importance of the political factors in the school district models may mean that political factors are not as influential for school districts, or that the surrogates used in this paper are not capturing the political aspects. Baber (1983) and Ingram (1984) each used better defined measures of political competition in their studies on state financial practices; however, this type of information is not available for school districts.

Additional explanatory information was obtained by separating the districts into two groups according to enrollment size. The CPA and Debt variables were

Table 16. Comparison of Empirical Results

	<i>Banker Bunch Strauss (1989)</i>	<i>Evans Patton (1987)</i>	<i>Ingram (1984)</i>	<i>Baber (1983)</i>	<i>Zimmerman (1977)</i>
Dependent Variable					
—government	school districts	cities	states	states	municipalities
—measure	reporting index	GFOA Cert. Pgm. Part.	disclosure index	audit budget	annual rept length and auditor type
Independent Variables (hypothesized sign)					
1. Debt (+)	(+) S	(+) S	(+)S*	I	N/A
2. Rev/Student (Fiscal Ability +)	(+) I	N/A	(+)S*	N/A	N/A
3. % intergovt revenue (monitoring +)	(+) I	N/A	(+)S*	N/A	N/A
4. Form of Govt mgr=1, mayor=0 (+) indep=1, dep=0 (-)	(+) I	(+) Mixed S	N/A	N/A	(+) S
5. Deficit (-)	(-) I	N/A	N/A	N/A	N/A
6. Size —enrollment —population	(+) I	N/A	(+)S*	(+)S	N/A
7. CPA	(+) S	N/A	(+) I	N/A	N/A
8. State GAAP	(+) S	(+) I	N/A	N/A	N/A

N/A = Not Applicable

* = This variable was included in a principal component that had the sign and statistical significance noted.

Classification of results as statistically significant (S) or insignificant (I) is based on $p < .10$.

statistically significant for the larger districts and the Intergovernmental Revenue variable was statistically significant for the smaller districts.

The differences in results for smaller versus larger governments is consistent with Rubin's study on municipal audit fee determinants (1986) and Evans and Patton's study on participation in GFOA's Certificate of Conformance Program (1987) which each found that the importance of explanatory factors was different in some ways for larger versus smaller governments. These findings suggest that future research may find it useful to allow for different models for governmental units of different sizes.

In addition to exploring what types of factors explain financial reporting variations for school districts, this paper has built on Ingram's work by examining different ways of measuring the level of financial reporting practices. A school district model based on an index that included only essential practices (i.e., practices that are applicable to every school district in the sample) produced results comparable to those based on a more comprehensive 24-practice index. As was true in Ingram's study, a dichotomous model for school district financial reporting practices confirmed the major results from a continuous dependent regression model based on a financial reporting practice index.

Two new types of indices, a Note Index and a Statement Index, were also developed in this paper. Models based on these two indices produced the same statistically significant explanatory variables, however, the signs for four other independent variables were inconsistent for the two models and the total variation explained by the linear model was much higher for one of the models. This suggests that the impact of certain independent variables may vary depending on the type of financial reporting practice. Although the results from a model based on a comprehensive index may be easier to interpret, some information appears to be lost in the aggregation process. Therefore, future research may find it useful to disaggregate measures into groupings of practices that government officials tend to view similarly.

ACKNOWLEDGMENTS

Helpful comments and suggestions by William Baber, Robert Ingram, Florence Sharp, Wanda Wallace, and Earl Wilson are gratefully acknowledged.

NOTES

1. This index does not necessarily measure GAAP conformance. The correlation between the 24-practice index and the audit opinion indicating GAAP conformance (or nonconformance) is 0.41, with the sign in the expected direction and a significance level of 0.0001.

2. Ingram (1984), in his study of state financial reporting practices, notes that the federal government typically imposes audit requirements rather than financial reporting requirements in connection with federal grants. However, Ingram still includes an intergovernmental variable in his study.

3. The survey covers requirements in existence as of October, 1982. Although the school district data in this study are for fiscal 1979, adequate documentation of state requirements did not exist for that time period.

4. In our sample, 65 school districts are located in states that require GAAP financial practices, 59 districts are in states that require financial practices that are not consistent with GAAP, and only 3 districts are in states that do not specify what financial practices to use. Due to the small size of the last category, the variable for state GAAP primarily has a value equal to one if the school district is in a GAAP state and a value equal to zero if the district is in a non-GAAP state.

5. Other studies (Ingram, 1984; Evans and Patton, 1983) have indicated that a potential problem exists in that total debt may be highly correlated with the population served by the governmental unit. However, this concern does not appear to apply to the school district data since the correlation factor for school district enrollment and total debt is 0.41.

6. In this paper, independent CPA refers to a contracted CPA auditor. This is not intended to imply that internal or state auditors cannot be independent or CPAs.

7. Prior studies (Wallace, 1981; Wilson and Howard, 1984) have found accounting and auditing practices to be related to bond ratings and/or interest costs.

8. In a study of private sector financial disclosure, Singhvi and Desai (1971) used the rate of return on assets as an independent variable. They hypothesized that, all else equal, financial disclosure would be greater for firms which had higher rates of return. The coefficient was positive, but not statistically significant at the 10 percent significance level.

9. Ingram used revenues per capita, excluding intergovernmental aid because grants to states are often given for specified purposes. We used total revenues per student based on the assumption that intergovernmental grants may free own source revenues to be used for other purposes. The results do not differ appreciably if this variable is measured as net revenues per student.

10. Selection of school districts with enrollments of 15,000 or more allowed the use of Census data for the independent variables. Census data for 1979 includes information only on individual school districts for districts with enrollments of 15,000 or more.

11. The test statistics ranged from -0.84 to 1.21.

12. The "condition indices" are the square roots of the ratios of the largest eigenvalue to each individual eigenvalue. Therefore the number of condition indices is equal to the number of variables, including the constant term. Since the presence of linear dependencies results in small eigenvalues, a larger condition index is associated with a stronger presence of multicollinearity.

13. The R^2 values from the regression results in which one independent variable is regressed on the other independent variables are consistent with the Belsey-Kuh-Welsch test. The regressions with Revenue/Student and Intergovernmental Revenue as the dependent variables are the only ones with R^2 above 0.35.

14. As before, this index was applied only to school districts with outstanding debt. The group with the larger school districts consists of 57 districts and the other group has 60 districts.

15. In a recent study of municipal audit fee determinants, Rubin (1986) finds a similar phenomenon for cities of different sizes. The explanatory power of the regression for the larger cities is much higher than that for the smaller cities.

16. If the statistical procedure is allowed to create five clusters, the Debt Service Fund statements separate from Cluster 2 to form a separate cluster and the Fixed Asset Account statements, the General Fund Balance Sheet, Modified Accrual, and Leases separate from Cluster 3 to form a new cluster.

17. The Fixed Asset Account statements, the Statement of Revenues and Expenditures for the Enterprise Fund, and the General Fund Balance Sheet are in the notes grouping. The R^2 ratio for the General Fund Balance Sheet is high, indicating that this statement does not clearly fit into any one cluster.

18. The General Fund statements and the Capital Projects statement that are grouped in the notes cluster have fairly high R^2 ratios and therefore are not good fits.

19. If the cluster analysis for the smaller districts is allowed to create five clusters, then the three Revenue and Expenditure Statements separate from Cluster 1 to create a new cluster and the Fixed Asset Account statements, Pensions, and Unpaid Vacation separate from Cluster 3 to form a new cluster. For the larger districts, Modified Accrual and the Revenue and Expenditure Statements for the General Fund and the Capital Projects Fund separate from Cluster 1 to form a new cluster and the Balance Sheets for the General Fund and Capital Projects Fund, along with Encumbrances, Description of Funds, and Debt Service Requirement Notes, form a cluster.

REFERENCES

- American Institute of Certified Public Accountants. *Audits of State and Local Governmental Units* (New York: AICPA, 1974).
- Baber, W., "Toward Understanding the Role of Auditing in the Public Sector," *Journal of Accounting and Economics* (December, 1983), pp. 213-227.
- Barr, R.H., *Financial Accounting for Local and State School Systems* (Washington, D.C.: National Center for Education Statistics, U.S. Department of Education, 1980).
- Belsley, D.A., E. Kuh, and R.E. Welsch, *Regression Diagnostics* (New York: John Wiley & Sons, 1980).
- Campbell, Ronald F. and Tim L. Mazzone, Jr. *State Policy Making for the Public Schools* (Berkeley, CA: McCutchan Publishing Corporation, 1976).
- Copeland, R.M., and R.W. Ingram, "Municipal Financial Reporting Deficiencies: Causes and Solutions," *Governmental Finance* (November, 1979), pp. 21-23.
- Ernst & Whinney, *How Cities Can Improve Their Financial Reporting* (Cleveland: Ernst & Whinney, 1979).
- Evans, J. and J. Patton, "An Economic Analysis of Participation in the Municipal Finance Officers Association Certificate of Conformance Program," *Journal of Accounting and Economics* (August, 1983), pp. 151-175.
- Evans, John H. and James M. Patton, "Signaling and Monitoring in Public-Sector Accounting," *Journal of Accounting Research* (Supplement, 1987), pp. 130-158.
- Haseman, W.D. and R.P. Strauss, "The Quality of Financial Reporting by General Purpose Local Governments," in *Objectives of Accounting and Financial Reporting for Government Units: A Research Study Vol II*. (Chicago: National Council on Governmental Accounting, 1981).
- Ingram, R.W., "Economic Incentives and the Choice of State Government Accounting Practices," *Journal of Accounting Research* (Spring, 1984), pp. 126-144.
- Ingram, R.W., "The Importance of State Accounting Practices for Creditor Decisions," *Journal of Accounting and Public Policy* (Spring, 1983), pp. 5-18.
- Levy, Frank, Arnold J. Meltsner, and Aaron Wildavsky, *Urban Outcomes: Schools, Streets, and Libraries* (Los Angeles: University of California Press, 1974).
- Milligan, G.W., "An Examination of the Effect of Six Types of Error Perturbation on Fifteen Clustering Algorithms," *Psychometrika* (Vol. 45, 1980), pp. 325-342.
- Municipal Finance Officers Association, *Surveying the States: A Nationwide Look at GAAP and GAAS for Local Government* (Chicago: MFOA, 1983).
- National Committee on Governmental Accounting, *Governmental Accounting, Auditing, and Financial Reporting* (Chicago: NCGA, 1968).
- National Council On Governmental Accounting, *Statement 1: Governmental Accounting and Financial Reporting Principles* (Chicago: NCGA, 1979).
- New York Times* May 7, 1980, p. D9.
- Rubin, M.A., "Municipal Audit Fee Determinants," Working Paper, (University of North Carolina at Chapel Hill, 1986).
- Singhvi, S., and H.B. Desai, "An Empirical Analysis of the Quality of Corporate Financial Disclosure," *The Accounting Review* (January, 1971), pp. 129-138.
- "Standard & Poor's Urges Standard City Audits," *New York Times*, May 7, 1980, p. D9.
- U.S. Bureau of the Census, *1982 Census of Governments: Governmental Organization Volume I* (Washington, D.C.: Government Printing Office, 1983).
- U.S. Bureau of the Census. *Finances of Public School Systems in 1982-83* (Washington, D.C.: Government Printing Office, 1985).
- U.S. Bureau of the Census. *Statistical Abstract of the United States* (Washington, D.C.: Government Printing Office, 1986).

- Wallace, W.A., "The Association Between Municipal Market Measures and Selected Financial Reporting Practices," *Journal of Accounting Research* (Autumn 1981), pp. 502-520.
- Wilson, E.R. and Howard, T.P., "The Association Between Municipal Market Measures and Selected Financial Reporting Practices: Additional Evidence," *Journal of Accounting Research* (Spring, 1984), pp. 207-222.
- Zimmerman, J.L., "The Municipal Accounting Maze: An Analysis of Political Incentives," *Journal of Accounting Research* (Supplement, 1977), pp. 107-144.