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A quality, standards-based reform would provide a framework and system of accountability that elevates the most possible number of our students to acquisition of an academic foundation and allows students the greatest number of future academic options and careers. In the instance of mathematics, this would include a system... that provides for adequate preparation for students with ambitions for math-based college courses and careers; and a system that allows for flexibility in curricula and assessment, but without provision of opportunity or incentive to lower the standards and opportunities for some. (Elizabeth Carson, a New York City parent).

For nearly twenty-five years (1979-1994), U.S. schools have struggled to provide a fair, equitable education. Courts, legislatures, and governors have tried to increase and improve funding; and local districts have worked to give children an equitable education—mostly defined as equal treatment of equals.¹ Missing from the calculus, however, has been some sense of what is an adequate amount to spend on the education of children with different needs; and, importantly; how these funds are best spent within the districts (i.e., adequate funding in schools and classroom) to ensure that students make adequate progress (ranging from test results to preparation for jobs and careers).

In June 2003, New York state's highest court decided that the state constitution required the legislature to provide enough money to bring students and teachers up to a standard—an adequate education for all, ordering the governor and legislature to determine "the actual cost of providing a sound basic education in New York City," including a meaningful high school education to give graduates the skills and knowledge to "function productively as civic participants includ-

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ing being capable and knowledgeable voters and jurors and able to sustain employment."² However, what it costs to provide an adequate education for all students, based on their needs and backgrounds, is a difficult assignment because of the growing complexity of the courts' working definition of adequacy. Rather than just meaning equitable "input" (funding by district), the courts are now concerned about how much money is spent and on whom (adequate "throughputs") as well as considering the adequacy of pupil "outputs," i.e., children making progress in their academic and civic life, and gaining future employment.

King, Swanson, and Sweetland have defined adequacy in education funding as "the cost of an instructional program that produces the range of results desired. When the adequacy criterion is met, costs are likely to vary among districts according to the characteristics of students served and to the characteristics of districts and schools themselves, but the results should be the same regardless of these considerations."³ In effect, according to these authors, costs are related to the needs of students in the classroom and "pupil performance, pupil characteristics, and district characteristics."⁴ Guthrie and Rothstein, finding that adequacy dated back to the work of Benson,⁵ averred that "adequacy is increasingly defined by the outcomes produced by school outputs, not by inputs alone."⁶ Yet how can systems relate the spending to the results? As the Campaign for Fiscal Equity explained, "To implement these necessary reforms, however, states and school districts require sufficient funding and meaningful accountability devices that ensure the funds are appropriately spent. Sophisticated costing-out analyses that determine the actual cost of providing an adequate education and the creation of new accountability approaches have fostered promising developments in these areas."⁷

This article analyzes the developments in New York since the *Campaign for Fiscal Equity v. State of New York*⁸ was decided, making comparisons in the use of funds in New York City with Los Angeles, Chicago, Edmonton, Houston, and Seattle schools. Based on the report of New York State's Commission on Education Reform (hereafter referred to as the Zarb Commission),⁹ states and localities have struggled to determine what is an adequate funding level—based on both inputs (funding) and outputs (learning, test results); to locate sufficient state funds to bring spending up to an adequate level; and to determine how best to distribute the funds to increase local control, improve the spending on students in the classroom, and relate spending to school productivity. The Zarb Commission found that to meet the adequacy standards, New York state must make an increased investment of between \$6.6 billion and \$9.5 billion. Comprised of 60 principals, superintendents, school business officials, and special education directors from across the state, the commission "specified precise conditions such as class sizes, teacher-pupil ratios, and levels of extended day and year programming to ensure that every child has a full chance to meet Regents' standards."¹⁰ The report stated further:

The State's school financing system must ensure that adequate *resources* are available to all school districts to provide all children with the opportunity for a sound basic education. Adequate resources must be coupled with an accountability system that holds every member of the education community fully accountable for performance... We have no excuse for failure and scarce taxpayer resources must not be wasted. Schools must operate with maximum efficiency so that the best possible results are achieved at a reasonable cost to taxpayers.¹¹

Finally, the concept of adequacy is based on meeting the needs of students, including those with special needs, disabilities, and language limitations. The idea, prevalent under earlier equity cases, was that funding should be equalized—with less attention to the particular needs of categories of students. Under the *Campaign for Fiscal Equity* and other adequacy cases, districts will come under increased pressure to track spending to the school and ultimately to the individual student, with funding differentials for children based on need.

Purpose of the Study

A critical step in school financial analysis is to determine how resources are actually being spent, both at the central office and at each school site and to test the effects of various allocation and management systems on real school expenditures. Without this final tracking, it is difficult to learn whether sufficient funds are reaching the classroom for direct instruction and student support. For example, do weighted student allocations and school autonomy make a significant difference in the way funds are finally being used? Only by consulting the accounting system can we learn how budgets are translated into expenditures for children and adequacy by school and function. The Zarb Commission moved in the direction of weighting state supplemental aid, “generated by pupil weightings based on the increased costs of educating students living in poverty and students with LEP.”¹²

Thus, one useful model for determining just how adequately money is spent, school-by-school and by the various programs and functions, is to apply the principles of a weighted student formula (WSF) which is primarily a system for allocating resources to schools, based on students’ needs, and which in theory is a device for empowering schools to make the best decisions for those students, giving site-based decisionmakers considerable discretion about how resources will be used to provide the “sound basic” or adequate education required by the courts. However, districts may vary as to how much they allocate funds using WSF, which metrics they apply (which weights for which categories of students by level, need, program, or talents), and what decisions individual schools can make in spending those resources. Also, school district administrators and school board members are ultimately responsible for their overall spending levels using an accounting procedure for determining how money is spent, whether a WSF or a more traditional enrollment ratio formula (ERF) system, based on school size and programs.

Well-designed accounting systems serve several purposes in school districts. According to Thompson and Wood, such systems “set up a procedure by which all fiscal activities in a district—and schools—can be accumulated, categorized, reported, and controlled”.¹³ In addition, accounting systems should assess the alignment of the district and school’s financial plan (budget) with the district’s educational programs.¹⁴ Further, Cooper states that an accounting system allows the district’s management to ask: To what extent does the district have the financial resources to meet the needs of students in these programs?¹⁵ However, because school district accounting systems are often developed in response to state laws, these systems provide little insight into two key questions: (1) Where do expenditures actually occur; and (2) How much budgetary discretion do schools have? For example, some school districts choose to account for custodial costs at the school level while other districts assign these costs to a central office unit. Even when custodians are expensed at the school level, we have no guarantee that the school has discretion over these funds for districts will often have strict allocation formulas that dictate what custodial resources a school will have access to. For the purposes of our spending comparisons, we have attempted to determine where expenditures occur. We therefore allocate specific central office expenditures out to school sites (like custodial costs). In a separate analysis, we will examine how much budgetary discretion is given to schools by each of the six districts and how one could apply adequacy criteria to schools and students.

Overview of Sample School Districts

As a baseline for calculating and comparing total district, school, and classroom expenditures by weighted student formula and enrollment ratio formula, Table 1 shows the student enrollments, total school district operating budgets, and per-pupil expenditures for the six sample districts, clustered by WSF and ERF.

The range of student enrollment was from the New York City Board of Education with 1.104 million students to the Seattle Public Schools with 47,432 pupils. Total operating budgets in these districts for 2002 ran from \$13.236 billion in the New York City Public Schools to \$435.083 million in Seattle. The Los Angeles Unified School District, second in size in the U.S. with 722,727 students, budgeted \$6.966 billion or \$9,750 per student. The Chicago Public Schools was next in size with 435,470 pupils, spending \$3.575 billion total, or \$8,210

**Table 1
Baseline Data on Six Sample Districts**

<i>School District</i>	<i>Enrollment (2004)</i>	<i>Total Operating Budget (in billions \$)</i>	<i>Expenditure Per Pupil (\$)</i>
<u>Enrollment Ratio Formula (ERF)</u> New York City Board of Education	1,103,589	13.236	11,994
Los Angeles Unified School District	722,727	6.965	9,638
Chicago Public Schools	435,470	3.575	8,210
<u>Weighted Student Formula (WSF)</u> Houston Independent School District	208,672	1.160	5,558
Edmonton Public Schools*	208,862	0.465	5,750
Seattle Public Schools	47,432	0.435	9,173

*Edmonton Public Schools' data are in Canadian dollars.

per student. Among the three WSF districts, the budget was highest in Houston Independent School District at \$1.160 billion for 208,672 students, or \$5,558 per pupil. The Edmonton Public Schools, with 80,862 students, budgeted \$0.465 billion, or \$5,750 in Canadian dollars. The smallest sample district, the Seattle Public Schools, with 47,432 students, had an operating budget of \$0.435 billion, or \$9,173 per student. Clearly, the three largest, ERF districts have higher per student costs, in part possibly because of the higher cost of living in New York City, Los Angeles, and Chicago.

Capital costs and their adequacy are important to consider also. Analysis was also done on the comparison of the capital budgets of the six systems, standardized by school district size (enrollment), including both capital costs and the debt service. Table 2 shows that New York City had a 2002 capital budget of approximately \$2 billion. In Fiscal Year 2000, the most recent year for which data were available, total debt service was \$537 million. The Los Angeles Unified School District was even higher at \$2.293 billion for capital and \$330.0 million for debt service even though the district actually spent only approximately 24% of its capital budget in 2000-2001. The Chicago Public Schools' capital budget was \$569.0 million and debt service \$240 million. Edmonton had both the lowest capital budget at \$1,237 per student (Canadian dollars) and the smallest total budget at \$100 million, plus debt service of \$35.5 million. Seattle, smallest district in student enrollments, had a total capital budget of \$175 million with debt service of \$1.0 million. Our analysis found no systematic differences between WSF and ERF districts in their incurring of capital

costs. Rather, the larger districts had the highest capital costs (more students and more facilities), although when standardized by the size of their student population, we do see that Seattle is spending the most per pupil on capital.

Another perspective on these districts is the number of schools and the average size of schools. Table 3 shows the total number of school buildings, the enrollment, and the average school size. Note that this level analysis does not allow us to analyze school-size differences for different types of schools, e.g., elementary schools vs. high schools. New York City, the largest district in the comparison, had the largest number of schools at 1,211 and the largest average school size, with 911 students. Seattle, the smallest district, had the fewest number of schools, 94, and the smallest average school size, at 505 pupils, the latter almost half that of New York City.

Table 4 provides information on the allocation of personnel, specifically the size of central office staff and teacher-student ratio. As a measure of overhead, we compared the size of the central office staff across districts. For our purposes, we defined a central office employee as any worker who sits in a district's administrative offices or is assigned by the central office to serve multiple schools. Therefore, custodians and cafeteria workers counted as school employees, even if they were budgeted as a part of the central office, but speech therapists and other itinerant staff who served more than one school were counted as central office employees, since they were assigned by central office.

Table 2
Capital and Debt Service for Sample Districts

<i>School District</i>	<i>2002 Capital Budget (in billions \$)</i>	<i>Per Pupil Capital (\$)</i>	<i>2002 Debt Service (in millions \$)</i>	<i>Debt Service Per Pupil (\$)</i>
New York City Board of Education	~2	1,812	537	486
Los Angeles Unified School District*	2.293	3,173	330	456
Chicago Public Schools	0.569	1,307	240	551
Houston Independent School District	0.248	1,188	107	512
Edmonton Public Schools**	0.100	1,237	36.5	451
Seattle Public Schools	0.175	3,685	1.0	21

*In 2000-2001, the Los Angeles Unified School District spent only 23.6% of its capital budget.

**Edmonton Public Schools' data are in Canadian dollars.

Table 3
Number of Schools and Average School Size by District

<i>School District</i>	<i>Number of Schools</i>	<i>Average School Size</i>
New York City Board of Education	1,211	911
Los Angeles Unified School District	789	916
Chicago Public Schools	597	729
Houston Independent School District	288	725
Edmonton Public Schools	209	387
Seattle Public Schools	94	505

Table 4
Personnel Allocation

School District	Central Office Staff (FTE)*	Central Office Staff Per 100,000 Pupils	Student/Teacher Ratio
New York City Board of Education	13,790	12.5	13.8
Los Angeles Unified School District	7,784	10.8	20.1
Chicago Public Schools	4,279	9.8	16.5
Houston Independent School District	3,307	15.8	17.8
Edmonton Public Schools	410	5.1	n.a.**
Seattle Public Schools	1,180	24.9	n.a.**

*FTE = Full Time Equivalent.

**n.a. = not available.

New York City employed 13,790 central office staff measured in full-time equivalents (FTEs). Los Angeles followed with 7,784. Chicago had 4,279 and Houston, 3,307 FTEs. Edmonton employed 410 central office staff, and Seattle, 1,180 FTEs. Many central office units in Edmonton serve schools on a fee-for-service basis, such that schools are allowed to purchase the same services from outside vendors. For this reason, we only counted central office FTEs that were charged to the district's overhead. When these data were standardized by district size, Edmonton, by far, had the smallest central office of the public school districts, with only 5.1 central office FTEs per 100,000 students. Los Angeles and New York City had 10.8 and 12.5 central office FTEs per 100,000 students respectively. Seattle had the largest central office of all, with 24.9 FTEs per 100,000 students. Yet Seattle has 50% less students than it did in the 1970's. If such a large, dramatic decline in students did not bring a concomitant reduction in central staff, this may partially explain Seattle's current status as the most top-heavy district in the study.

For student-teacher ratio, Los Angeles had the highest ratio with 20.1 students per teacher. Houston followed with 17.8 students per teacher, and Chicago with 16.5. New York had the lowest ratio at 13.8 students per teacher. These findings provide only a rough guide to actual student-teacher ratios in classrooms since we do not know how many of a district's teachers are actually in classrooms.

Site-Based Functional Analysis of Operating Expenditures

Key to determining the adequacy of funding under the new state court requirements in New York City is to analyze the effects of WSF, as compared to ERF, in allocating more resources down to schools. To perform this kind of analysis, we used the Functional Analysis Model (FAM) that separates school-level expenditures into functional "buckets", as presented below. (See Table 5.) When these functions are applied to district and school-level spending, we are able to determine where the resources are being used and for what purposes. We take each of the districts analyzed and focus on a subset of five percent of the schools and perform a "bucket analysis" and an "outlier analysis" of the for New York City and Edmonton schools. For our functional analysis of spending, we use Fiscal Year 2000 data for New York City and Fiscal Year 2001 data for all other districts. In contrast, data in the preceding sections were budget data for 2002. Also note that the data presented represent our best understanding of where dollars were

spent. A separate analysis will look at how much budgetary discretion principals have at the school site.

One of the reasons to conduct a functional analysis of spending is that it allows us to compare the adequacy of districts and schools, comparing all six of our sample districts, looking specifically for differences between the ERF and WSF districts. Second, we can compare the outliers to see if we detect greater differences in spending between districts than within them. Third, we discuss equity of spending among districts since the history of school finance litigation, beginning with the 1971 California case, *Serrano v. Priest*, up to the present *Campaign for Fiscal Equity*, has found that inter-district inequalities in spending were unconstitutional. Although the purpose of this research was not to promote equality of spending, it is possible to make a few interesting observations based on our data. Note that Houston data are for Fiscal Year 2001, before WSF had been fully implemented. For this reason, we highlight Edmonton's data as the only example of a WSF district for which we have completed a spending analysis.

We begin by looking at resource allocation efficacy, defined as; (1) the percentage of district resources spent at the school; and (2) the percentage of school resources spent in the school and classroom. Table 6 shows school-level spending for the five districts for which we have completed analyses. The analysis suggests that Houston and Los Angeles spent the lowest percentage of their district resources at school sites, with both spending less than 85% at the school level. Note, however, that we are skeptical about the high percentages listed for both New York City and Chicago. A full audit could very well indicate that those two districts are spending a much lower percentage at the school level.

Another method for calculating the efficiency of spending is to discover what percentage of resources that reach a school are placed into the classroom, regardless of the level in comparison to district-wide averages. (See Table 7.) Edmonton, with longest history of using WSF, drove the highest percentage, 65.1%, of its per-pupil spending to Bucket A, Classroom Instruction. All other districts spent less than 60% of district resources in the classroom, and Los Angeles spent only 45% of the district's budget in the classroom.

One indicator of greater autonomy of schools under a WSF system would be to see whether local school leaders captured a higher percentage of their funds and dedicated them to teaching and learning,

Table 5
Functional Bucket Analysis Model

<p>Bucket A</p> <p>Classroom Instruction</p>	<p>School Examples</p> <ul style="list-style-type: none"> • Teacher salaries and benefits • Aides and other in-class support staff • Classroom-based equipment • Classroom supplies 	<p>Central Office</p> <ul style="list-style-type: none"> • None
<p>Bucket B</p> <p>Pupil Support</p>	<p>School Examples</p> <ul style="list-style-type: none"> • Salaries of nurses, psychologists, and counselors who work in schools (only percentage of time they spend in schools) • Supplies for above staff 	<p>Central Office</p> <ul style="list-style-type: none"> • Assistant superintendent of health and human services (plus all support staff) • Office expense for central office unit
<p>Bucket C</p> <p>Instructional and Staff Support</p>	<p>School Examples</p> <ul style="list-style-type: none"> • School-based curriculum directors • School-based professional development programs • Coaches that serve schools directly (only that percentage of time spent in schools) 	<p>Central Office</p> <ul style="list-style-type: none"> • Management of instruction, special education • All professional development mandated and paid for by the district
<p>Bucket D</p> <p>Ancillary Services</p>	<p>School Examples</p> <ul style="list-style-type: none"> • Operating expense of school-site cafeterias • Transportation expenses that are a part of the school budget 	<p>Central Office</p> <ul style="list-style-type: none"> • Operating expenses of non-school cafeterias • Office expense for food services and transportation offices
<p>Bucket E</p> <p>Facilities</p>	<p>School Examples</p> <ul style="list-style-type: none"> • Maintenance projects paid for by school • Central office employees– like carpenters or electricians– who serve schools directly (only that percentage of time spent in schools) • Insurance paid by school • School-based police 	<p>Central Office</p> <ul style="list-style-type: none"> • Administration of maintenance, health and safety, and police offices • Insurance paid by district • Costs associated with renting or maintaining non-school buildings

without having to beg for more money from the central office. If schools are to be held accountable for providing adequate education, they must have some autonomy to make the best use of the funds for the children they enroll. Principals in Edmonton, for example, reported that they often put off the repair or redecoration of classrooms a year or two to conserve funds for hiring more teachers. In contrast, ERF schools never see building upkeep dollars and simply get on a repair list, hoping that the painting and repairs office will appear this year. These school leaders do not think of services as school-site funds, but rather as central office functions they request services and wait for.

The variation within school districts may be as great as that between districts; that is, if we rank order the spending levels per pupil at individual schools and calculate the high and low ends of the continuum in spending both in the school and classroom, we can begin to understand the effects of WSF and ERF on “outlier” schools, those one or more standard deviations above or below the mean. In the Edmonton schools, for example, the Glendale Elementary School spent \$7,260 per student, the high-end school in total funding, and

the Julia Kiniski School expended \$3,925 per student at the low end, a range of \$3,335 per student. (See Table 8.) On further examination, several explanations appeared. First, the Glendale school had only 116 students and put \$4,739 per student in the classroom, compared to Kiniski School’s \$2,613 per student. Note that the Edmonton data do not reflect differences in teacher salaries. As a part of their allocation WSF system, Edmonton uses average teacher salaries, and their budget system does not even track actual teacher salaries. A full analysis of payroll information would likely show that spending differences between schools can be even higher than our preliminary analysis indicated.

Like Edmonton, New York City had a wide range of spending levels among its schools although it appears that Edmonton did drive greater proportions of its resources to the classroom per student. In New York City, about 82% reached the school, with only about half of that amount in the schools going into the classroom for Instruction. Another trend became apparent. Schools that received fewer resources in the school tended to spend more of that money in the classroom. If we

Table 6
Per-Pupil Spending at the School Level Ranked by Percentage of Total District Spending

<i>School District</i>	<i>Per-Pupil Spending at the School Level (\$)</i>	<i>Percentage of Total District Spending (%)</i>
Chicago Public Schools	6,675	94.6
New York Board of Education	8,658	93.6
Edmonton Public Schools*	4,935	91.9
Houston Independent School District	5,767	84.4
Los Angeles Unified School District (to be adjusted)	8,406	83.6

*Edmonton Public Schools' data are in Canadian dollars.

Table 7
Spending Per Pupil in the Classroom

<i>School District</i>	<i>Per-Pupil Spending in Classroom (\$)</i>	<i>Percentage of Total Spending (%)</i>
Edmonton Public Schools*	3,746	65.1
Seattle Public Schools	5,683	58.5
Chicago Public Schools	4,104	58.2
New York City Public Schools	4,941	53.4
Houston Public Schools	3,592	52.6
Los Angeles Unified School District (to be adjusted)	4,526	45.0

*Edmonton Public Schools' data are in Canadian dollars.

Table 8
Discrepancy Analysis Between High and Low Spending Schools by District

<i>School District</i>	<i>High End School Spending (\$)</i>	<i>Low End School Spending (\$)</i>	<i>Difference Between High/Low (\$)</i>
Edmonton Public Schools*	7,260	3,925	3,335
Chicago Public Schools	8,042	4,870	3,172
New York City Public Schools	15,093	6,355	8,738
Houston Public Schools	7,988	4,915	3,073

*Edmonton Public Schools' data are in Canadian dollars.

take the two highest and two lowest spending schools in total, P.S. 87 (District 24) and Middle School 181 (District 11), which spent total \$15,092 and \$10,511 per student respectively, and P.S. 250 (District 14 with only \$6,355 per student total and P.S. 152 in District 30 with \$6,320 per student for total operating budget, we see some interesting trends. (see Table 9.)

Of interest also is equity, measured as intradistrict differences in spending by school and function. Table 8 shows the differences between the high and low outlier schools, a kind of discrepancy analysis, which may be a rough indicator of the levels of inequality within districts, between the sample schools. Since these schools were not selected randomly, we can only assume that the differences between top and bottom spenders is a good approximation of the levels of

inequality within the four school systems. New York City showed the greatest difference between the high and low outliers, \$8,738 per student, while Edmonton, at \$3,335, Chicago at \$3,172, and Houston at \$3,073 were closer together. These differences between schools within school districts does continue to fuel our contention that U.S. schools are less equitable within the same district than between districts.¹⁶

Case 1: New York City Board of Education

The New York City Board of Education (hereafter referred to as New York City) began performing site-based analysis in 1994, publishing yearly the levels of spending in each school for each function and program; and over the seven years, the district has reported increasing proportions of district spending at the school level and in the classroom

Table 9**Ratio of School to Classroom Spending for High and Low New York City Outlier Schools**

<i>New York City Schools by District</i>	<i>Enrollment</i>	<i>School-Site Spending Per Pupil (\$)</i>	<i>Classroom Spending Per Pupil (\$)</i>	<i>Percentage of School Spending in Classroom (%)</i>
HIGH END:				
P.S. 87 (District 24)	406	15,092	7,390	48.97
M.S. 181 (District 11)	817	10,511	5,089	48.42
LOW END:				
P.S. 152 (District 30)	1,484	6,320	3,961	62.67
P.S. 250 (District 14)	1,136	6,355	3,908	61.49
Systemwide Data	1,104,000	8,658	4,941	57.07

relative to earlier periods¹⁷ However, it remains unclear whether these improvements reflect actual changes in spending patterns, or simply accounting changes. Overall, New York City spent \$10.179 billion in 2000 for operating costs, or about \$9,251 per student. Of that amount, 93.6% reached schools, and 53.4% reached the classroom. Table 10 shows a detailed functional breakdown of operating expenditures, as well as per-pupil and percentage breakdowns.

New York City Public Schools have two levels in its organizational management: central office and local school districts, of which there are 40 community school districts, high school districts, and special districts. Broken out, central office costs were \$394 million, \$235 per student, or 3.9% of budget. The local districts costs were \$258.340 million, \$235 per student, or 2.5% of operating costs. When central and district overhead are combined, the total is 6.4%. The district's reporting methodology does not allow us to break down central office and local district costs into functional buckets. We have therefore labeled all central and district costs as Leadership (Bucket F.)

According to our analysis, 93.6% of spending is attributed to schools, or \$9.526 billion. When we functionalize spending, among the six buckets, we begin to determine how the funds are spent within the 1,211 schools. Of the \$10.179 billion of direct operating costs of the district, \$5.437 billion went to Bucket A, Classroom Instruction, or 53.4% went to in the classroom for teachers and aides' salaries, benefits, materials, books, and student-use computers. This amount was \$4,941 per student of the total per-student expenditure of \$8,658 in schools. Schools also provide non-classroom services to students, including counseling, library services, nurse and health care, testing, speech therapy, tutoring, before and after-school programs etc. In the district, the total expenditure on Bucket B, Pupil Support, was \$1.127 billion, which was 11.1% of school-level costs or \$1,024 per student and 8.9% of total system costs, \$11,557 per student. Resources are provided to help teachers to improve their teaching practices and to strengthen the curriculum, including mentoring, master teachers, better curriculum. While typically quite small, this function in the district was \$176 million, \$127 per student, or 1.7% of spending, for Bucket C, Instructional and Teacher Support. Student transportation and food services have increased in size and importance in U.S. schools, and New York City reported spending \$791 million on these services in schools. This amounts to 7.8% of school spending or \$719 per student system-wide for Bucket D, Ancillary Services. For Bucket E,

Facilities, the operational function of school buildings, not counting capital building and renovations and debt services, which are handled centrally, came to \$1.066 billion, translating into \$968 per student or 10.5% of site-based expenditures.

The district has a large leadership function at the central, local district, and all-schools levels, with the total for Bucket F, Leadership, at all three levels at \$1.582 billion, \$1,438 per student overall, for 15.5% of system spending. When Leadership is parsed out by level, a different picture emerges. For example, central office leadership costs are \$395 million, 3.9% of total operating expenditures or \$395 per pupil. Local district level leadership for managing the system's 32 community school districts, five high school districts, and special districts, such as the chancellor's district and special education, has expenditures of \$258 million, \$235 per student, or 2.4% of spending. The school-site leadership function that includes school principals, assistant principals, school office, and secretaries costs \$929.216 million, or 12.5% of school spending or \$672 per student. Again, note that New York City's central and district leadership costs are not directly comparable to the numbers for other districts since a lack of fine data has forced us to lump all central and district costs into the leadership bucket.

Using the Finance Analysis Model, we can drill down to the individual school level for the 5% sample schools selected in New York City. Table 11 shows schools in rank order by spending at the school site, which lends itself to outlier analysis. We see a wide range of schools rank-ordered by resources per pupil reaching the school site (and classroom), with Public School 87 in District 24 spending \$15,092 per student total, of which \$7,390 per student reached the classroom for functional Bucket A, Instructional costs. Middle School 181 in District 11 (Bronx) received \$10,511 or 122% of the system average at the school and \$5,089 per student in the Bucket A, which is considerably lower than many of other schools, meaning that high amounts per student are allocated to the school but do not reach the classroom for Instruction.

The average overall spending in New York City Board of Education was \$9,251 per student. In Bucket A, the district averaged \$4,941 per student or 53.4% in the classroom. When compared to the high outliers just discussed, we see 163% of average resources reaching P.S. 87 overall and 79.88% in the classroom. In contrast, Middle School 181 received 113.6% reaching the school but only 55.01% in the classroom. Hence the Middle School 181 is well above the average in funding but

Table 10

**New York City Board of Education Functional Analysis of Fiscal Year 2000 Operating Expenditures:
System, District, School, Classroom**

	<i>Instruction (Bucket A)</i>	<i>Pupil Support (Bucket B)</i>	<i>Instructional Support (Bucket C)</i>	<i>Ancillary Services (Bucket D)</i>	<i>Facilities (Bucket E)</i>	<i>Leadership (Bucket F)</i>	<i>Total</i>
TOTAL SPENDING (in thousands of \$)							
All District schools	5,437,087	1,127,220	175,963	791,152	1,065,597	929,216	9,526,235
All Local Districts						258,340	258,340
NYBOE Central Office						394,678	394,678
Total Operating Budget	5,437,087	1,127,220	175,963	791,152	1,065,597	1,582,234	10,179,253
SPENDING PER PUPIL (\$)							
All District Schools	4,941	1,024	160	719	968	845	8,658
All Local Districts						235	235
NYBOE Central Office						359	359
Total Operating Budget	4,941	1,024	160	719	968	1,438	9,251
PERCENTAGE OF OPERATING EXPENDITURES (%)							
All District schools	53.4	11.1	1.7	7.8	10.5	15.5	100.0
All Local Districts						2.5	2.5
NYBOE Central Office						3.9	3.9
Total Operating Budget	53.4	11.1	1.7	7.8	10.5	15.5	100.0

just slightly above it in resources in the classroom, ranking number two in school-site funding but number ten for classroom.

With regard to low outliers, P.S. 152 in District 30, with 1,484 students, spent only \$6,320 per pupil, 68% of system-wide average of \$9,251 per student, at the building level, with \$3,961, or 42.82%, reaching the classroom for Bucket A. P.S. 250 in District 14 received slightly more funding at the school site, \$6,355 per student or 68.7%, and \$3,908 per pupil in Bucket A or 42.2%. Again about half of the money reaching the school made it to the classroom, compared to Edmonton. Another trend appears in the data as we compare high and low-spending schools in New York City by overall and Instructional expenditures. The smaller schools tend to rank higher in spending than larger schools. The correlation between size and rank is not nearly perfect as we do see large schools toward the bottom of the ranking and small ones nearer the top. When we plot size (enrollment) against overall costs or spending, we see a slope indicating the costs getting lower as the school size gets larger, as seen in Figure 1.

Interesting too in New York City, the high schools in our study were moderate in their spending, with Norman Thomas High Schools, with 2,321 students, spending \$8,059 per pupil, or 87.1% overall, making it 17th in our rankings, and \$4,635 per student or 50.1% in the classroom. Edward R. Murrow High School in Brooklyn was also quite similar, ranking 20th in spending among the sample schools overall and 25th in the classroom for Bucket A; that is, Murrow High School had 80.8% of funding reaching the building and 47.1% in Bucket A. New York City high schools have long enjoyed a system which resembles weighted student formula in that each school is granted a set number

of units based on the enrollment of the schools although each student is considered a 1.0. The school leadership can then determine how to spend the resources, mixing teachers, administrators, counselors, secretaries, and other staff although the units are not weighted by the needs of the students. For example, Park East High School has 775 students and is thus given 42.47 or 43.00 (rounded up) Allocated Units for their use. Staff are weighted, as follows, multiplied times the number of each staff type the school elected to hire, as shown in Table 12.

Overall, the district drove about 53% of its resources into the classroom and 94% to schools; however, the great range and diversity of schools and the extreme differences between high and low outlier schools indicate that the system has great inequality among its schools. The high schools, although quite limited in our sample, seemed to be more clustered around the middle of the distribution, perhaps because of the unit allocation system. As pressure rises to provide a high-quality education with adequate or better results, the level of differences may come into question unless the system can show that the cost differences are related to the needs of the students, as a weighted pupil approach would allow.

Case 2: Edmonton Public Schools

Since leaders in the Edmonton Public Schools were pioneers in the weighted student formula, we were particularly interested in the level of funding at each of the district's 209 schools and particularly our sample schools. In 2001, Edmonton Public Schools had \$437 million in operating expenditures, or about \$5,369 per student. (All numbers

Table II
Selected New York City Schools Ranked by Operating Budget Per Pupil*
Outlier Analysis: Sample Schools

School by District	Enrollment	Operating Budget Per Pupil (\$)	Rank	Classroom Spending Per Pupil (\$)	Rank
District 24 – PS 87	406	15,092	1	7,390	1
District 11 – MS 181	817	10,511	2	5,089	10
District 30 – PS 76	925	9,914	3	5,591	5
District 14 – PS 84	979	9,851	4	5,747	3
District 27 – PS 197	975	9,697	5	5,894	2
District 21 – IS 280	262	9,440	6	5,729	4
District 8 – IS 125	865	9,367	7	4,951	14
District 30 – PS 2	729	8,990	8	4,967	13
District 1 – PS 20	945	8,789	9	5,583	6
District 27 – PS 232	947	8,785	10	4,889	15
District 14 – IS 318	946	8,756	11	5,346	7
District 11 – PS 97	707	8,567	12	4,210	27
District 30 – IS 204	1,291	8,418	13	5,255	9
District 24 – PS 143	1,332	8,340	14	5,331	8
District 26 – IS 67	1,181	8,193	15	4,972	11
District 26 – MS 74	1,061	8,088	16	4,584	18
Norman Thomas HS	2,321	8,059	17	4,635	17
District 27 – PS 90	1,214	7,675	18	4,972	12
District 27 – PS 106	521	7,488	19	4,380	23
Edward R. Murrow HS	3,780	7,471	20	4,353	25
District 24 – PS 199	1,175	7,469	21	4,515	21
District 14 – PS 132	1,044	7,423	22	4,750	16
District 26 – MS 172	1,354	7,335	23	4,401	22
District 11 – MS 127	1,209	7,318	24	4,241	26
District 26 – PS 94	360	7,303	25	3,821	33
District 24 – IS 73	2,235	7,289	26	4,374	24
District 26 – JHS 216	1,152	7,281	27	4,568	19
District 26 – PS 159	697	7,264	28	4,062	29
District 24 – PS 88	1,809	7,031	29	4,206	28
District 30 – IS 10	1,283	6,909	30	4,560	20
District 27 – PS 56	626	6,772	31	4,049	30
District 27 – PS 60	1,439	6,559	32	3,800	34
District 14 – PS 250	1,136	6,355	33	3,908	32
District 30 – PS 152	1,484	6,320	34	3,961	31

*Includes central office expenditures allocated to schools.

Figure 1
Per Pupil Operating Costs: Decreasing with School Size, New York City

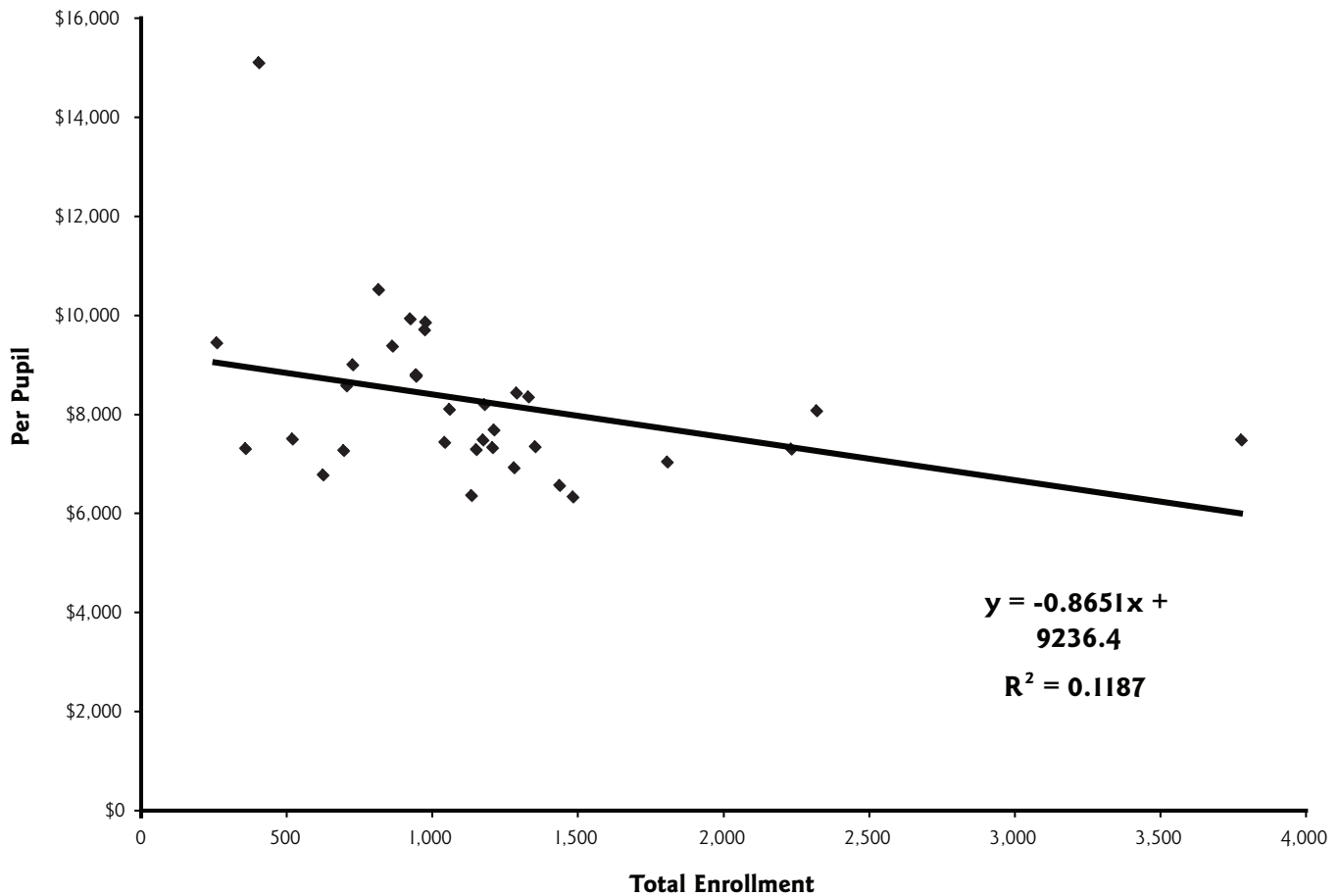


Table 12
Allocated Site-Based Staff Weighting System:
Park East High School, New York City Board of Education, 2001

Roles	Weights for Roles	Number in Job	Total Staff Units
Principal	2.12	1	2.12
Assistant Principal – Administration	1.85	1	1.85
Assistant Principal – Supervision	1.87	1	1.87
School Secretary	0.72	2	1.44
Office Aide	0.46	3	1.35
Guidance Counselor	1.23	2	2.46
Health Aide	0.39	1	0.39
Family Aide	0.37	1	0.37
Teachers	1.00	30	30.00
Total Staff	n.a.*	42	42.56 (43.0)

*n.a. = not applicable.

are in Canadian dollars.) Of that amount, 91.9% reached schools, and 60.5% reached the classroom. Table 13 shows a detailed functional breakdown of operating expenditures, as well as per-pupil and percentage breakdowns.

The first cut is between school site and central office costs, both in total and by functional/bucket review. Table 13 shows that total central office spending was \$35.363 million or 8.1% of the total operating budget, which is among the lowest levels in such studies. When we perform functional analysis of the central office spending, we see \$2.106 million at central for Pupil Support (Bucket B), \$6.528 million for Instructional Support (Bucket C), only \$414,512 for Ancillary Services (managing transportation), \$3.112 million for facilities (Bucket E), and \$23.202 million for Leadership. Edmonton's low level of spending for Ancillary Services (Bucket D) reflects the fact that Canadian schools do not provide meals to students as do most public schools in the United States. This translated into central office spending in Pupil Support (Bucket B) of \$26 per student; Instructional Support (Bucket C) of \$80 per student; Ancillary Services (Bucket D) of \$5 per student; Facilities (Bucket E) of \$38 per student; and Leadership (Bucket F) of \$285 per student--totaling \$434 per student, meaning that \$4,935 or 91.9% of spending in the Edmonton Public Schools was at the school level.

As shown in Table 13, Edmonton spent \$402 million in its schools. When we break out this spending by function, we see the following. Of its \$437.1 million total operating costs, \$273.377 million is in the classroom (Bucket A), which translates into 62.5% or \$3,358 of \$4,935 per student. Among our four districts analyzed thus far, Edmonton was highest in bring resources to the classroom, a good 10% higher than Houston, the other WSF district, although Houston is just phasing in the model. For Bucket B, Pupil Support, Edmonton spent \$10.377

million in school services for students including guidance, librarians and other support, translating into 2.4% of school spending overall, or \$127 per student. In Bucket C, Instructional Support, which includes staff development and curriculum support, Edmonton Public Schools spent \$6.97 million, or \$86 per student, just 1.6% of operating expenditures. This amount increased to 3.1% when the central office staff trainers and curriculum designers were included. It is often difficult to divide central office and school site spending in this area since staff developers are held centrally while working in schools much of the time, but not necessarily a particular, identifiable school. For Bucket D, Ancillary Services, Edmonton spent \$17.636 million, or 4.0%, on transporting students. This amounted to \$217 per student, indicating that schools are responsible in Canada for transporting students who have wide a choice of schools and may travel long distances at public expense. For Bucket E, Facilities, school-site maintenance and utilities in buildings ran \$130.134 million, \$488 per student, with only \$38 per student central costs. This reflected Edmonton's WSF process of granting individual schools greater control over the upkeep, painting, and renovating of buildings out of their regular budget. Hence, 9.1% of school-site spending was on buildings and facilities at the school level. For Bucket F, Leadership, Edmonton spent \$54.7 million at the school level on administration, which is 12.5% or \$672 per student. This may signal that site-based management of buildings and budgets required administrative staff in each school although many principals reported that they had turned their budgeting and finance procedures over to their secretaries who were learning the intricacies of site-based budgeting.

Table 14 shows the sample schools in Edmonton rank ordered from highest to lowest school-site spending on both total school costs and Bucket A, Classroom Instruction. The highest spending sample school,

Table 13
Edmonton Public Schools Functional Analysis of 2001 Operating Expenditures:
System, District, School, Classroom*

	<i>Instruction (Bucket A)</i>	<i>Pupil Support (Bucket B)</i>	<i>Instructional Support (Bucket C)</i>	<i>Ancillary Services (Bucket D)</i>	<i>Facilities (Bucket E)</i>	<i>Leadership (Bucket F)</i>	<i>Total</i>
TOTAL SPENDING (in thousands of \$)							
All District schools	264,251	10,059	6,970	17,636	39,704	64,125	401,711
Central Office		2,106	6,528	415	3,112	23,202	35,363
Total Operating Budget	264,251	12,164	13,498	18,051	41,782	87,327	437,074
PER PUPIL SPENDING (\$)							
All District Schools	3,246	124	86	217	488	788	4,935
Central Office		26	80	5	38	285	434
Total Operating Budget	3,246	149	166	222	513	1,073	5,369
PERCENTAGE OF OPERATING EXPENDITURES (%)							
All District schools	60.5	2.3	1.6	4.0	9.1	14.7	91.9
Central Office		0.5	1.5	0.1	0.7	5.3	8.1
Total Operating Budget	60.5	2.8	3.1	4.1	9.6	20.0	100.0

*Edmonton Public Schools' data are in Canadian dollars.

Glendale Elementary, had 116 students, spent \$7,260 per student, which was 135% of total spending (\$5,360 per student). Of that amount, \$4,739 per student reached the classroom for Instruction (Bucket A), or 88.3%. Similarly, Norwood Elementary School had \$6,213 per pupil in the school and \$4,085 per student in Instruction (Bucket A). This meant that nearly 116% reached the school, and 76% was in the classroom of the district-wide per pupil cost of \$5,369. Of the \$7,260 at the school, 56% was in the classroom. At the low end, Julia Kiniski Elementary School and Kate Chegwin Elementary School received the lowest per pupil amounts and were slightly larger than the high outliers with 579 and 507 respectively, compared to 116 students at Glendale and 143 at Norwood. In fact, Edmonton gives extra weight to smaller buildings that may account for the higher spending per student. When compared to New York City and other cities in the United States, the Edmonton schools tended to be much smaller in general. Jasper Place High School was an exception with 2,280 students.

Chegwin Elementary School spent \$4,175 per student overall, which is 77.8% of total spending (\$5,369 per student) and \$2,738 per student in Bucket A, Instruction, which was only 51% of district per pupil spending. Kiniski Elementary, the bottom outlier among the Edmonton schools in our 5% sample, spent only \$3,925 overall, or 73% of total per pupil system spending, and \$2,613 per student in Instruction, Bucket A, which meant that only 49% of district average total reached children for teaching and learning. Of the money spent at the two schools, therefore, Chegwin and Kiniski elementary schools both put 66% of their resources into the classroom (Bucket A). So, these two low outlier schools received about 50% of the district-wide per pupil spending overall and put about two-thirds of that money into instruction. This compares badly overall to the Edmonton districtwide average of 92% in schools and 63% in the classroom.

Practical Applications: Making Adequacy Work

We've learned that implementing WSF has three interrelated steps that are all equally important and can be applied to attaining adequacy in New York state and elsewhere. They are: (1) how much the district spends; (2) where the funding goes; and (3) what is enough or adequate funding to raise test scores and meet standards to provide a "sound basic" and "adequate" education for all students. In practice, New York state might do the following:

- *Bottom-Up Analysis*. Rather than imposing the adequacy system from the top down, as has been the trend carrying over from the "equity" days where the state courts determined a "fair" level of spending at the district level, we can show that building adequacy works best when the policymakers decide how much should be reasonably spent on each category of student (impoverished, challenged, limited in use of English), and then aggregate these costs "upward" to create a realistic amount using a WSF model.
- *Transparent "Throughput"*. WSF and other student-centered funding arrangements depend on clear, accurate systems for tracing funding to each school by function, including classroom instruction and direct student supports (e.g., counseling, speech therapy, media and technical services). Thus, "through-put" analysis is critical to any attempt to provide an adequate education; otherwise, it's impossible to relate the needs and location of students to the expenditures of educational funds.
- *Relating Inputs to Outputs*. WSF provides the information needed to allow the system to relate financial and educational inputs to school and student outputs, showing how each school and program can help to improve the education results, e.g., test scores, promotion, school graduation, college admissions, for each category of child. It appears, then, that the concepts and technology for making the court mandates

Table 14
Outlier Analysis for Edmonton Sample Schools*

School/Level	Enrollment	School Spending Per Pupil (\$)	Rank	Classroom Spending Per Pupil (\$)	Rank
Glendale	116	7,260	1	4,739	1
Norwood	143	6,213	2	4,085	2
Riverdale 56	108	5,959	3	3,628	3
Lawton (w/RJ Scott)	415	5,760	4	3,835	4
Athlone	186	5,539	5	3,997	5
Beacon Heights	185	5,151	6	3,287	6
Sweet Grass	276	5,038	7	3,464	7
Hardisty	437	4,909	8	3,445	8
Jasper Place HS	2,280	4,833	9	3,018	9
Winterburn/WV Village	375	4,732	10	2,835	10
Ellerslie	526	4,615	11	3,298	11
Millwoods	346	4,544	12	2,699	12
Caernarvon	397	4,270	13	2,943	13
Rideau Park	330	4,236	14	2,886	14
Kate Chegwin	507	4,175	15	2,738	15
Julia Kiniski	579	3,925	16	2,613	16

*Edmonton Public Schools' data are in Canadian dollars.

under the *Campaign for Fiscal Equity* case work in New York City and New York State. We can weight the needs of children; trace the funds to the school, classroom, and child; and begin to calculate the academic and social improvement of students, under the concepts of "adequate yearly progress." In addition, school-site leaders should be granted the autonomy to determine just how allocated funds will be spent, and the central office should restructure itself to hold schools accountable, to set the weights in such a way that students are provided for and that resources reach the students in the classroom.

• *More Money, More Adequacy*. Finally, we are seeing in New York the demand for more resources being counterbalanced by the lack of funds at the state and local level. In a recent editorial, Detric and Brewer explained: "FACTS: The governor's [Pataki] proposed budget provides for modest increase in what are known as the 'spend to get' categories, most notably building aid. However, for the fourth straight year, no additional money goes into operating aid—even though schools are being confronted with major increases in health insurance, liability insurance, retirement contributions and fuel costs".¹⁸ They hardly mention the need for additional funding for direct education services as a way of improving student achievement.

Thus, we have shown that the state and district, not to mention society as a whole, have the knowledge, models, and the resources to provide an adequate education for all. If New York state and New York City cannot make adequacy work in their schools, we may see the district back in court in an effort to increase resources, trace funding to students, and to see if schools and students are making adequate progress. The latest reports on progress in New York are mixed:

As Hadderman explained in describing the developments in school-level and classroom analysis as we move from equity to adequacy: "Suddenly, an equal share of too little is becoming unacceptable in many states."¹⁹ This is not going to be easy in New York or anywhere. As Guthrie and Rothstein noted: "These difficulties in defining adequate outcomes are logically prior to the challenge of attaching input prices [and throughput allocations] to these outcomes. Yet we know very little about how to address them. Meanwhile courts, legislatures and the public will continue to demand that we 'put the cart before the horse' and estimate the price of adequacy before we truly know what it is".²⁰ Perhaps using a weighted student formula to focus spending on students by background and need, and then accounting for this spending at school and classroom level, may work; or, at least, it may begin to move the proverbial horse forward and help to determine what it really costs to give a child a "sound basic education" to at least an adequate level, relating financial inputs, the use of funds internally by school and function, and how spending relates to "outputs," children's educational attainment.

Endnotes

¹ Robert Berne and Leanna Stiefel, *The Measurement of Equity in School Finance* (Baltimore, Maryland: The Johns Hopkins University Press, 1984).

² *Campaign for Fiscal Equity v. State of New York* (86 NY2d 307-1995, 2003).

³ Richard A King, Austin D. Swanson, and Scott R. Sweetland, *School Finance: Achieving High Standards with Equity and Efficiency* (Boston: Allyn and Bacon, 2003), 43.

⁴ *Ibid.*, 336.

⁵ Benson in James W. Guthrie and Richard Rothstein, "Enabling 'Adequacy' to Achieve Reality: Translating Adequacy into State School Finance Distribution Arrangements," in *Equity and Adequacy in Education Finance: Issues and Perspectives*, Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen, ed. (Washington, D.C.: National Research Council, 1999), 214.

⁶ Guthrie and Rothstein, 214.

⁷ Michael A. Rebell and Joseph J. Wardeniski, *Of Course the Money Matters: Why the Arguments to the Contrary Never Added Up* (New York: Campaign for Fiscal Equity, 2004), 3.

⁸ *Campaign for Fiscal Equity v. State of New York*.

⁹ Frank G. Zarb, *Ensuring Children An Opportunity for a Sound Basic Education*, Final Report (New York: The New York State Commission on Education Reform, 2004).

⁹ *Ibid.*, 2.

¹⁰ *Ibid.*, 8.

¹¹ Zarb, 15.

¹² David C. Thompson and R. Craig Wood, *Money and Schools*, 2d ed. (Larchmont, New York: Eye on Education, Inc., 2001), 111.

¹³ *Ibid.*

¹⁴ Bruce S. Cooper and Philip H. Nisonoff, "Budgeting, Accounting and Auditing," in *International Encyclopedia of Education*, 2d ed., James W. Guthrie, ed. (New York: Macmillan, 2002).

¹⁵ Further research into these inequalities might be warranted since we suspect that these differences are partly due to school size and partly to the experience and costs of teachers and other staff. Schools with a high percentage of experienced, highly trained teachers will cost more even in WSF districts that seem to allot teachers on an "Average Teachers Cost" factor rather than on the real expenses. This might encourage schools to hire the most expensive teachers they can find, i.e., with advanced degrees and years of experience, since the central office holds them harmless in many cases. New York City high schools, for example, receive unit allotments but have no idea how much each teacher whom they hire might cost. Edmonton admitted that it used the schools with lower actual teacher costs to subsidize the more expensive schools, i.e., those with more expensive teachers. As the teaching force ages, the costs for veteran teachers keep going up, regardless of whether the district uses WSF or ERF methods and may be reflected in our outlier cost analysis. More research is needed on the equity or lack of equity within these districts among their schools.

¹⁶ Sheree T. Speakman, Bruce S. Cooper, Hunt C. Holsomback, Jay F. May, Robert A. Sampieri, and Larry Maloney, "The Three R's of Education Finance Reform: Re-Thinking, Re-Tooling, and Re-Evaluating School-Site Information," *Journal of Education Finance* 22 (Spring 1997): 337-367.

¹⁷ Charles S. Dedrick and Terrance L. Brewer, "Consistent Assistance to District," *Times Union* (Albany, New York: 2000), 2.

¹⁸ Margaret Hadderman, *Equity and Adequacy in Educational Finance*, ERIC Digest 129 (Eugene, Oregon: ERIC Center for Educational Management, 1999), 2.

¹⁹ Guthrie and Rothstein, "Enabling 'Adequacy' to Achieve Reality."