

**ORGANIZATIONAL CONFIGURATION AND PERFORMANCE: THE CASE OF
PRIMARY AND SECONDARY SCHOOL SYSTEMS**

By

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ABSTRACT

Williamson has argued that in large organizations, decentralization of a particular type, known as the M-Form, outperforms more centralized types. We ask whether the effect applies to large school systems, as it does to businesses. Our research team investigated nine school systems, including the three largest districts in the United States; three (in Canada and the U.S.) that use an innovative budgeting system to achieve a radically decentralized M-Form structure; and the three largest Catholic Archdiocesan systems in the U.S. Our data generally support the view that decentralized public school districts outperform more centralized districts on student performance outcomes, administrative efficiency, and incidence of corruption.

ABOUT THE AUTHORS

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I. The Problem: Organizational Structure and the Failure of Urban Public Schools

Public schools, especially urban public schools, are now front-and-center among U.S. national priorities. Ever since the publication of *A Nation At Risk in 1983* (National Commission on Excellence in Education, 1983), Americans have been preoccupied in particular with two problems: (1) student performance is unsatisfactory to most Americans and it has not improved despite large increases in real spending per student (Cooper and Assoc., 1994, Hanushek, 1994) and despite several attempts at reforming curricula, teacher training, testing, and other elements of education (e.g. Tyack and Cuban, 1995; Ravitch, 2000); and (2) there is a large and persistent gap in scores on standardized tests between White and Asian students on the one hand and African-Americans and Hispanics on the other (Tyack and Cuban, 1995: 22-28).

Much of the debate over what to do about education centers not on curriculum, teacher training, or testing, but on a key aspect of organizational configuration: centralization *versus* decentralization. On the side of centralization lie those who favor stricter curricular and testing standards at the national level (Tucker and Coddling, 1998). On the side of decentralization are those who favor school-based management (Mohrman and Wohlstetter, 1994), while the most ardent of decentralizers support government-funded school vouchers and charter schools (Chubb and Moe, 1990).

Schools are one of the largest classes of organizations and should attract the attention of organizational scholars. Not only are there lots of schools in every state, they have undergone a

transformation both in size and in environment during the past few decades, and thus should be of great interest as a focus of organizational research. During the period 1930 to 2001, U.S. enrollment grew from 25.7 million to 47.5 million, while the number of public schools declined from 113,000 to 88,585. As a result, the average size, across elementary, middle, and high schools increased from 227 students to 515 (Chubb, 2001:32). Meanwhile, the number of private schools increased from 12,500 to 36,095, while the average size of those schools declined from 211 students to 160. Throughout this period of 66 years, private schools held steady at 10% of all students, with public schools holding 90%, although private schools appear to have gained some ground recently. Even among private schools, though, dramatic changes are underway. For example, over the years 1965-2000, enrollment in U.S. Catholic schools fell by 55%, from 5.5 million to 2.5 million, while enrollment in Jewish schools grew from 73,112 to 169,751 (Cooper & Kramer, 2002:3).

America has also been consolidating small school districts into larger ones: the number of local school districts declined from 127,531 in 1932 to 16,960 in 1973, according to Tyack and Cuban (1995. op.cit.). Today, there are 16,850 (Young, 2002:1-2). Chubb (2001:33) has divided these into three groups of school districts: small, medium, and large. The large districts have at least 25,000 students each and we now have 226 of these. Together, they enroll 31% of all public school students. Medium districts of 2,500 to 25,000 number 3,662, and they have 50% of all students. There are more than 10,000 small districts, which enroll among them a total of 19% of all students. The very largest school districts have enrollments of more than 100,000, and there are 25 of these in the United States (Young, 2002:1-2).

As for the environment in which schools exist, there has also been a great change. Tyack and Cuban (1995:13) report that a 1940 Gallup Poll showed that 85% of U.S. parents were satisfied with the public schools. In 1978, Meyer et al. reported that satisfaction among teachers and parents was still high in their study of elementary schools. By comparison, a 2001 poll in Los Angeles by The Los Angeles County Alliance for Student Achievement reported that half of the parents surveyed gave the Los Angeles Unified School District a grade of “C” or lower (Los Angeles County Alliance for Student Achievement, 2001). *Education Week* reported in its issue of May 21, 2003 that the percentage of the general public that rates public schools as “excellent” or “good” has declined steadily from 63.7% in 1996 to 53.7% in 2002.

The political environment of public schools has also undergone radical change, with an increase in instability, conflict, and external pressure on schools (Ouchi and Segal, 2003). In Chicago, Cleveland, and New York City, mayors have taken over control of the schools, and in Pennsylvania, the Governor has seized control of the failed Philadelphia public school system. The President of the United States has made school reform one of his top priorities. In July of 2002, the Supreme Court upheld the constitutionality of publicly funded vouchers, even when they are used to purchase Catholic school educations (Wells, 2002).

Today, the typical individual school has become much larger than before and the typical school district has become quite large as an organization. It might have previously been the case that school systems were small organizations with simple environments and that the science of organization had little to say about them. Now, however, these large, complex organizations with challenging environments should be fertile ground for organizational analysis.

II. The Literature on the Organization of Schools

There is a substantial and growing literature on schools as organizations. Almost all of this work suggests that decentralized decision making is associated with several benefits, with the most important of those being higher student achievement as measured by scores on standardized tests. These studies can be roughly classified into two categories: case studies of single school districts, and comparative studies of individual schools within a single school district. Among the case studies, Diane Ravitch (1974) established school district organization as a major theme in her history of two hundred years of alternating centralization and decentralization in New York City. Bryk et. al., reported on the partial decentralization of control from the central office to Chicago's public high schools in another major study (1998). Among the studies of decentralization with the individual school as the unit of analysis, Bryk et. al. (1993) evaluated the success of the country's archdiocesan Catholic schools largely in terms of their local autonomy (1993) and Linda McNeil (2000), argues that some reforms have resulted in a loss of local school autonomy, thus leading to lower student learning. Other studies by McLaughlin & Shepard, 1995, Borman et.al., 1996, Odden (1994), Odden and Busch, 1998; and by Hill et al. 2000 have also emphasized decentralization as a key property of successful public schools, with the individual school rather than the school district as the unit of analysis. An anthology edited by Hannaway and Carnoy (1993) is devoted entirely to papers on the subject of decentralization and its positive relationship to student performance. There are also voluminous literatures on various aspects of the "production function" economics of education (e.g. Hanushek, 1986; Hoxby, 1996; Lazear, 2000), some of which imply in one way or another that decentralized decision-making is associated with greater student achievement as measured on

standardized tests. None of these studies, though, has attempted to analyze the organizational configuration of a sample of school systems, with the system as the unit of analysis in a comparative framework.

One recent major empirical study has taken the school system as the unit of analysis with a small sample of systems and thus deserves special attention: *Foundations for Success: Case Studies of How Urban School Systems Improve Student Achievement* (Snipes, Doolittle, and Herlihy, September 2002). This report studied three urban districts that have improved student results: Sacramento, Houston, and Charlotte-Mecklenburg. The authors note in the preface to their report that,

We were met with a fair amount of skepticism when we started. We were told that there were school “effects” and teacher “effects” and state “effects” – but there were no district effects...This study, however, indicates that such an effect is possible... ”

The authors found that districts with a politically stable environment and with stable management improved. Organizational shape was not of interest in their study, though, and thus they did not take account of the centralization-decentralization issue, which lies at the heart of our analysis.

These studies stand in stark opposition to the work on schools that was done by organizational scholars twenty years ago, which concluded that schools are “loosely-coupled organizations” in which structure has no close relationship to performance (Cohen, March, & Olsen, 1972; March & Olsen, 1976; Weick, 1976; Meyer & Rowan, 1977). As Swanson and Stevenson (2002) explain,

According to this perspective, the technical work of schooling, i.e., teaching and learning, is only loosely tied to the administrative structures of the school. The work of instruction is performed within individual classrooms that are substantially isolated from the teaching practices used in other classrooms, even within the same school. (2002: 2)

Perhaps the most sustained series of studies of the organization of schools was that by a group at Stanford University. Their intention was to replicate the technology-structure relationship that had been reported in other industries (Cohen, Meyer, Scott, and Deal, 1979:21). To their surprise, the expected results did not materialize. None of their measures of structure had any analytical power at all. In order to explain this incongruity between theory and data, Meyer, Scott, and Deal offered the conclusion that,

Thus, the problem may not be with the organization of schools, but with the types of models social scientists apply to examine them (1981:156).

The replacement model that they suggested was closely related to the work of Weick (1976) and of March and Olsen (1976), both of whom had also studied schools, and was that

schools and districts are institutionalized organizations and are loosely coupled so far as technical educational work is concerned (Meyer et. al., 1978:259).

One major implication of this line of research on schools was that the extant paradigm of formal organization (e.g., Blau and Schoenherr, 1971) was wrong, or at least that it was not, as had been hoped, universal. Structure was not, after all, the key to understanding large, complex organizations. The study of institutionalized symbols soon supplanted the study of formal structure (Zucker, 1977, 1983; Tolbert and Zucker, 1996).

In retrospect, one might say that this line of school-based research added a major facet to the study of organizations but that it may have prematurely concluded that schools do not respond to the same structural imperatives as do other kinds of organizations. Perhaps the problem was that the classroom is not the correct unit of analysis for the study of formal structure, or that the other variables typically chosen are incapable of revealing structural effects, as Hannaway and Carnoy suggest (1993:233). In any case, it is a great irony that organization

theorists, who pioneered the study of formal organization with studies of school systems (Terrien and Mills, 1955; Bidwell, 1965), concluded that formal organization does not matter when it comes to schools.

III. Hypotheses

The research reported here takes the school system as the unit of analysis, not the individual school, the classroom, nor the national policy level. While there are several approaches to operationalizing the construct of organizational configuration, our model is that of Williamson's M-Form Hypothesis (1975:150, Williamson and Ouchi, 1981, Williamson, 1991). This model is particularly well developed in the literature of organizational studies and lends itself particularly well to the study of large school systems. As far as we can determine, there are no other empirical studies that have applied Williamson's framework to the study of school systems.

Williamson offered a typology of organizational forms consisting of the U-Form, or functional organization, the M-Form, or multidivisional organization, and the H-Form, or holding company. In brief, the U-Form structure centralizes all important operating and policy decisions in a large central office, while the H-Form, its conceptual opposite, decentralizes all decisions to operating sub-units and maintains a skeletal central office staff to perform only financial activities. The M-Form is a hybrid that centralizes some activities that afford scale economies, decentralizes operating decisions to the sub-units, and provides policy guidance and broad accountability from the central office. Williamson has consistently emphasized that the M-

Form will outperform all other types among large organizations due to its superior control properties.

Because Williamson's formulation is couched in the language of business firms, it will be helpful to provide a brief summary here of the application of his typology to school systems. A U-Form school system is one in which all systems are specialized at the headquarters. Thus, the purchasing of books and materials, control over utility budgets, personnel hiring and evaluation, and teacher training – all are closely controlled within their own functionally specialized units at headquarters. Individual schools are functionally specialized as well, having the sole function of implementing the staffing plan, pedagogical, and other plans that have been decided at a headquarters office. They accept the formulaically determined numbers of teachers, aides, counselors, nurses, and other staff that they are given, and these employees receive whatever training the central office provides. While few school systems will exhibit all of these characteristics in pure form, the conceptual type is clear. Virtually all traditional public school districts, large and small, resemble this U-Form quite closely.

An M-Form school system is one in which most of these major functions of the central office have been delegated to individual schools. Thus, each school makes its own decisions of who to hire, what proportions of teachers versus classroom aides to use, how many part-time or full-time staff, which books and materials to purchase, how much to spend on electricity and computers, how much of the budget to allocate to teacher training, and so on.

The final type is the H-Form, or holding company. An H-Form company is typically a conglomerate that has a very small central office staff. Among school systems, the H-Form very accurately captures the diocesan Catholic school systems. Bryk, Lee, and Holland (1993), for

example, characterize Catholic schools as loose federations of independent schools, rather than as unified school systems. In the H-Form organization, each school is on its own to set its admission criteria, tuition, salaries, and staffing plan. It goes without saying that each chooses its own teaching approach (e.g. team teaching, looping, departmentalization) and books and that each school must collect enough money to pay its bills, or go out of business.

Other studies on the M-Form Hypothesis and on organizational structure lend support to the hypothesis that decentralized school systems should outperform other organizational types. Grinyer, Yasai-Ardekani, and Al-Bazzaz (1980) find that when the sub-units of an organization are geographically dispersed, the M-Form is more likely to appear – a condition which describes most school districts. Blau and Schoenherr found that the effects of large size on organization are completely developed at fewer than 3,000 employees (1971:64): all of the school systems in our study are larger than that and thus should benefit from decentralization. Thus it is no surprise that educational policy researchers advocate decentralization in large school districts (Mohrman, Wohlstetter and Assoc. 1994).

Other research demonstrates why it is that most school systems remain centralized despite the advantages of decentralization. Palmer, Friedland, Jennings, and Powers (1987) demonstrate that social/political goals of powerful constituents such as owners can dictate the use of the U-Form despite efficiency considerations. In school districts, it might be argued that some constituencies prefer the U-Form for its large number of highly paid central office jobs which can be awarded as patronage. Perhaps this explains why virtually all public school systems in North America are in the U-Form today.

H-1: The more decentralized the organization of a school district, the higher will be its administrative efficiency, defined as a smaller ratio of administrators to teachers and a higher percentage of budget spent at the classroom rather than the central office.

A. Total central office staff measured as Full-Time Equivalents (FTEs) per 100,000 students will be lower.

B. Percent of total district budget reaching classrooms will be higher.

C. Percent of total district budget spent on teacher pay will be higher.

Research on accountability in schools is closely related to the study of organizational control. Williamson (1975:133-134) describes the superiority of the M-Form in terms of its ability to minimize “radial control loss”. This is so because each sub-unit has control of most of the important decisions and thus can be fairly measured by the level of its outputs, such as attendance rates and scores on standardized tests.

In operationalizing the concept of accountability, we use the formulation described by Segal (1997, 1999, 2002, 2003). Segal, a legal scholar who specializes in control systems found in public school districts, distinguishes between two forms of accountability. Compliance accountability refers to control systems that monitor budgets and other fiscal activities, while performance accountability refers to the level of output (such as student achievement) achieved by teachers, principals, and others in the system. Segal reports that decentralized school districts that have proper accountability systems display lower levels of corruption (Segal, 2003: 280-290). Barzelay and Armajani (1992) report that decentralized government agencies are associated with higher levels of accountability for performance.

H-2: A more decentralized school system will exhibit greater efficiency and effectiveness in both compliance accountability and in performance accountability:

- A. Surveillance staff will be smaller in decentralized school systems.
- B. Corruption indicators will show lower case loads and a lower incidence of major corruption.
- C. Control over personnel will be stronger, including greater ability to remove teachers and principals for poor performance.

Decentralization of decision-making in large organizations is particularly important where each operating unit faces unique conditions (Williamson, 1975). For example, new technologies have recently developed for teaching literacy to at-risk children, especially those from low-income homes and those who are designated as “special education” students. Educators believe that those approaches are not effective, though, for school-ready, middle-class children. Another example is that some schools will have large groups of gifted and talented students, and others will have large immigrant populations. In each of those cases, the school should adopt an approach that is specialized for its unique group of students. In a centralized district, however, all schools are compelled to use the same books and methods in all classrooms or must go through an onerous process to seek permission to depart from the standard approach.

It should be the case that decentralized school districts will thus be able to fit the instruction to the student with greater precision than in centralized districts, and thus they should outperform centralized districts. Furthermore, our visits to schools suggest that schools in decentralized districts enjoy all of the same motivational and managerial benefits that are found

in businesses that are run in a decentralized, or consultative, fashion (also see Shane, 1996; McNeil, 2000).

H-3: Student performance will be superior in decentralized school systems:

- A. Student performance on standardized tests will be higher in decentralized school systems.
- B. The racial achievement gap on standardized tests will be smaller in decentralized school systems.

IV. Methodology

This section describes the sample and the methods of data collection. The sample is not a representative sample but instead includes the universe of the three largest public and archdiocesan school systems, plus the only three urban public districts which use a decentralized budgeting system, in North America. To complete the picture of all types of schools, we also included one independent school in each of the six cities.

The Sample and Methods of Data Collection

Our sample included four groups of schools: (1) the three largest public school systems in the U.S.: New York City with 1,211 schools, Los Angeles with 789 schools, and Chicago with 597 schools, all of which are by reputation known as U-Form organizations; (2) the three urban districts in North America that are widely believed to be the most decentralized: Edmonton, with 209 schools, Seattle with 94 schools, and Houston with 288 schools, which we believed to be M-Form; (3) the three largest privately operated and funded Catholic districts, because they are very completely decentralized: Chicago with 302 schools, Los Angeles with 269 schools, and New

York City, which has 286 archdiocesan schools, which we believed to be H-Form; and (4) a group of six independent schools, which represent the ultimate form of decentralized decision-making because they are privately owned and operated. The main samples, of the three largest public schools, the three only weighted student formula schools in existence, and of the three largest archdiocesan systems, each constitute a universe rather than a sample. Thus, statistical tests are not really relevant, but we include them for the convenience of those readers who prefer to have them.

Within each system, we interviewed at least 5% of the schools, with a minimum of 15 public schools and of 10 Catholic schools in each system. In each case, we interviewed the school principal and visited classrooms. In several cases we returned for a second visit and also chose one school in each system for a two-day extended second visit. We gathered voluminous data on the budget and on student test scores in each school, and our interviews were guided by an interview protocol that included a questionnaire. Our budget analysis follows the method established by Cooper and Associates (1994; see also Cooper and others, 1998; Hartman, 1999; Cooper, Nisonoff, and Speakman, 2001; and Cooper and Nisonoff, 2002).

Some comment on the practical constraints on our sample is in order. School districts are among the most politically vulnerable of organizations. School boards and superintendents are in the newspapers and on television and radio news programs almost daily. In this situation, entrée to school systems is difficult, to say the least. We were able to gain access to all of the districts that we wanted, although it wasn't easy. We interviewed the Chief Executive Officer, the Chief Financial Officer, and other top executives of every district. We interviewed the

Inspector General in districts that had one, and we made no promises of favorable treatment to anyone.

However, we left it up to each Superintendent or, in the case of New York City, to the Chancellor of the entire system (the 43 Superintendents report to the Chancellor), to select the schools that we visited. We asked that they give us about one-third each of excellent schools, average schools, and struggling schools. We have no way to know what intentions they actually had, although it would be prudent to assume that they overweighted our sample with their best schools. Nonetheless, our sample is rich with failing schools and has more “average” schools than any other type. Schools that we consider to be excellent in their management and their results, given the student populations, were few in number.

V. Results: Characteristics of the Sample Compared to the Population

Appendix A compares the mean size of our schools to the district-wide mean. Only in the case of the Chicago Public Schools were our 30 sample schools significantly larger ($p < .05$) than the district’s average size of 747 pupils across all levels of schools. In Appendix B, we compared the enrollment for each level of school (elementary, middle, and high schools), to see if the sample schools were typical of the average school size for the districts. T-tests showed that in the New York City, Los Angeles, Chicago, and Seattle samples, the elementary schools in our sample were significantly larger ($p < .05$) than the average elementary school in the system. At the high school level, only the Los Angeles public sample schools were significantly larger ($p < .05$) than the average high school for the district.

We also examined the level of poverty in these sample districts and schools (Appendix C), as indicated by the percent of students on “free and reduced lunch,” the standard measure used by state and federal governments for awarding Title I education grants. Our tests of significance indicate that in most cases the districts did not differ from our sample in percentage of students from low-income homes, with the exception of Los Angeles, where our schools were less impoverished than the typical school; and in the New York City Catholic schools, which had significantly higher levels of low-income students than the overall levels of Catholic elementary schools across the archdiocese, which includes suburban communities.

VI. Results: Tests of the Hypotheses

Classification of the school systems

Our first step was to determine whether the school systems that we had selected could actually be sorted into the three types of U-Form, M-Form, and H-Form. To determine the type of each district, we relied upon published research and on our evaluation of each school system based on interviews with key executives, researchers in each city who have studied the schools, and interpretation of various documents that we obtained.

Our most critical task was the identification of U-Form and M-Form districts. Here, we were able to rely on the budget allocation and management system used by the public school districts themselves. We found that most school districts allocate funds to individual schools based on a system known as Enrollment Ratio Formula (ERF). The three largest districts in our

sample all use this system. More recently, a new system of budgeting known as Weighted Student Formula (WSF), first developed in Edmonton in 1973, has come into use.

The public school districts of New York City, Los Angeles and Chicago use the Enrollment Ratio Formula approach. This system restricts the principal's control over funds and lodges it instead in a large central office bureaucracy that makes allocation decisions based on enrollment and student types, and then assigns staff and other resources to each school. Each school receives a formulaic number of teachers, paraprofessionals, librarians, and so on. In Los Angeles, all elementary schools receive the same reading books and must choose from one of two math books. Edmonton, Seattle, and Houston, by contrast, use Weighted Student Formula. This approach was developed by trial-and-error in Edmonton beginning in 1973, and it was subsequently transported to Seattle in the 1998-99 school year and then to Houston beginning in the 2000-2001 year (Ouchi and Segal, 2003). Beginning with the 2002-2003 school year, this system is being implemented in the Cincinnati public school district. Weighted Student Formula provides each principal with a "block grant" of money. Along with this budget system comes the freedom and the obligation for each principal to exercise local judgment in deciding which activities to undertake, although all schools must offer a standard curriculum that is set by the state or province. Students are free to choose any public school, and schools which cannot successfully attract enough students will either be attached to schools that have larger enrollments or will be closed. In some cases, the freedom to choose a school is attenuated by a shortage of openings, particularly at popular schools.

In Weighted Student Formula districts, students with a maximum weighting receive as much as ten times the annual funding as basic students. For example, in the Seattle

implementation of the system, the minimum child receives an allocation of \$2,600 per year, while the maximum child (one with multiple learning disabilities, from a low-income family, and non-native English speaking) receives a weighting of 9.2, or \$23,920 per year (Seattle Public Schools, 2001:5). Each student is free to choose any public school in Seattle, and the money follows the child. In addition, each school receives a flat base allocation so that small schools can meet their costs. Principals are free to decide how to apportion these funds between credentialed teachers, paraprofessionals, clerical staff, materials, utilities, building maintenance, and so on. In Enrollment Ratio Formula districts, most of these decisions are made at the central office.

Our data set also includes the three largest Catholic archdioceses in the U.S. – Chicago, Los Angeles, and New York City. Catholic school systems correspond quite closely to the H-Form concept described by Williamson (1975: 143-144). Most primary schools are owned and operated by local parishes, and the school principal reports to the local parish priest. Typically, these schools are grades k-8, while senior high schools include grades 9-12. The high schools are owned either by religious orders, by private boards of trustees, or, in a few cases, by the archdiocese.

From these analyses, we conclude that the classification of our school systems into Williamson's three types is substantially correct, although with varying degrees of correspondence to each type. The Los Angeles Unified School District is most nearly the pure type of U-Form, centralized organization. Edmonton Public most completely displays the decentralized features of the M-Form. All three of the Catholic districts exhibit a similar organizational form, which fits very well Williamson's description of the H-Form.

Description of the Nine School Systems

Table 1 displays the descriptive data for the nine school systems in our sample. The districts are clustered by organizational type: Enrollment Ratio Formula (or U-Form) districts are listed first, followed by the three Weighted Student Formula districts (M-Form), and then the Catholic systems (H-Form). Table 1 exhibits great variation within our sample, with enrollment ranging from 44,831 students in Seattle to 1.105 million students served by the New York City Board of Education. Note that all three of the ERF districts are larger than the WSF districts in our study.

Table 1: Descriptive Statistics for 2000-01 on Nine School Systems

	Enrollment	Total Operating Budget	Per Pupil Expenditure	Number of Schools	Average School Size
New York City Board of Education (ERF)	1,105,045	\$12.419 bill.	\$11,823	1,211	913
Los Angeles Unified School District (ERF)	722,727	\$6.966 bill.	\$9,638	789	916
Chicago Public Schools (ERF)	435,470	\$3.575 bill.	\$8,210	597	729
Houston Independent School District (WSF)	208,672	\$1.160 bill.	\$5,558	288	725
Edmonton Public Schools (WSF)*	80,862	\$0.465 bill.	\$5,750	209	387
Seattle Public					

Schools (WSF)	44,831	\$0.435 bill.	\$9,710	94	477
Archdiocese of New York (Catholic)	115,000	NA	NA	286	402
Archdiocese of Chicago (Catholic)	130,000	NA	NA	302	430
Archdiocese of Los Angeles (Catholic)	~100,000	NA	NA	269	372

*Edmonton data are in Canadian dollars.

Per-pupil operating spending (excluding facilities costs) ranges from less than \$3,000 in the Catholic schools that we studied (data are not available for the Catholic districts as a whole, since they are very decentralized and do not collect these data) to nearly \$12,000 in New York City. The table also indicates that the larger districts in our sample have much larger schools on average.

Test of Hypothesis H-1: Decentralization and Resource Allocations

One of the key constructs in this study is the level of decentralization of each of the six public school systems. Here we test Williamson’s argument that organizational form is associated with the degree of decentralization of decision making and with administrative efficiency. Since decentralization is a multi-dimensional concept, we approach it with a variety of measures.

A. Principals’ Budgetary Discretion

Because Weighted Student Formula is specifically meant to empower local educators with budgetary responsibility, we predict that WSF principals will have significantly more discretion over the school budget than principals in ERF districts. This is indeed the case, and

dramatically so, as shown in Table 2. We interviewed each principal and went through their budget with them, identifying the budget items over which they had local school control. In the ERF districts, for example, principals do not have the freedom to decide whether to add credentialed teachers or to have more paraprofessionals and teachers' aides instead, while in WSF districts, they do have that freedom.

Table 2: Percent of school budget at principal's discretion

Organization Type (n)	Mean of Principals	Principal's Discretion			t-statistics for means
		District	Data	Rank	
1. ERF (3)	10.7%	New York City	6.1%	1	WSF v. ERF t = 6.23***
		Los Angeles	6.7%	2	
		Chicago	19.3%	3	
2. WSF (3)	76.5%	Houston	58.6%	5	ERF v. Catholic t = 5.40**
		Seattle	79.3%	7	
		Edmonton	91.7%	8	
3. Catholic (3)	74.9%	NY Catholic	54.4%	4	WSF v. Catholic t = .109
		Chicago Catholic	77.9%	6	
		LA Catholic	92.5%	9	
MEAN (9) = 54.0%		STANDARD DEVIATION = 35.1%			

* p < .05, ** p < .01, *** p < .001, one-tailed test

These data suggest that Weighted Student Formula does replicate the M-Form divisional structure by empowering principals with more financial responsibility. It is surprising to find how completely the Weighted Student Formula system succeeds at achieving budgetary decentralization, with those principals on average expressing greater local autonomy than even some Catholic principals.

We should add that a principal with full discretion can become an authoritarian or an absentee manager. To detect these possibilities, Edmonton and other districts administer a questionnaire each year to all parents, students, and employees in each school and monitor the results. The questionnaire asks teachers and other employees whether they have adequate opportunities to participate in making decisions that affect their work.

C. Central Office Staffs

As a measure of efficiency, we compared the size of the central office staffs per 100,000 students in each of our sample districts. We define a central office employee as any worker who reports to a central office administrator (rather than a principal) and is on the central office payroll rather than on the payroll of a school. For example, in many districts, custodians and food service employees are paid out of central office budgets rather than school budgets and thus report to the central office. One might argue that our measure overstates the size of the central office, because most of these central office employees work every day at schools. However, it is apparent from our interviews that if principals had the money rather than the formulaic number of people sent to their school, they would use the money in different ways than those provided for by the central office.

Table 3, which compares our nine school systems on the basis of central office full-time equivalent staffs, shows that the Catholic systems have extremely small central office payrolls, 22 on the average, significantly smaller than either the Weighted Student Formula mean of 1,909 or the Enrollment Ratio Formula district mean of 1,647. The Los Angeles Catholic school system runs 269 schools with a central staff of only 24, while the New York City Archdiocese has 286 schools and a central staff of 22, and the Chicago system, the largest in the nation, has 302 schools run by a central office staff of only 28 people.

Among the Weighted Student Formula districts, Seattle is an outlier with a disproportionately large central office staff. We attribute this to the unique history of the Seattle district, which suffered a dramatic drop-off in enrollment during the 1980's and has yet to downsize its central office staff to adjust to that smaller enrollment. The Houston district also has a large central office staff, and the management of the district described to us their plans to decrease this staff over the next few years.

By comparison, the New York City Board of Education runs 1,211 schools and has a central office staff of 25,500. Of these, 3,052 are pure central administrative staff, and another 5,000 or so are service and professional employees who work out of the central office. The remaining 17,000 on the central office payroll work in schools, but under the direction of the central office. The Los Angeles Unified School District, with 789 schools, has a central office staff of 11,896, of whom 7,785 were located in the central office during the 2001-2002 school year, with the remainder working in schools, but again under the control of the central office. In addition, the LAUSD has an additional 26,104 non-teaching personnel in the schools, along with approximately 35,000 teachers. Chicago had significant reform under former Superintendent

Paul Vallas (who is now Superintendent in Philadelphia), during which the central office staff was significantly reduced in size as some powers were decentralized to the schools.

Although the statistical tests do not support the hypothesis for the WSF v. ERF comparison, it is supported for the comparison of Catholic districts with both the WSF and the ERF districts.

Table 3: Central Office Staffs in Nine School Systems

Organizational Type (n)	System	C.O. payroll FTEs	C.O. Payroll FTEs per 100k students	Rank	t-statistics for means
1. ERF (3)	New York City	25,500	2,311	2	WSF v. ERT t = -1.90
	Los Angeles	11,896	1,646	4	
	Chicago	4,279	983	5	
2. WSF (3)	Houston	3,730	1,787	3	ERF v. Catholic t = 2.23*
	Edmonton*	437	540	6	
	Seattle	1,613	3,401	1	
3. Catholic (3)	NY Arch	22	20	9	WSF v. Catholic t = 1.97
	Chicago Arch	28	21	8	
	LA Arch	24	24	7	
MEAN (9) = 1,234		STANDARD DEVIATION = 1169			
Spearman's Rho for Organizational Type with Principal's discretion = 0.28					

* p < .05, ** p < .01, *** p < .001, one-tailed test

*Edmonton figures exclude Central Office employees who serve schools on a fee-for-service basis.

D. Funds Spent in the Classroom

Critical to our analysis is the amount and percent of budgets that reach the classroom. As we show in Table 4, the Los Angeles Unified School District spends only 45% of its

resources in the classroom, while the Edmonton Public Schools had the highest percentage, at 60.5%. This means that if Los Angeles were as efficient as Edmonton is, the Los Angeles schools would have an additional \$2,200 per student each year. As a group, the Weighted Student Formula districts were only slightly more successful at driving resources to the classroom with an average of 57.2 percent, compared to the Enrollment Ratio Formula districts at 52.2 percent. The difference is in the predicted direction. We see that New York City, an ERF district, and Houston, a WSF district, spent approximately 52 percent of their district budgets in the classroom, while Chicago and Seattle had about the same: 58.2% compared to 58.5%, as shown in Table 4.

Table 4: Percent of Operating Budget Spent in the Classroom

District	Classroom Spending	Total Operational Spending	Classroom %	Rank	t-statistic
New York City	\$5,437,087,000	\$10,179,253,000	53.4%	4	WSF v. ERF t = 1.29
Los Angeles	\$3,271,778,651	\$ 7,264,900,988	45.0%	6	
Chicago	\$1,786,951,336	\$ 3,071,264,524	58.2%	3	
ERF (3)	52.2%				
Houston	\$ 750,264,299	\$ 1,427,425,731	52.6%	5	
Edmonton	\$ 264,251,106	\$ 437,073,751	60.5%	1	
Seattle	\$ 254,763,731	\$ 435,254,594	58.5%	2	
WSF (3)	57.2%				

MEAN(6) = 54.7% STANDARD DEVIATION = 6.0%
 Spearman's Rho for Principal's discretion with percent of budget spent in the classroom = -0.50

D. Teacher Pay as a percentage of total budget

As Table 5 shows, our districts vary greatly on this measure, ranging from 51.8% of the district budget going to teachers' salaries and benefits in Edmonton to only 28.6% in New York and 28.9% in Los Angeles. With the exception of Seattle, the Weighted Student Formula

districts devote a much greater share of their resources to teacher compensation. Again, the difference is in the predicted direction. Once again, we observe that Seattle has a large central staff, which consumes a disproportionately large share of the budget in that school district.

Table 5: Classroom Teacher Pay as a Percent of a District’s Total Operating Budget

District	2001-2002 Operating Budget	Number of Teachers	Avg. Teacher Salary	Total Teacher Pay	Pay as % of Operating Budget	Mean	Rank
NYC	\$13,236,000,000	79,156	\$47,763	\$3,780,728,028.00	28.6%		1
LA	\$ 6,966,000,000	39,268	\$51,181	\$2,009,775,508.00	28.9%		3
Chicago	\$ 3,575,000,000	26,348	\$50,411	\$1,328,229,028.00	37.2%		4
ERF (3)						36%	
Houston	\$ 1,160,000,000	13,060	\$43,070	\$562,494,200.00	48.5%		5
Edmonton	\$ 465,000,000	4,382	\$55,000	\$241,010,000.00	51.8%		6
Seattle	\$ 435,000,000	2,798	\$44,765	\$125,252,470.00	28.8%		2
WSF (3)						43.0%	
MEAN (6)		37.3%	STANDARD DEVIATION =10.5%				

Table 6: System-wide Student-to-Teacher Ratios for the Public Districts

District	Enrollment	Total Teachers	Student-Teacher Ratio (system-wide)
New York City	1,103,589	79,156	13.9
Los Angeles	722,727	29,268	18.4
Chicago Public Schools	435,470	26,348	16.5
Houston Independent School District	208,672	13,060	16.0
Edmonton Public Schools	80,862	4,382	18.5
Seattle Public Schools	44,831	2,633	17.0

Table 6 shows the system-wide student-teacher ratio for the nine school systems. Five of our six districts fall within a range of 16.0-18.5 students per teacher. However, New York's ratio is much lower at 13.9 students per teacher. Since New York's class sizes are not smaller than the other districts, the data suggest that New York has a greater proportion of its teachers working outside of classrooms in administrative jobs.

Tests of Hypothesis H-2: Compliance Accountability and Performance Accountability

To ensure compliance accountability, New York City, Los Angeles, and Chicago use a system of tight, top-down central controls. Central offices in Enrollment Ratio Formula districts retain control over functions like purchasing and school maintenance, requiring schools to follow detailed standard operating procedures. Central offices also limit the choice of vendors from whom and the types of goods that principals can buy.

The focus in Enrollment Ratio Formula districts on compliance accountability is also reflected in their extensive internal surveillance capacities. All three ERF districts in our study have Inspector General offices (IGs) that ferret out wrongdoing by employees and vendors (see Light, 1993 for a discussion of this office). These offices have broad jurisdictions and are equipped with law enforcement authority such as subpoena power. The three districts supplement their I.G.s with audit units that conduct fraud and compliance audits.

The three Weighted Student Formula districts, Edmonton, Seattle, and Houston, on the other hand, delegate to principals varying degrees of responsibility over functions such as budgeting, procurement, and building maintenance. In Edmonton, for example, principals can hire outside contractors or central school workers to paint, make repairs, and renovate. Reflecting this greater local discretion, the WSF districts (other than Seattle), provide extensive

budget training to school staff and have teams of experts available to answer questions. These reforms have transformed the WSF districts, in varying degrees, into multidivisional structures.

A. Surveillance Staff will be smaller in Decentralized Districts

This hypothesis is supported by the results. The three Weighted Student Formula districts rely less on central office surveillance than do the Enrollment Ratio Formula districts. None of the WSF districts has an Inspector General. Their audit offices are generally small, as in Edmonton, or non-existent, as in Seattle. If they have auditors, these rarely conduct fraud audits. Although Houston's audit office is more aggressive than Edmonton and Seattle's, it is less so than those of New York or Los Angeles.

How do the decentralized districts ensure compliance? They clearly don't do so by running schools from the top, as the ERF districts do. Instead, with the exception of Seattle, they rely on reliable and timely financial information systems and use an “exceptions” approach, intervening only when they spot problems. In addition, every school is audited by the central office on a regular cycle. In the U-Form ERF districts, by comparison, the centralized spending authority is typically very difficult to trace to individual schools until months after the school year has ended, and effective surveillance of spending is therefore largely a hope rather than a reality.

Table 7 displays the rank-order of the six cities by number of surveillance staff. WSF districts had significantly ($p < .005$) fewer staff in their oversight department, averaging six, while ERF districts had 60.

Table 7: Total Surveillance Staff

Type of District (n)	Mean	Total Surveillance Staff		Rank	T-statistic
		District	Data		
1. ERF (3)	60	New York	153	1	ERF v. WSF

		Los Angeles	62	2	T = 2.76*
		Chicago	30	3	
2. WSF (3)	6	Houston	15	4	
		Edmonton	4	5	
		Seattle	0	6	

MEAN (6) = 33

STANDARD DEVIATION = 36

Spearman Rho for rank with principal's discretion = 0.94**

* p < .05, **p < .01, ***p < .001, one-tailed test

B. Corruption Indicators

Notwithstanding their extensive top-down compliance and surveillance mechanisms, the three ERF districts are more affected by corruption than the WSF districts, as predicted. Our corruption findings are based on a wide variety of data. In every district that had them, we reviewed 100% of school audits, investigations, and reports by the Inspectors General. We also evaluated the reports of all relevant civil and criminal grand juries, state and local commissions, and private watchdog groups from 1998 through early 2002. In districts that do not have an Inspector General but do have a school district auditor, we reviewed a sample of the many audit reports since 1998 selected for us by the Chief Auditor. In Seattle, which has neither an Inspector General nor an internal auditor as a separate function, we reviewed 100% of the school district's fraud and compliance audits performed by the Washington State Auditor Office since 1998.

In every district, we interviewed the Inspector General or the Chief Auditor. In Seattle, we interviewed the Director of Special Investigations of the Washington State Auditor's Fraud Unit and the Director of the State Auditor's Audit Management and Resolution Unit.

Lastly, we searched the Lexis-Nexis database for all articles on school corruption in all six public school districts since 1998. In the Archdiocesan Catholic school districts, the central office staffs are so small that corruption is rare and typically occurs only in minor ways at local

schools. In Edmonton, where the Lexis-Nexis search turned up no cases, we interviewed a fifteen-year veteran of one of the two local newspapers and asked her to conduct a search of the newspaper's archives. The search came up empty.

Based on this review, we created a "Corruption Score" for each district. Table 8 presents the corruption scores for each of the districts. These results support our hypothesis. Our data reveal multiple examples of systematic patterns of fraud in the ERF districts, ranging from serious crimes like bribery and extortion to semi-legal conduct like political patronage and nepotism. These problems are found across functional areas and levels of hierarchy in the ERF districts, sometimes including middle management and occasionally upper management levels (See e.g. LAUSD OIG Annual Reports 2000, 2001; Chicago OIG 1998-1999, 2000, also <http://www.specialcommissioner.org/reports> for New York City).

Fraud in the WSF districts, in contrast, is sporadic. It is generally confined to lower levels, rarely infiltrating middle management or above. Although there have been some serious crimes in WSF districts, most wrongs there tend to be of the petty theft and minor rule violation variety. When corruption in these districts is discovered, it often creates a public outcry, while the news media in ERF districts is largely inured to the near-daily reports of criminal wrongdoing in the schools.

To some extent, the higher incidence of corruption cases in ERF districts is to be expected despite their centralized form. Compared with our WSF districts, our ERF districts are larger, older, and are located in cities that have longer histories of corruption – all factors likely to increase the incidence of organizational corruption.

Table 8: Corruption Scores

Dimensions of Corruption	LAUSD	NYC BOE	CPS	EPS	SPS	HISD
Pervasiveness	Systemic. Many examples	Systemic. Many examples	Systemic. Lessening	Negligible Very sporadic	Opportunistic, non-systemic.	A few systemic cases
Pervasiveness Ranking (1 = most pervasive)	2	1	3	6	5	4
Level of administration most afflicted	Bottom to upper- levels	Occasionall y upper levels	Bottom to mid-levels	Rare	Low level personnel who handle cash.	Bottom to occasional mid-level
Level of administration score (1 = high levels are involved)	1	2	3	6	5	4
Frequency ranking ⁱ (1 = least frequent)	1	2	3	6	5	4

Spearman Rho for Corruption by Centralization = .94*

* p < .05, ** p < .01, ***p < .001

E. Performance Accountability

This hypothesis is partially supported by the data. Although large differences emerged between districts in performance accountability, these differences are not consistently related to organizational type nor to the degree of decentralization. Table 9 presents the rank-orders. Consider, for example, the issue of terminating underperforming principals and teachers in various districts. Table 9 shows that two of the Enrollment Ratio Formula districts, Chicago and New York City, have done away with tenure for principals, making it relatively easy to terminate them for substandard job performance. One Weighted Student Formula district, Houston, makes

it equally easy to remove principals. The other two WSF districts, Seattle and Edmonton, require enormous time and resources to dismiss a principal for poor performance, as is also the case in Los Angeles, an Enrollment Formula District.

Table 9: Performance Accountability by School District

CONSEQUENCES FOR POOR PERFORMANCE	LAUSD	NYC BOE	CPS	EPS	SPS	HISD
TEACHERS	Yes. But only as last resort	Not specifically. Part of OLS ⁱⁱ	Yes. Strong, aggressive unit. ⁱⁱⁱ	Yes. But only as last resort ^{iv}	Yes. But unit is tiny. ^v	Yes. Strong unit. ^{vi}
• Central unit to help remove failing teachers?						
Ease of termination for poor performance ^{vii}	5	4	1	6	3	2
PRINCIPALS	District supts. & directors	Local district supts.	CEO & LSCs ^{viii}	Supts, Bd. of Trustees, and parents	Ed,direct ors and CAO	Supt and deputies
• Who evaluates?						
• Tenure?	Yes	No	No	Yes	Yes	No
• Result if fired?	Demotion.	Can fire	Can fire	Usually transfer "downtown"	Demotion	Can fire
Ease of termination for poor performance – Principals	5	3	2	6	4	1
Spearman's Rho for difficulty of termination with decentralization = 0.886*						

* p < .05

It is difficult, moreover, to terminate teachers for poor performance in all of our school districts. It appears, based on anecdotal evidence, that the combination of teachers union contracts, civil service, and organizational inertia have produced an inability to either discipline or reward teachers and administrators for high or low performance. Chicago, an ERF district, and Houston, a WSF district, however, have central units that assist principals with the contractual procedures that are required to remove teachers for poor performance.

The use of performance-based rewards to provide incentives for good job performance also appears to be unrelated to the organizational form of the district. The New York City Board of Education, which is an ERF district, and the Houston Independent School District, a WSF district, are the only two in our study with comprehensive programs that reward principals with bonuses. While Chicago schools also rewards administrators, they have to apply, and the criteria are not clearly linked to student achievement outcomes.

Despite these results, we noted systematic differences in the predicted direction on performance accountability. In Seattle, Houston, and Edmonton, we rarely met a principal who did not know the details of student achievement in every classroom, while in New York City, Los Angeles, and Chicago, they rarely did. In Houston, all principals have a set of roughly fifteen goals each year and could tell us just where they stood on achieving those goals. In New York, Los Angeles, and Chicago, almost none of the principals knew how much money was in their budget, while in the three Weighted Student Formula districts, they always knew their budget down to the last dollar. Our measures failed to pick these important differences up; but perhaps there will be a future opportunity and another research project.

Tests of Hypothesis H-3: Student Performance Outcomes

Our third hypothesis is that student outcomes will be superior in decentralized school systems. The results support this hypothesis.

A. Student Achievement Results

Most school systems, both public and Catholic, use standardized achievement tests that are published by major firms. Unfortunately, many such tests are available, and the nine school systems in our study make use of more than a dozen such tests, making comparisons difficult.

Fortunately, however, one district of each type used the same test, the Stanford Achievement Test, 9th Edition, more commonly known as the Stanford 9 or the SAT-9. Two districts, Seattle and Chicago, use the Iowa Test of Basic Skills, while both the New York City Board of Education and the New York City Catholic Schools use the state-sponsored English Language Arts and Mathematics Exams, known as the ELA. Our analysis will focus on the three SAT-9 districts, which are the Los Angeles Unified School District (U-Form), the Houston Independent School District (M-Form), and the Los Angeles Catholic schools (H-Form). Because these three districts had very similar ethnic compositions, we have an effective “control” for the effect of race on academic achievement. We used district average test scores for the year 2001, the year of our study, and for 1999, in order to provide a measure of change over time.

Table 10: System-wide Scores for Three Districts

SAT-9 System-wide Reading Scores (National Percentile)		
	1999	2001
LAUSD	28	33
Houston	38	42
LA-Catholic	53	53
SAT – 9 System-wide Math Scores (National Percentile)		
LAUSD	36	42
Houston	42	49
LA-Catholic	51	49

The results in Table 10 are striking. It remains to be seen, of course, whether other studies with larger samples of school districts will confirm these results. Recall our earlier discussion of Appendix C. That table revealed that the Houston district has a higher proportion

of students from low-income families than the LAUSD, by 86% to 82% in the elementary grades. The two districts are nearly identical in their minority percentages, at 90.4% for Los Angeles and 90.0% for Houston. Within the minority populations, Houston has 55% Hispanic students and 32% African-Americans, while Los Angeles is 71% Hispanic and 12% African-American. Nonetheless, Houston students on the average outscored their Los Angeles counterparts by nine percentile points in reading and seven percentile points in math in 2001. Although both districts improved between 1999 and 2001, the gap between them remained virtually unchanged.

A similar analysis by the Council of The Great City Schools (Snipes, Doolittle, and Herlihy, 2002) confirms our data on Houston. On student achievement in Houston, they concluded “These data generally show improvements in average achievement across every ethnic group and every grade” (p. 91). For example, the percent of students failing the Texas Assessment of Academic Skills in Reading for the 5th grade declined from 28.8% in 1994 to 9.7% in 2001. For African-American students, the gain was even greater, from 34.6% failing the test in 1994 to only 9.0% failing in 2001 (p. 96). In the math test, the percent failing declined from 43% of all 5th graders in 1994 to only 5.1% failing in 2001 (p. 97). On the Stanford 9, the report used the Normal Curve Equivalents rather than the National Percentile Rankings that we report. Using the NCE scores, the report found gains similar to those that we report (pp. 98-99).

The scores for the Los Angeles Catholic schools are instructive as well. These schools, as Appendix C reveals, have much lower proportions of Title I students (16% in the elementary schools), who are typically from low-income families. The Catholic school systems do not report on the ethnic composition of their student bodies. The Los Angeles Catholic students by

far surpassed both the students of both public districts on the 2001 reading tests, but they were tied by the Houston public students on the math test that year.

We can also compare the two districts that use the Iowa Test of Basic Skills, which are the U-Form Chicago schools and the M-Form Seattle Schools. In this comparison, the Seattle students outscored their Chicago counterparts by 53 to 40 in reading, and by 58 to 44 in math in 2001, with even larger gaps in 1999 (the Seattle scores declined from 1999 to 2001). These are very large differences in performance, but Seattle has barely half the proportion of Title I students, and Seattle has 41% White students, compared to 10% in Chicago. Unfortunately, we were not able to obtain scores by ethnic group for Chicago, and thus we cannot rule out the possibility that these differences between the two districts are due entirely to ethnic differences. On the other hand, we observed many all-Black, all low-income schools in several cities, including Seattle, in which students scored well above the district mean, from which we conclude that achievement among Black and Latino students has more to do with school management than with the race of the students (see Ouchi and Segal, 2003).

Finally, in New York City, we can compare the public schools to the Catholic schools on the English Language Arts and Mathematics Exams. Raymond Domanico reports (2001:10A) that Catholic students outscore public school students in grades 4 and 8 in both tests in 1999 and in 2000. For example, Catholic 8th graders outscored their public school counterparts by 703 to 686 in English and by 706 to 686 in math in the 2000 test. Again, though, the New York City Catholic schools have only 32% Title I eligible students, while the public schools are 74% Title I students.

B. The ethnic achievement gap.

Policy makers have been particularly concerned with the ethnic achievement gap. Specifically, White and Asian students typically attain higher scores on standardized tests than do African-Americans or Hispanics (Tyack and Cuban, 1995, pp. 22-28). If one asserts that each of these groups of students will learn best under a different, custom-designed teaching approach, it stands to reason that decentralization should result in a smaller ethnic achievement gap. Thus, we wanted to look at the ethnic achievement gap in our nine systems. However, ethnic breakdowns of test scores were only available for Los Angeles, Houston, and Seattle. Table 11 presents the recent data on the achievement gap for each of these school districts, which support our hypothesis.

**Table 11: The Ethnic Achievement Gap:
System-Wide NPR Differential of Whites/Asians *versus* Blacks/Hispanics**

Reading Gap	1997	1998	1999	2000	2001
Los Angeles*		35	35	36	35
Houston			40	35	36
Seattle	28	30	30	30	
Math Gap	1997	1998	1999	2000	2001
Los Angeles*		36	38	37	36
Houston			34	30	29
Seattle	33	34	31	36	

*Los Angeles scores only reflect students that take the test two years in a row and are therefore not directly comparable to other NPR improvement scores.

First, we note that all three cities display a large and persistent gap in achievement test scores, which is all the more unsettling to us because we found many cases of individual schools, especially in the Weighted Student Formula districts, in which populations of nearly 100% Title I, African-American students were scoring well above the district average in both reading and in math (Ouchi and Segal,

2003). In every case, these were schools that had taken advantage of their budgetary freedom to custom-design programs for their unique student populations, and those custom designs were succeeding in producing dramatically positive results.

For example, the Mabel Wesley Elementary School, located in the Acres Homes neighborhood of Houston, has 816 students in grades pre-kindergarten through five. Nearly all of the students are African-American, and 82% qualify for a free school lunch. Wesley, though, has used its autonomy to craft a custom-designed program that is unlike any other in Houston, and the results are striking: 99% of third and fourth graders and 100% of fifth graders in 2002 passed the state TAAS test in both reading and in math. Out of 182 Houston elementary schools, Wesley ranks twelfth highest in scores on the Stanford 9 standardized test.

Second, we note that to the extent that inter-district comparison is legitimate, Table 11 supports the hypothesis that organizational form has an effect on student results. Although Houston's reading gap is nearly identical to that in Los Angeles, Houston's math gap is 7 percentile points smaller. Moreover, Houston has reduced both its reading gap and its math gap over recent years, while Los Angeles has reduced neither of its two gaps, although the very small sample size precludes much by way of affirmation or conclusion. Again, the report by The Council of the Great City Schools replicates our Houston findings, except that their data, which cover a longer period of time, show even greater closing of this gap (Snipes, Doolittle, and Herlihy, 2002). Third, we can observe that Seattle, which uses a different test than the SAT-9 of both Houston and in Los Angeles, nonetheless has the smallest gap of all, and among the three, it has the second longest experience as a Weighted Student Formula district. On the other hand, this ethnic performance gap has increased slightly in Seattle, perhaps as a result of recent immigration increases in that city. Seattle has had and continues to have civic friction over this

gap, with class-action lawsuits on behalf of minority students and frequent newspaper articles on the issue.

VII. Discussion

This research illustrates both the great possibilities and the devilish difficulties of applying the theories and methods of organization theory to the study of large school systems. On the positive side of the ledger, we have found that schools provide a large and varied population of organizations that are accessible to organizational research. Schools today display a range of structures that is unusual within any single industry. On the negative side, schools are difficult to enter as research sites, and large school districts require very big empirical efforts. Our sample is so small, for example, that it raises as many questions as it provides answers, although our research team was as large as twelve people at its peak. The importance of understanding how to improve our schools is so great, though, that any effort, however large, is justified. When it comes to understanding schools as a matter of policy and action, we conclude that it is inconceivable that one can successfully come to grips with the problems of large school systems without the apparatus of organization theory.

School districts also provided us with an unusually compatible setting in which to offer an empirical verification of the utility of Williamson's typology of organizational forms. The clarity with which school systems fall into the categories of U-Form, M-Form, and H-Form is truly unusual within any industry.

Among our sample of school districts, the M-Form systems seem to be most effective both financially and educationally. The large U-Form districts all appear to be moving in the direction of the M-Form, maintaining the centralization of some tasks and decentralizing much to individual schools. The H-Form Catholic Archdiocesan systems are suffering from severe budgetary difficulties and

declining enrollments but have yet to discover a way to move away from their tradition of extreme decentralization and towards an M-Form arrangement.

These results can also be interpreted as demonstrating that school choice, rather than decentralization of decision-making, is critical to student success. The effect of choice should be an increase in competitive adjustment on the part of individual schools, resulting in higher student achievement, as Hoxby (2002) reports when students have a choice of public schools or between public and independent schools. In an earlier study, Arum (1996) also reported that states with higher private school market shares show improved student outcomes for public school students. Arum, though, found that the competitive effect was political rather than educational, and that public officials increased the per-student spending in response to growth in private school enrollments. Hoxby's study found that the improved public student performance took place with no increase in per-student expenditure.

We have moved beyond the "loose coupling" rationale to explain why school systems are difficult to analyze. Our decentralized school districts *are* loosely coupled systems: after all, that is where the concept originated. However, it would be a mistake to believe that technology and structure are unrelated in school systems, or to think that vertical control is absent from a district like Edmonton or Houston or Seattle, where the Superintendent measures the performance of every school in detail, and each principal is expected to know the performance of every teacher by heart. Rather, we argue that how a school district organizes and manages itself is of critical importance to the academic success of its students. We can think of no factor that matters more.

The call for reform, even for revolution in the organization of public schools, will likely intensify over the coming years. It is our hope that scholars of organization will be among the greatest contributors to that process of change and of improvement.

Appendix A: Enrollment per school—Sample vs. Population

DISTRICT	Sample Mean (n)	District as a Whole Population Mean (n)	t-stat
NYC BOE	1,037 (66)	913 (1,211)	1.463 n.s.
LAUSD	1,942 (42)	886 (812)	5.222 ***
Chicago Public	1,042 (30)	747 (583)	3.069 **
Houston	1,039 (15)	970 (237)	0.494 n.s.
Edmonton	455 (16)	383 (209)	0.606 n.s.
Seattle	755 (16)	481 (83)	2.392 *

NY Catholic	550 (11)	377 (293)	2.034 n.s.
LA Catholic	338 (10)	335 (298)	0.124 n.s.
Chicago Catholic	583 (10)	417 (312)	1.391 n.s.
Independent	768 (7)	312	0.964 n.s.

*P<.05 **P<.01 ***P<.001, two-tailed test

**Appendix B: Enrollment per school—Sample vs. Population
By School Type**

DISTRICT	Elementary Schools			Middle Schools			High Schools		
	Samp. Mean (n)	Pop. Mean (n)	t-stat	Samp. Mean (n)	Pop. Mean (n)	t-stat	Samp. Mean (n)	Pop. Mean (n)	t-stat
NYC BOE	931 (66)	813 (961)	2.058*	Included with elementary			1683 (9)	1117 (205)	1.154
LAUSD	792 (42)	502 (520)	2.554*	2095 (11)	1724 (120)	1.427	3239 (12)	1905 (172)	5.769**
Chicago	878 (30)	578 (491)	3.676**	Included with elementary			1370 (13)	1045	1.563

Public								(92)	
Houston	670 (15)	670 (169)	0.0	1493 (3)	1250 (35)	0.857	1435 (4)	1450 (33)	-0.058
Edmonton	342 (16)	276 (177)	1.68	Included with elementary			2140 (1)	1533 (29)	See Note #1
Seattle	425 (16)	355 (61)	2.766**	807 (4)	860 (10)	-0.392	1280 (4)	1397 (12)	-0.511
NY Catholic	424 (11)	345 (238)	0.736	Included with elementary			655 (6)	519 (55)	1.151
LA Catholic	305 (10)	308 (277)	-0.233	Included with elementary			414 (3)	619 (21)	-3.43
Chicago Catholic	383 (10)	360 (267)	0.327	Included with elementary			783 (5)	699 (45)	0.425
Independent	768 (7)	n/a	no pop mean	Not Available			Not Available		

**Appendix C : Percent of Students on Free/Reduced Lunch
Sample vs. Population, by School Type**

DISTRICT	Elementary Schools			Middle Schools			High Schools		
	Samp. Mean (n)	Pop. Mean (n)	t-stat	Samp. Mean (n)	Pop. Mean (n)	t-stat	Samp. Mean (n)	Pop. Mean (n)	t-stat
NYC BOE	72% (66)	74% (961)	-0.539	Included with elementary			52% (9)	55% (205)	-0.344
LAUSD	59% (42)	82% (520)	-2.502	74% (11)	74% (12)	-0.027	64% (12)	66% (172)	-0.342
Chicago Public	80% (30)	92% (491)	-1.972	Included with elementary			79% (13)	79% (92)	0.0

Houston	83% (15)	86% (169)	-0.468	65 (3)	73 (35)	0.462	50% (4)	55% (33)	-0.352
Edmonton	Not available			Not Available			Not available		
Seattle	36% (16)	45% (61)	-0.845	53 (4)	43 (10)	0.999	30% (4)	30% (11)	-0.312
NY Catholic	82% (11)	32% (238)	5.169	Included with elementary			72% (6)	n/a	no pop mean
LA Catholic	29% (10)	16% (277)	0.998	Included with elementary			55% (3)	2% (21)	6.939
Chicago Catholic	59% (10)	30% (267)	1.612	Included with elementary			31% (5)	9% (45)	1.207
Independent	Not available			Not Available			Not available		

NOTE #1 - Cannot calculate t-stat for Edmonton HS because we only have 1 case in the sample population

NOTE #2 - Data for F/R Lunch for the districts was gathered by grade level.

References

Arrow, Kenneth J., The Limits of Organization, New York: W.W. Norton, 1974

Arum, Richard, "Do Private Schools Force Public Schools to Compete?", American Sociological Review, Vol. 61, February, 1996: 29-46

Barzelay, Michael and Babak Armajani, Breaking Through Bureaucracy: A New Vision Of Management in Government, Berkeley: University of California Press, 1992.

Bidwell, Charles E., "The School as a Formal Organization", in Handbook of Organizations, ed. James G. March, Chicago: Rand-McNally, 1965, 972-1022

Blau, Peter M. and Richard Schoenherr, The Structure of Organizations, New York: Basic Books, 1971

Bryk, Anthony S., Valerie E. Lee, and Peter B. Holland, Catholic Schools and the Common Good, Cambridge, Ma.:Harvard University Press, 1993

Bryk, Anthony S., Penny Bender Sebring, David Kerbow, Sharon Rollow, and John Q. Easton, Charting Chicago School Reform: Democratic Localism as a Lever for Change, Boulder, Colo:Westview, 1998

Chandler, Alfred D. Jr., The Visible Hand: The Managerial Revolution in American Business, Cambridge, Mass., Belknap Press, 1977

Chubb, John E. and Terry M. Moe, Politics, Markets, and America's Schools, Washington, D.C., The Brookings Institution, 1990

Chubb, John E., "The System" in A Primer on America's Schools, Terry M. Moe, ed., Stanford, Ca.:Hoover, 2001

Cohen, Elizabeth G, John W. Meyer, W. Richard Scott, and Terrence E. Deal, "Technology and Teaming in the Elementary School", Sociology of Education, 1979, Vol. 52 (January), 20-33

Cohen, Michael D., James G. March, and Johan P. Olsen, "A Garbage Can Model of Organizational Choice", Administrative Science Quarterly, 17, 1972, 1-25

Coleman, James S., "Output-Driven Schools: Principles of Design", in James S. Coleman, Barbara Schneider, Stephen Plank, Kathryn s. Schiller, Roger Shouse, Huayin Wang with She-Ahn Lee, Redesigning American Education, Boulder, Colo.:Westview, 1997, 13-38

Cooper, Bruce S. and Associates, "Making Money Matter in Education: A Micro-Financial Model for Determining School-Level Allocations, Efficiency, and Productivity", Journal of Education Finance, 1994, 20, No. 1 (Summer), 66-87

Cooper, Bruce S. and Marc N. Kramer, "The New Jewish Community, New Jewish Schools", mimeo, New York: Fordham University Graduate School of Education, 2002, 17 pp.

Cooper, Bruce S. & Nisonoff, Philip H. (2002). "Budgeting, Accounting and Auditing," International Encyclopedia of Education. 2nd Edition, New York: Macmillan. Edited by James W.Guthrie (in press)

Cooper, Bruce S., Nisonoff, Philip H., and Speakman, Sheree T. (February, 2001). "Advanced Budget Technology in Education: The Future is Now". School Business Affairs, 67:2, pp. 27-32

Cooper, Bruce S. and others (1998). "From Transactional to Transformational Accounting," School Business Affairs, "Accounting and Budgeting."64: 10, October 1998, 4-16

Darling-Hammond, Linda, The Right to Learn: A Blueprint for Creating Schools that Work, San Francisco: Jossey-Bass, 1997

Domanico, Raymond, "Catholic Schools in New York City", mimeo, New York: New York University Program on Education and Civil Society, March, 2001, 26 pp.

Dopuch, Nicholas and Mahendra Gupta, "Estimation of benchmark performance standards: An application to public school expenditures", Journal of Accounting and Economics, 23, 1997, 141-161

Freeland, Robert F., "The Myth of the M-Form? Governance, Consent, and Organizational Change", American Journal of Sociology, Vol. 102, No. 2, September 1966: 483-526

Goodlad, John I., A Place Called School: Prospects for the Future, New York: McGraw-Hill, 1984

Grinyer, Peter H., Masoud Yasai-Ardekani, and Shawki Al-Bazzaz, "Strategy and Structure, the environment and financial performance in 48 United Kingdom companies", Academy of Management Journal, 23 (1980): 193-220

Hannaway, Jane, and M. Carnoy, (Eds.), Decentralization and School Improvement, San Francisco: Jossey-Bass, 1993

Hanushek, Eric A., "The Economics of Schooling: Production and Efficiency in Public Schools", Journal of Economic Literature, Vol. XXIV, September, 1986, 1141-1177

Hanushek, Eric A., Making Schools Work: Improving Performance and Controlling Costs, Washington, D.C.: Brookings, 1994

Hartman, William T. (1999). School District Budgeting. Reston, VA: Association of School Business Officials International

Hill, Paul T, Christine Campbell, and James Harvey, It Takes a City: Getting Serious About Urban School Reform, Washington, D.C.: Brookings Institution Press, 2000

Hoxby, Caroline M., "How Teachers' Unions Affect Education Production", Quarterly Journal of Economics, Volume CXI, No. 3, 1996, 671-718

Hoxby, Caroline M., "School Choice and School Productivity (Or Could School Choice be a Tide That Lifts All Boats?)", Working paper 8873, Cambridge, Ma.: National Bureau of Economic Research, April 2002

Lazear, Edward P., "Educational Production", mimeo, Stanford, Ca.: Hoover Institution and Graduate School of Business, Stanford University, July, 2000, 49 pp.

- Light, Paul C., "Monitoring Government: Inspectors General and the Search for Accountability", Washington, D.C.: Brookings, 1993
- Los Angeles County Alliance for Student Achievement, "Survey of Parents of Children Attending School Within the Los Angeles Unified School District", spiral-bound, Los Angeles:Fleishman-Hillard Research, June 2001
- March, James G. and Johan P. Olsen, Ambiguity and Choice in Organizations, Bergen, Norway: Universitetsforlaget, 1976
- McFarland, Daniel A., "Student Resistance: How the Formal and Informal Organization of Classrooms Facilitate Everyday Forms of Student Defiance", American Journal of Sociology, Vol. 107, 3 (November 2001): 612-678
- McNeil, Linda M., Contradictions of Control: School Structure and School Knowledge, New York: Routledge, 1986
- McNeil, Linda M., Contradictions of School Reform, New York: Routledge, 2000
- Meyer, John W. and Brian Rowan, "Institutionalized Organizations: Formal Structure as Myth and Ceremony", American Journal of Sociology, 1977, 83, 340-363
- Meyer, John W., W. Richard Scott, Sally Cole, and Jo-Ann K. Intili, "Instructional Dissensus and Institutional Consensus in Schools", in Environments and Organizations, Marshall W. Meyer and Associates eds., San Francisco, Jossey-Bass, 1978, 233-263
- Mohrman, Susan A., Priscilla Wohlstetter and Associates, School-Based Management: Organizing for High Performance, San Francisco:Jossey-Bass, 1994
- Moody, James, "Race, School Integration, and Friendship Segregation in America", American Journal of Sociology, Vol. 107, 3 (November 2001): 679-716
- National Commission on Excellence in Education, A Nation at Risk, Washington, D.C., U.S. Dept. of Education, 1983
- Odden, Allan and Carolyn Busch, Financing Schools for High Performance, San Francisco: Jossey-Bass, 1998
- Office of the Inspector General, Los Angeles Unified School District, Annual Report to the Board of Education, Fiscal Year 2000
- Office of the Inspector General, Los Angeles Unified School District, Annual Report to the Board of Education, Fiscal Year 2001

Office of the Inspector General, Chicago School Reform Board of Trustees, Interim Annual Report, July 1, 1998 to April 30, 1999

Office of the Inspector General, Chicago Board of Education, Annual Report, July 1, 1999 to June 30, 2000

Ouchi, William G. with Lydia G. Segal, The Best Schools in America, New York:Simon and Schuster, 2003, forthcoming, ms. 298 pp.

Palmer, Donald, Roger Friedland, P. Devereaux Jennings, and Melanie E. Powers, “The Economics and Politics of Structure: The Multidivisional Form and the Large U.S. Corporation”, Administrative Science Quarterly, 32 (1987):25-48

Ravitch, Diane, The Great School Wars: A History of the New York City Public Schools, Baltimore: Johns Hopkins University Press, 1974

Ravitch, Diane, Left Back: A Century of Failed School Reforms, New York: Simon and Schuster, 2000

Rumelt, Richard P., Strategy, Structure and Economic Performance, Boston: Harvard University Graduate School of Business Administration, Division of Research, 1974

Seattle Public Schools, Budget Allocations to the Seattle Schools for the 2001-2002 School Year, Seattle: Seattle Public Schools, 2001

Scott, W. Richard, Organizations: Rational, Natural, and Open Systems , Fourth Ed., Upper Saddle River, N.J.:Prentice Hall, 1998

Segal, Lydia, “The Pitfalls of Political Decentralization and Proposals for Reform: The Case of New York City Schools”, Public Administration Review, 1997, Vol. 57, No. 2, March/April, 141-149

Segal, Lydia, “Corruption Moves to the Center: An Analysis of New York’s 1996 School Governance Law”, Harvard Journal on Legislation, 1999, Vol. 36, No. 2, (Summer), 323-367

Segal, Lydia, “Roadblocks in Reforming Corrupt Agencies: The Case of the New York City School Custodians”, Public Administration Review, 2002 (July/August), 62: 445-460.

Segal, Lydia, Watching But Not Seeing: Corruption and Reform in the New York City School System, Boston: Northeastern University Press, 2003, forthcoming, ms. 310 pp.

Shane, Scott, “Hybrid Organizational Arrangements and Their Implications for Firm Growth and Survival: A Study of New Franchisors”, Academy of Management Journal, Vol. 39, No. 1, 1966: 216-234

Shanley, Mark, “Straw Men and M-Form Myths: Comment on Freeland”, American Journal of Sociology, Vol. 102, No. 2, September, 1966: 527-536

Simon, Herbert A., Administrative Behavior, New York: Free Press, 1945

Snipes, Jason, Fred Doolittle, and Corinne Herlihy, Foundations for Success: Case Studies of How Urban School Systems Improve Student Achievement, Washington, D.C.: Council of the Great City Schools, September 2002

Terrien, Fred C. and D.C. Mills, “The Effects of Changing Size upon the Internal Structure of an Organization”, American Sociological Review, 1955, 20 (February), 11-13

Tolbert, Pamela S. and Lynne G. Zucker, “The Institutionalization of Institutional Theory”, in Stewart R. Clegg, Cynthia Hardy, and Walter R. Nord, eds., Handbook of Organization Studies, Thousand Oaks, Ca., Sage, 1996, 175-190

Tucker, Marc S. and Judy B. Coddling, Standards for Our Schools: How to Set Them, Measure Them, and Reach Them, San Francisco: Jossey-Bass, 1998

Tyack, David and Larry Cuban, Tinkering Toward Utopia: A Century of Public School Reform, Cambridge, Ma.: Harvard University Press, 1995

Wagner, Tony, Making the Grade: Reinventing America’s Schools, New York: RoutledgeFalmer, 2002

Washington State House of Representatives, Report of an Evaluation of the Seattle Public Schools, Washington State, November 15, 1990

Winkler, Donald R., “Fiscal Decentralization and Accountability in Education: Experiences in Four Countries”, in Jane Hannaway and Martin Carnoy, eds., Decentralization and School Improvement: Can We Fulfill the Promise?, San Francisco: Jossey-Bass, 1993

Weick, Karl E., “Educational Organizations as Loosely Coupled Systems”, Administrative Science Quarterly, 1976, 21, 1-19

Wells, Amy Stuart, “Reaction to the Supreme Court Ruling on Vouchers: Introduction to an Online Special Issue”, Internet: www.tcrecord.org, July 2, 2002

Williamson, Oliver E., Corporate Control and Business Behavior: An Inquiry into the Effects of Organization Form on Enterprise Behavior, Englewood Cliffs: Prentice-Hall, 1970

Williamson, Oliver E., Markets and Hierarchies: Analysis and Antitrust Implications, New York: Free Press, 1975

Williamson, Oliver E., “Comparative Economic Organization: The Analysis of Discrete Structural Alternatives”, Administrative Science Quarterly, 36, 1991: 269-296

Williamson, Oliver E. and William G. Ouchi, “The Markets and Hierarchies and Visible Hand Perspectives”, in Perspectives on Organization Design and Behavior, Andrew H. Van de Ven and William E. Joyce, eds., New York: Wiley, 1981, 347-370

Young, Beth Aronstamm, Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 2000-01, Washington, D.C.: National Center for Education Statistics, August 2002

Zucker, Lynne G., “The Role of Institutionalization in Cultural Persistence”, American Sociological Review, 1977, 42, 726-43

Zucker, Lynne G., “Organizations as Institutions”, in Research in the Sociology of Organizations, Samuel B. Bacharach, ed., 1983, vol. 2, Greenwich, Ct.: JAI Press

Notes

ⁱVolume is based on significant public investigations, audits, and media reports since at least 1999 through the present.

ⁱⁱ Office of Legal Services.

ⁱⁱⁱ Department of Teacher Accountability.

^{iv} Office of Staff Performance, Human Resources Division.

^v Office of Academic Discipline, Department of Human Resources.

^{vi} Office of Professional Standards, Division of Human Resources.

^{vii} This "force-ranking" of the districts in terms of ease of firing teachers includes a consideration of union contract terms, teacher union strength, and whether the districts have a central unit that helps remove teachers and how vigorous that unit is. In Edmonton, for instance, the removal process is the most arduous and expensive of all six district in our study primarily because of the contract terms and because the teachers' union is very strong. Principals cannot evaluate teachers without citing a specific concern. The whole process usually takes many years.

^{viii} Local School Councils.