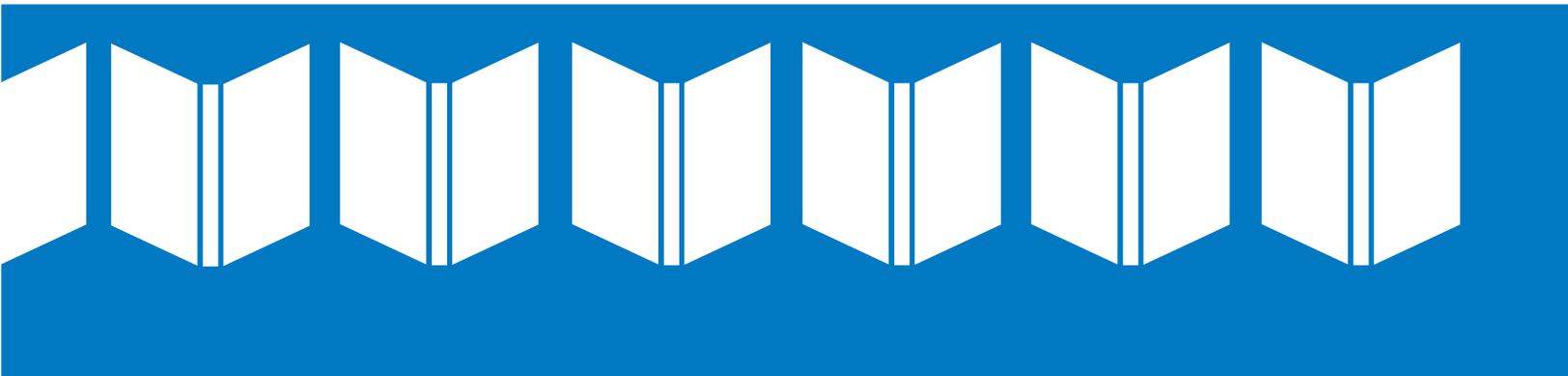


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Richard A. Rossmiller: A Prophet Even in His Own Land

An Interview

Terry G. Geske and Deborah A. Verstegen

Introduction

In May 2004, Richard A. Rossmiller received the Alumni Achievement Award from the School of Education at the University of Wisconsin-Madison honoring him for his many accomplishments. Accompanying this award was the following statement acknowledging that:

Emeritus professor Richard Rossmiller's work on K-12 school finance is legendary. In fact, his seminal research on the cost of high quality special education services has been cited in textbooks for the past 25 years. During his distinguished career as professor of educational administration at UW-Madison, Rossmiller inspired countless students, directed the Wisconsin Center for Education Research, presided over several national organizations, served on numerous editorial boards, and was frequently asked to share his expertise on finance and equity issues in Federal and state courts.

The interviewers were fortunate to be two of those countless students inspired by Richard Rossmiller, who served as major professor for their doctoral programs at the University of Wisconsin-Madison. In an effort to draw upon the many experiences he gained over a long and stellar career in addressing some seemingly intractable issues, we recently conducted this interview with Professor Emeritus Rossmiller.

Conversation

Geske and Verstegen (G&V): Let's start at the beginning. Could you tell us something about your early childhood and initial school experiences?

Richard A. Rossmiller (RAR): I was born and raised on a dairy and truck farm in southeastern Wisconsin. I grew up during the Great Depression and have clear memories of my mom and dad struggling to make sure they had enough money to pay the interest on the mortgage so that they would not lose the farm through foreclosure. Nevertheless, it was a wonderful place to grow up—we were never hungry. I learned early the value of hard work and teamwork, and I

cherish the memories of that period in my life. My mother had been a school teacher and was not satisfied with the one-room school serving our area; so my parents paid tuition for me to attend a two-room state graded school in the nearby community of Honey Creek where my grandparents lived, and I have very fond memories of the times I spent with them.

My high school education was at the Racine County Agricultural School where I was active in all sports, played in the band, and was active in the Future Farmers of America, earning Wisconsin Farmer and American Farmer degrees. I entered high school in the fall of 1942; so nearly all of my high school experience was during World War II. I gave little thought to college until during the last week of my senior year, the superintendent informed me that, as class valedictorian, I was entitled to an honor scholarship to any public university in Wisconsin. I decided to attend the University of Wisconsin at Madison and eventually decided to major in Agriculture and Education and become a vocational agriculture teacher since I still expected to return to farming some day in the future.

G&V: Would you describe some of those experiences that brought you to the professorship?

RAR: I came to the professorship after serving for about ten years as a teacher and administrator in the public schools in Wisconsin and Illinois. I started as a teacher of vocational agriculture in 1950. I had served as President of the Wisconsin Association of Future Farmers of America in 1949-1950 when I was attending the University of Wisconsin; so vocational agriculture was a natural choice. I taught vocational agriculture for two years at my old high school, Racine County Agricultural School, and met and married my wife, Lois, before entering the U. S. Army for two years during the Korean War—although my service time was spent at Thule Air Force base in northern Greenland where I repaired radar sets and computers. When I was released from the army in 1954, the school board where I had been teaching asked if I would become superintendent. For some reason I have never been able to explain (since I had no preparation for the position and had never taken a course in administration), I accepted the position. I served three years as superintendent and then decided to take advantage of my GI Bill entitlement and returned to the University of Wisconsin-Madison where I received my Ph.D. degree in Educational Administration in 1960.

I accepted an appointment as Hall Principal at Evanston Township High School to fill in for the incumbent who had taken a leave to complete his own doctoral studies. Evanston Township High School was organized on a "school within a school" model with four schools called "Halls," and I was principal of West Hall. I had been there for about a semester when the school board of a newly created K-12 district in the suburban Milwaukee area (Muskego-Norway) contacted me to ask if I would be interested in becoming their superintendent. The district had been formed by consolidating a number of elementary districts and a high school district. I accepted the position and found it to be an exciting and challenging job with many novel problems involved in pulling together and harmonizing the disparate policies and procedures that existed in the previously independent districts.

I had been in the job only a relatively short time when I was invited to interview for a position as an assistant professor at UW-Madison. My wife had experienced some health problems after our second son was born, and I decided to accept the position (despite the substantial pay cut it entailed) and so began my career in higher education in

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November 1961. My original appointment was one-half time in the Education Department of the Extension Division and one-half time in the Cooperative Educational Services unit of the School of Education which provided research services to Wisconsin school districts. In the summer of 1962, the Department of Educational Administration was looking for someone to teach school finance during the summer and, since none of the senior faculty members was interested in teaching the course, I was chosen. I had not taken a course in school finance in my graduate program, but my doctoral minor was in public finance; so I decided to teach the course in school finance as a subset of public finance, giving more attention to the economics of education, an area that was developing rapidly at that time. I dealt with sources of public revenue and how school finance fits into the overall public finance picture as well as traditional subjects such as state school aid programs.

Q&V: Would you describe some of the early research projects you conducted once you became a faculty member in the Department of Educational Administration?

R&R: Shortly after I joined the faculty, I became involved in a research project with Professors Leroy Peterson, Howard Wakefield, and Stewart North in which we examined various school finance models and the effects they might have if they were to be applied in Wisconsin. Shortly after that project was completed, Professor James Lipham and I got into a discussion about how school boards went about resolving conflicts. This led to a proposal for research on school board decision-making, with particular reference to decisions about the school district's budget. We enlisted Professor Russell Gregg as a partner in this endeavor and submitted a proposal that eventually was funded under the Cooperative Research program for research dealing with how school boards arrive at budget decisions and how various items are negotiated.

We found that school boards, often inadvertently, engage in budgetary decision-making throughout the school year. Many of their decisions on routine items have budgetary implications, and many of the aspects of the budget are determined well before the time the budget is formally adopted—for example, teachers' salary schedules or contracts for supplies of oil, gas, and electricity. The decisions made by school boards during their formal budget decisions typically were not of great consequence to the district's educational program, but discussions about minor items were often quite heated. By 1964, my academic appointment was entirely in the Department of Educational Administration, and I was teaching school finance, school law, and the introductory course in Educational Administration on a regular basis.

The Elementary and Secondary Education Act (ESEA) passed in the mid 1960s provided, among other things, grants for research training. The emphasis on evaluation of Title I programs led me to believe that school systems would soon be seeking individuals competent to fill the role of director of research if they were to comply with these mandates. I submitted a proposal to identify, with the help of leaders in urban school systems, individuals who might be interested in coming to UW-Madison to spend a full year of study on campus, return to their home school district for a year as an intern, and then return to Madison for a third year of study during which they would complete their doctoral dissertations, ideally basing the dissertation on the experiences and activities in which they were engaged during their year as interns. The proposal was funded, and we sponsored three

successive groups of candidates (5 individuals each year), all of whom completed the program. They served internships in a variety of places, including Dade County, Philadelphia, Dallas, and Milwaukee.

Shortly after the passage of the Elementary and Secondary Education Act, several faculty members in the Department of Educational Administration got together and concluded we could and should develop a program that would do a better job of preparing people for leadership positions in urban school districts. We enlisted several faculty members from other academic departments to join us in writing a proposal to identify, with the help of superintendents and other top administrators in four urban districts, individuals whom they regarded as promising candidates for school leadership positions. The individuals who were chosen for the program came to campus for a year of concentrated study, returned to their districts for a year of internship, and then returned to Madison for a final year of study in which they were to complete their doctoral studies and their dissertations.

Q&V: How did your interest in the area of school finance develop? Would you describe your activities with the NEFP during the late 1960s?

R&R: During the summer of 1968, I received a call from Professor R. L. Johns at the University of Florida. I had become acquainted with Professor Johns during my doctoral studies when he taught a summer session at UW-Madison. Professor Johns asked if I would join a group at the University of Florida that was to design and conduct a national study of educational finance. I accepted his invitation and took a year's leave of absence to go to the University of Florida to develop the design for the National Education Finance Project (NEFP). As a direct result of this involvement, I was asked to conduct two of the project's sub-studies, one dealing with the cost of educating handicapped children, and the other dealing with the measurement of fiscal capacity in state school finance programs. I was selected to do the study on handicapped children (now identified as children with disabilities) because I was the most junior member of the research team, and after the other investigators had expressed their preferences, the only topic left was the cost of educating handicapped children.

My initial plan was to identify from the literature what experts in special education recommended in terms of program configurations and then translate these various configurations into cost estimates. I soon discovered the experts were not in agreement on what an "ideal" program would look like. Consequently, I decided to seek out knowledgeable authorities who were familiar with special education programs in the United States and ask them to identify states that they thought were doing a reasonably adequate job of providing programs for handicapped children. From their recommendations, we selected five states, primarily for their geographic distribution. We then went to each of the five states and asked state education agency personnel in the special education area to help us identify a sample of five districts representative of urban, suburban, and rural areas.

At that time (1968-1969) children were identified for placement on the basis of their handicapping condition and, by and large, were segregated on the basis of their handicapping condition; that is, there were classes for educable mentally retarded, trainable mentally retarded, deaf or hard of hearing, blind or partially sighted, physically handicapped, etc. A research team visited each district to collect data by visiting classrooms, talking with teachers and administrators, observing resource configurations and materials, and the like. The research team also collected data on expenditures from the district's

business office to determine how much each district was spending on educating children with various types of handicaps, and how much they were spending for children who were in the regular school programs, as a basis for computing what has become known as the “cost index.” Although this was a rather tedious job, it produced what have proven to be rather reliable results concerning the expenditures in educational programs for students with disabilities despite the fact that it was a selected sample based on expert opinion, not a statistically random sample.

We found that the additional expenditure involved in educating handicapped children, taken as a group, was about 1.9 times greater than that for children in the regular school program. There were no generally accepted estimates of the incidence of various handicapping conditions at that time; so to estimate that the overall cost index, I took the index number we found for each of the handicapping conditions and multiplied it by the estimated incidence of each handicapping condition. Using the lowest incidence estimates, we found a cost index of 1.85, and using the highest incidence estimates, the cost index was 1.92.

It has been gratifying that in three subsequent studies, the cost indices were all in the same ballpark. In the Rand study, done in the late 1970s after the passage of P.L. 94-142 (The Education for All Handicapped Children Act), the overall cost index was 2.17. In the mid-1980s, a study directed by Mary Moore found a slightly higher cost index of 2.30. In the most recent study, conducted by the American Institutes of Research, the cost index was found to be 1.90. So it’s clear that the overall cost indices have not changed a great deal in the last thirty years, and that many of the differences could be attributed to the additional costs associated with the requirements of Public Law 94-142, such as the requirement for an individualized educational program for each child, child find requirements, and placement in the least restrictive educational environment.

Q&V: Please give us your perception as to how things have changed in terms of educating the disabled since enactment of PL 94-142.

RAR: There have been some extraordinary changes in the education of children with disabilities over the course of the 20th century, even prior to passage of 94-142. As late as the 1920s, children with various kinds of handicapping conditions were systematically excluded from schools, and there were court decisions upholding their exclusion. By the time the NEFP study was conducted, children with handicapping conditions had become a well-established part of the educational system, but they were being served, for the most part, in segregated classrooms. We saw very few attempts to integrate children with disabilities into regular classrooms in the schools we visited during the late 1960s. The exception would be students with specific learning disabilities where the child might spend some part of his or her day in a regular classroom.

Although advocates for children with disabilities may not be entirely happy with the progress that has been made, I think it is really quite remarkable to see the changes that have occurred, particularly with regard to integrating these children into regular school classrooms to the greatest extent possible. The problem that I have observed is that we had at least a generation of teachers, perhaps even two generations of teachers, who had been imbued with the idea that children with disabilities should be excluded from regular classrooms and placed in special programs. Most classroom teachers had no specialized knowledge or training in how to deal with children with various types

of disabilities who were being “mainstreamed” into their classrooms. I believe this has resulted in many problems, both in terms of teacher morale and in terms of acceptance of mainstreaming as a required practice. This attitude still exists, to some degree, particularly among older teachers who feel they really don’t know how to deal with these children and that they ought to be in special programs. Nonetheless, there has been considerable progress.

Q&V: Given these initial research findings, and the overall weighting of 1.9, what was the response across the states in terms of formulating policy based on this research?

RAR: The initial response to the findings of our study was enthusiasm on the part of the states for becoming more precise in their funding of programs for children with disabilities. Many states conducted their own studies, which is what I recommended, rather than simply using the results of the NEFP study. The most serious problem I observed was that states tended to develop too many categories and too many weights. This created an incentive for schools to place children with disabilities into the disability categories that provide the highest amount of state aid. This has changed over the years in that funding now relates less to the disability and more to the way the child is actually served; that is, the extent to which they are mainstreamed, the extent to which they receive special services in addition to the regular classroom activities, or the extent to which they are in segregated classrooms because of the nature of their disabilities. In my view, fewer weights are better, and the weights should be based on the way the child is served in the education program, not on the child’s disability per se.

One advantage of weighting pupils is that it allows the state, in its distribution of funds to local districts, to recognize that some districts are required to bear higher expenditures as a result of the type and concentration of children with disabilities within their service area. It also allows the money that is allocated to meet these needs to be distributed through the general state aid formula rather than as categorical aid. To the extent that the general state aid formula is equalizing, i.e., recognizes that districts with a low tax base need more assistance from the state, the distribution of money to support the education of children with disabilities is also equalized.

Q&V: At this point, let’s talk about the leadership role you assumed when you became the Director of the Wisconsin R & D Center in 1973. This was a difficult time for the regional labs and research and development centers across the country. What were the major activities that consumed your time during this period?

RAR: As a result of the work I did in connection with the NEFP—especially our visits to schools and classrooms—I became very interested in questions about how resources are used in schools and what effects the allocation and use of resources might have on the academic achievement of students. We saw great variations among schools and in classrooms during our collection of data for the study of special education costs. In 1972, I proposed to the Wisconsin R&D Center (now the Wisconsin Center for Education Research) a small pilot study on the cost-effectiveness of Individually Guided Education (IGE), the Center’s major program at that time.

That fall, Professor Herbert Klausmeier, the founding director of the Center, decided to leave that role and, in December 1972, Dean Donald McCarty asked me to serve as Director of the Center. I did not seek the job of director of the R&D Center, but when the Dean

asked me to take on that job, I accepted. I have always considered myself a team player, and the Dean was concerned about how the Center would fare in the transition to support by the newly created National Institute of Education (NIE). From the outset, I did not view this as a permanent change in jobs. I considered myself to be first and foremost a teacher and researcher and, as a tenured professor, I was not worried about losing my job if I were to take unpopular positions if that became necessary.

When I became Director of the Center in January 1973 I was also serving as department chairman at the time and quickly found that the jobs were too time-consuming to do both of them well. I resigned the department chairmanship to devote my full attention to the R&D Center since it had quickly become apparent that the relationship between the educational laboratories and research centers and NIE was going to be a rocky one.

The National Institute of Education (NIE) had been created in 1972 and designated as the funding agency for the network of regional laboratories and research and development centers that had been started in the mid-1960s as a result of the passage of ESEA. The R&D Center's sole source of funding at this time was NIE which was in the process of trying to "get its act together." Based on reviews of the Center's proposal submitted before NIE was created, it had been recommended for three years of funding to continue work on the development and dissemination of the IGE program. The details of the funding remained to be negotiated with NIE.

At that point, IGE consisted primarily of a reorganized organizational structure in schools and a focus on multi-age grouping and team teaching. We had reasonably well-developed reading and math programs that were complementary to IGE, but we did not have well-developed programs in other curricular areas. The Center had undertaken an extensive dissemination project and had commitments to work with twelve state education agencies to implement IGE. NIE, however, decided that it would not fund dissemination activities until it had developed a broad dissemination plan for the Institute. This left the Center in the awkward position of having commitments to work with 12 states to help them implement IGE, but with no funding to continue the work.

There were many tensions and problems during this period. I attended a meeting of the Council for Educational Development and Research (CEDaR), an organization representing all of the labs and centers, and shortly thereafter I was asked to become a member of the organization's board of directors. This led to an experience that was extraordinarily interesting, frustrating, and instructive in terms of the politics of funding educational research.

It quickly became evident that the existing network of regional educational laboratories and university-based research centers was not to play a significant role in the future envisioned by NIE. Most of the Institute's appropriation was committed to support the existing labs and centers, and this tended to stymie the plans of members of the NIE staff who were eager to launch their own research agendas. We were in the unenviable position where NIE, the agency responsible for our funding, preferred that we disappear. Consequently, I soon concluded that if the existing national network of labs and centers was to survive, we would have to hang together, or we would certainly all hang separately.

Our task was to maintain a reasonably cordial working relationship with the Institute while, at the same time, trying to convince Congress that we deserved continued funding. While I was not supportive of

all of the activities of the various labs and centers, at that time it was the only game in town. It became clear from my conversations with members of Congress that NIE was quite unpopular on the "Hill." The Institute was unlikely to survive if it failed to fund the labs and centers and, if NIE did not survive, most of the funding for education research would disappear. The education research community was likely to lose all of the money going to fund the labs and centers; this money would not be placed in another appropriation.

I spent a lot of time meeting with the members of the congressional delegation from Wisconsin and members of their staffs and testifying to congressional committees about the work we were doing in Wisconsin. Ultimately, we were successful in convincing Congress to provide a line-item appropriation for the labs and centers. Obviously, our success did not endear us to NIE, and it especially did not endear me to some members of the NIE staff since I was chairman of CEDaR at the time the line item was adopted and played a prominent role in securing the line item. I realized, however, that it would be impossible to sustain the Wisconsin R&D Center by relying on non-competitive, sole source funding. As a result, we started eliminating nonessential overhead activities to reduce our overhead costs so that we could compete effectively with other bidders for competitive funding opportunities.

When my term as chairperson of CeDaR ended, I was pretty well "burned out." It had been an arduous year. We had worked very hard to get the line item appropriation passed to assure continuance of labs and centers. I had testified several times in Congress and maintained a close working relationship with several members of the Wisconsin congressional delegation. In 1975, I had spent three weeks in Brasilia doing consulting with a unit of the Brazilian Ministry of Education and Culture. This unit (CAPES) dealt with the professionalization of faculty in institutions of higher learning in Brazil. As a result of that experience, I had an opportunity to spend a semester in Brazil in 1977 teaching at The Catholic University in Rio de Janeiro. I also lectured at several other Brazilian universities, including the Federal University in Rio de Janeiro and the Federal University in Rio Grande do Sul, as well as doing some traveling within Brazil. Fortunately, my family accompanied me and they had an enlightening exposure to life in a different culture—an experience that I believe greatly influenced the decisions my sons made concerning their education and their choice of professions. (They also learned to speak Portuguese much better than I did.)

On returning to Wisconsin in the August 1977, I resumed my position as director of the R&D Center. By 1979, I had decided to return full-time to my professorship in Educational Administration. I felt I had done as much as I could to configure the center in a way that would allow it to compete successfully for grants in the future and that it was an appropriate time for new leadership. I asked Dean Palmer to be relieved as director of the Center although I continued to serve until August 1980 when my successor, Mike Smith, was able to take up the job.

Q&V: Your work as a researcher in the R & D Center focused on the relationship between student achievement and how resources are used in schools. Have we made much progress toward improved school productivity over the last couple of decades?

RAR: While serving as Center director, I continued to be interested in how resources are used in schools and continued my research on resource utilization in schools and classrooms with the help of some very capable graduate students. I had developed a system model of

production in education, and the big black box in the model was what happened at the school and classroom level. We did some rather intensive work on the educational process as it was practiced in four elementary schools in Wisconsin. We observed students in their classrooms as they progressed through third, fourth, and fifth grades. Students were observed in their classes for a full day during three different intervals during the school year. We kept track of whether students were on- or off-task at two-minute intervals during the school day and administered achievement tests at the end of the year. We obtained data on expenditures at the school and classroom level as well as data on the professional background of the students' teachers. We also collected data on students' home backgrounds and out-of-school activities through interviews with their parents and teachers. Despite the wealth of data we obtained, we were not able to make a great deal of headway in unpacking the black box of the classroom.

We did find that time on task was much more important for those students who were less able than it was for very able students. The most able students tended to progress very well with minimal time on task—they needed far less time to acquire the content of lessons than students who were not as well-endowed intellectually.

One of the more interesting findings was that if you include in the data analysis "pull out students" who are getting special help from teachers or aides in a small group or one-on-one situation, you obtain a rather high negative correlation between the money spent per student on instruction in reading, math, science and social studies and the performance of students on conventional achievement tests. When we removed from the analysis the students who were receiving special treatment, we found virtually no relationship between the amount of money spent per pupil in the various subject areas and student performance on the achievement tests.

I continued to be involved in what is now the Wisconsin Center for Educational Research. For several years after I left the center directorship, I was a principal investigator in the Center for Effective Secondary Schools working with Mary Metz, Karen Seashore Lewis, and others on studies of teacher quality of work life in secondary schools and in exploring how principals of effective secondary schools (effective in terms of student performance) created high morale and high quality work life for teachers and other employees in their schools.

Q&V: You served as President of AEFA in 1980-81, and as President of UCEA in 1984-85. What prompted you to assume these leadership roles?

RAR: I have always been interested and involved in educational finance and early in my career attended many of the national meetings sponsored by the NEA dealing with school finance. When the NEA discontinued those meetings in the mid-1970s, the National Educational Finance Project took up that task and held two national meetings on school finance that led directly to the establishment of the American Education Finance Association (AEFA). I was actively involved in establishing the association and served as its vice-president in 1979-1980 and president in 1980-1981. AEFA was experiencing some growing pains at that time, and I chaired a committee that revised the constitution of the association to ensure an appropriate representation of all interests. Fortunately, we were successful in this task, and AEFA remains today a vibrant organization that brings together many of the interest groups who are involved in educational finance—educators, economists, lawyers, researchers, legislators, and legislative

staff members. It was a real honor for me to receive the Association's Outstanding Service Award in 1993.

I enjoyed the 1980-1981 academic year because I had no administrative responsibilities for the first time since 1970. Since I had been away from the field for several years, I thought the quickest way to get back into the mainstream was to become active in the University Council for Educational Administration (UCEA) and was appointed as the UW-Madison representative. I soon discovered that UCEA had some serious problems—the founding director was retiring, the organization was nearly bankrupt, and it would need to find a new host institution. I chaired the search committee that found a new director and later was elected to the Board of Directors and eventually to a term as president of the organization in 1984-1985. During that time, we initiated what became the National Commission on Excellence in Educational Administration, and I served on the commission during 1985 and 1986. The report of the National Commission led to the development of an umbrella organization of practitioner organizations and administrator preparation institutions that has defined and described the characteristics of adequate programs for preparing administrators for various leadership positions in schools and school systems.

Q&V: You served as department chair from 1981 to 1990. What would you consider as your most significant accomplishment in chairing the department during the 1980s?

RAR: In 1981, my colleagues again elected me as chairperson of the Department of Educational Administration, a position I occupied until 1990. These were interesting and productive years. We were able to hire several staff members as replacements for retirees, and I take pride in the fact that they have continued to keep the department at UW-Madison in the forefront—typically it is either the first or second ranked department of Educational Administration in the United States. The faculty appointments we made were an important factor in maintaining the high quality of the department.

The task of obtaining and retaining high-quality faculty is most challenging. I noted, for example, that over my 32 years as a member of the department approximately one-third of the beginning assistant professors we hired during that time received tenure. Some left because they were not granted tenure; many left because they could see the handwriting on the wall, and others left because they realized that a professorial career was not what they wanted. We did manage, however, to hold on to most of the really good ones.

I spent the 1989-1990 school year on sabbatical leave—the first one I had taken in the 30 years I had been at Wisconsin. In 1991 when I returned to "active duty" as a member of the faculty, I was asked to serve as the director of the National Center for Research and Development on Effective Schools. Although I was contemplating retirement, I was persuaded to take on this task and continued as director until my retirement in 1993. It was an interesting but very frustrating job in that we did not have a complete reform package to offer, and nearly all schools were looking for a total package of curricular and administrative reforms. Unfortunately, the Center for Effective Schools never achieved the level of funding needed to fully develop the program. I have always been skeptical of the "in-and-out" reformers who can give spellbinding lectures, get school personnel excited about some current reform that allegedly will solve all their problems, and then move on leaving the local folks trying to figure out exactly how to do it.

After my retirement from the University of Wisconsin-Madison in 1993, I continued to be active in various ways. Lloyd Duvall and I worked with the American Association of School Administrators to develop what eventually became a definition of the characteristics that one would expect to find in high quality preparation programs for school superintendents and other educational leaders. In 1997, I visited the University of Kuwait to evaluate their proposal for a graduate program in educational administration. (In 1986, I had spent two weeks in Damascus, Syria, lecturing on the various topics in education at the University of Damascus.)

One of the activities in which I have been involved that continued from the early 1970s to the current time is my service as an expert witness in state school finance cases, employment discrimination cases, and financial aspects of school desegregation cases. I have served as an expert witness in cases in New Jersey, Colorado, New Mexico, Maryland, West Virginia, Missouri, Wisconsin, Montana, Texas, Arkansas, and Arizona. Although it is an experience I found to be challenging and enjoyable, I am not sure that expert witnesses in cases involving school finance are particularly helpful to the judge who must decide the case. For each expert who testifies for the defense, there will be at least one other expert who will testify for the plaintiffs in the case, and they will disagree as to whether the state's school finance program is equitable.

Q&V: Have there been any shifts in the direction or focus of school finance litigation over time?

RAR: Yes, there has been a major shift in the focus of that litigation over the past 30 years or so. The first cases (following the US Supreme Court decision in *Rodriguez*) were based primarily on the due process and equal protection guarantees that are found in most state constitutions and dealt with claims that either taxpayers or students or both were being denied their constitutional rights. More recently, the focus has shifted to the educational provisions of the individual state constitutions, which tend to be marvelously ambiguous— i.e., what does “thorough and efficient” or “as nearly equal as practicable” really mean in terms of the educational provision the state is required to provide?

In recent years, we have witnessed a number of attempts to define an “adequate” education in monetary terms, building on previous work such as the research on the cost of providing education for handicapped children. In my opinion, the courts have not been particularly helpful in this regard, since they have described in rather general terms what the outcomes of schooling should look like (responsible citizenship, ability to compete for jobs successfully, good family members, etc.) without paying much attention to how these worthy goals can be accomplished. In short, they have tossed the ball back into the educators’ court. It is virtually inevitable that any proposal for school finance reform will be criticized by the stakeholders who are being disadvantaged. My observation is that in order to enact serious school finance reform one must have more “winners” than “losers,” which almost inevitably requires more funds to distribute. In the past three years, the big issue in state finance has been looming budget deficits and large increases in state school funding have not been forthcoming. Rather, the question has been one of how much can we cut state funding for public schools?

Q&V: And, in conclusion, in your opinion, does money matter in education? Also, can you get us started with a definition of adequacy?

RAR: Yes, money CAN matter in education. However, it is how the money is spent, not how much is spent, that is important. Simply spending more money for the same things as in the past will not do much good. We need far more research on the results (in terms of student performance) obtained from specific expenditures. The results from spending to reduce class size in the earliest grades, for example, show promise, as does greater attention to expenditures for the continuing professional development of school staff.

Adequacy in education requires that every child have access to a sound basic education regardless of his/her individual circumstances. I cannot specify the exact components of such an education. In fact, the components may well vary from one community to another because all communities are not alike. It certainly does not require the same level of spending for every child in the state or nation! And, as long as every child has access to a sound basic education, I would not be too concerned if some communities choose to spend beyond that level.

Q&V: Thank you, Professor Rossmiller. Once again our conversation has been informative and most enjoyable.

Fiscal and Academic Efficiency Index of the Public School Districts of Arkansas

Mary F. Hughes

In *Lake View v. Huckabee*,¹ the Supreme Court of Arkansas stated that the Education Article² of the Arkansas Constitution designates the state, rather than the General Assembly, as the entity to maintain a general, suitable, and efficient system of free public schools. In *Lake View*, the Arkansas Supreme Court affirmed a lower court decision declaring the state education finance system unconstitutional on the twin grounds of inadequacy under the Education Article and inequality³ under the Equality provision of the Arkansas Constitution. The supreme court stayed its order until January 1, 2004 to allow the state to conduct an adequacy study, and “time to chart a new course for public education in the state.” In September 2003, a study prepared for the Arkansas Joint Committee on Educational Adequacy⁴ recommended new funding of \$847 million in addition to the current state and local expenditures of \$2.6 billion for 310 school districts, housing 439,742 students in average daily membership.⁵ On December 8, 2003, the governor called a special session of the general assembly to consider education reform and how to fund it.

In response to the *Lake View* declaration for school reform that would meet constitutional demands, the Arkansas Association of School Administrators (AASA) proposed to the governor and the general assembly an education reform model that included an efficiency measure.⁶ The central components of the model were: (1) Substantially equal teachers’ salaries; (2) substantially equal curricula and equipment; (3) substantially equal school facilities; (4) substantially equal school funding; and (5) substantially efficient and effective operation of schools.

This article will discuss the efficiency component of the AASA model. The first section of the paper will provide information on how and why the first efficiency model was developed, including: Background of the First Efficiency Model Using Standardized or Z-Scores; a descriptive overview of Arkansas school districts; a review of literature on Arkansas school district size and consolidation, and the results of the first efficiency study that incorporated standardized scores. The second section will provide a formal discussion of the fiscal and academic efficiency school district index model that was adopted by the AASA and the statistical construction of the model using factor analysis.

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How and Why the First Efficiency Model Was Developed

Background of the First Efficiency Model Using Standardized or Z-Scores

The first School District Efficiency Model was developed as part of a larger research project that looked at tax savings and tax reform in response to the 2001 Pulaski County Chancery Court ruling in *Lake View v. Huckabee*.⁷ One part of that project sought information about the cost-savings and benefits of restructuring Arkansas public school districts. The challenge faced was to determine which school districts would be included in the projected cost-savings. Would this determination be made by school district size, and, if so, what would be the magic number for inclusion? As the review of the literature will indicate, the recommended school district size for efficient economy of scale is varied, depending on the definition of size, the methodology, and the state in which the study was conducted. For this project, the conclusion was made that district size should not be the measure for selecting school districts that would be included in the projected cost-savings and benefits for restructuring. Therefore, some other measure, such as an efficiency measure, should be constructed for each school district and that measure would guide the study in the determination of district inclusion.

Descriptive Overview of Arkansas School Districts, 2000-2001

In 2000-2001, Arkansas had 444,978 students in Average Daily Membership (ADM) attending 310 school districts, with total spending for net current expenditures (excluding federal funds) of over \$2.3 billion. The average net current expenditure per pupil in ADM was \$5,207. The school districts employed 23,982 full-time classified personnel and 31,109 full-time K-12 certified personnel. The average salary for a K-12 teacher was \$34,729 and for a school district superintendent, \$72,580. School district enrollment ranged from 71 pupils in ADM in Witts Springs (Searcy County) to 23,444 in Little Rock (Pulaski County). Of the 310 school districts, 196 had an enrollment of fewer than 1,000 students in ADM, which represented 63% of the districts and 23% of total ADM. Presented in Table 1 is an overview of the 310 school districts by size. For illustration purposes, note in Table 1 that district size category between 200 and 299 students records 31 school districts that represent 10% of all districts, 1.8% of all students in ADM, and an average net current expenditure of \$6,189 per student.

Presented in Figure 1 and Figure 2 is expenditure per pupil by school district size as exhibited in Table 1. Shown in Figure 1 is net current expenditure per student in ADM by the smallest to the largest school district size. Current expenditure, including federal funds, is shown per student in ADM by school district size in Figure 2. A slight “U” curve is present in both figures instead of a true linear relationship between school district size and per-pupil expenditure. The smallest and largest school district enrollments have the greatest expenditures per pupil.

Review of the Literature on Arkansas School District Size and Consolidation

Arkansas Initiated Act I of 1948 brought about a reduction from 1,589 school districts in 1948 to 424 districts in 1949. The Act abolished all districts with fewer than 350 children but failed to include a continuing provision. By 1981, 121 school districts had a pupil count of less than 350 students⁸ and by 2001, 56 of the state’s 310 school districts had fewer than 350 students.⁹ From 1983 to 2001, the number of school districts in the state was reduced from 369 to 310.¹⁰ During the

Table 1
School District Size
Arkansas 2000–2001

School District Size	# of Districts by Size	% of Total Districts	Total ADM by Size	% of Total ADM	Current Expenditure Net/ADM (\$)	Current Expenditure with Fed/ADM (\$)
0 – 99	2	.65	159	0.04	8,397	9,477
100 – 199	12	3.9	1,906	0.4	7,411	8,232
200 – 299	31	10.0	7,937	1.8	6,189	6,880
300 – 399	25	8.1	8,623	1.9	5,386	6,009
400 – 499	26	8.4	11,512	2.6	5,261	5,872
500 – 599	37	11.9	20,520	4.6	5,111	5,701
600 – 699	15	4.8	9,888	2.2	4,927	5,560
700 – 799	20	6.5	14,944	3.4	4,967	5,615
800 – 899	16	5.2	13,383	3.0	5,053	5,598
900 – 999	12	3.9	11,325	2.5	4,734	5,265
1,000 – 1,999	62	20.0	86,239	19.4	4,910	5,458
2,000 – 2,999	21	6.8	52,654	11.8	4,866	5,418
3,000 – 3,999	10	3.2	34,631	7.8	5,133	5,616
4,000 – 4,999	6	1.9	26,170	5.9	5,132	5,669
5,000 – 5,999	4	1.3	22,399	5.0	4,934	5,489
6,000 – 6,999	2	0.6	13,301	3.0	5,134	5,533
7,000 – 7,999	3	1.0	22,771	5.1	5,317	5,669
8,000 – 8,999	1	0.3	9,079	2.0	6,300	6,669
10,000 – 10,999	1	0.3	10,925	2.5	4,782	5,205
11,000 – 11,999	1	0.3	11,320	2.5	4,733	5,487
12,000 – 12,999	1	0.3	12,479	2.8	5,774	6,153
19,000 – 19,999	1	0.3	19,376	4.4	5,848	6,382
20,000 +	1	0.3	23,444	5.3	6,673	7,133

second special legislative session in 2003, Act 60, a consolidation act to improve the efficiency of public education, was passed that required administrative consolidation or annexation of school districts of fewer than 350 students with other districts. In all, 57 school districts had to merge administratively with other districts by June 1, 2004.

The report to the Arkansas Joint Committee on Education in 1978, *Educational Equity: Improving School Finance in Arkansas*, stated that the optimum school district enrollment is not absolute, that each state should establish its own optimum enrollment size to allow each district to function at the most effective and efficient level possible.¹¹ The report indicated that districts with enrollments of 1,000-1,499 were the most efficient, based on the average expense per Average Daily Attendance (ADA), and administrative costs were most efficient in districts with enrollments of 1,500 to 4,499. Also, the report noted that very small and very large districts were operating inefficiently.¹² Recommendation No. 6 of the report was School District Reorganization with part (a) stating: "Immediate steps should be taken to alter state funding procedures so as not to encourage the perpetuation of small inefficient school districts."¹³ In the explanation

of this recommendation, the report went on to say that state finance policy has tended to encourage the maintenance of small units rather than serving as an incentive to reduce their number and concluded: "In viewing alternative organizational arrangements, more intensive study of the issue should include overall educational, geographical, and economic considerations before recommendation of a specific revised organization."¹⁴

The Advisory Committee to the Arkansas Board of Education also proposed school reforms after the May 2001 court decision.¹⁵ The August 2002 report by the Advisory Committee discussed improving the efficiency of elementary and secondary education by asking the question: "Does the system accomplish the purposes for which it was created with the least consumption of resources (economic efficiency or efficient use of resources)?"¹⁶ A study produced for the committee by the Education Commission of the States on Arkansas school districts found low pupil-to-teacher ratio as an indicator of economic inefficiency because the low ratio increased the consumption of resources while decreasing the likelihood of achieving the system's purpose.

Figure 1
Net Current Expenditure per ADM by School District Size
(Average Net Current Expenditure/ADM – \$5,207)
Arkansas 2000–2001

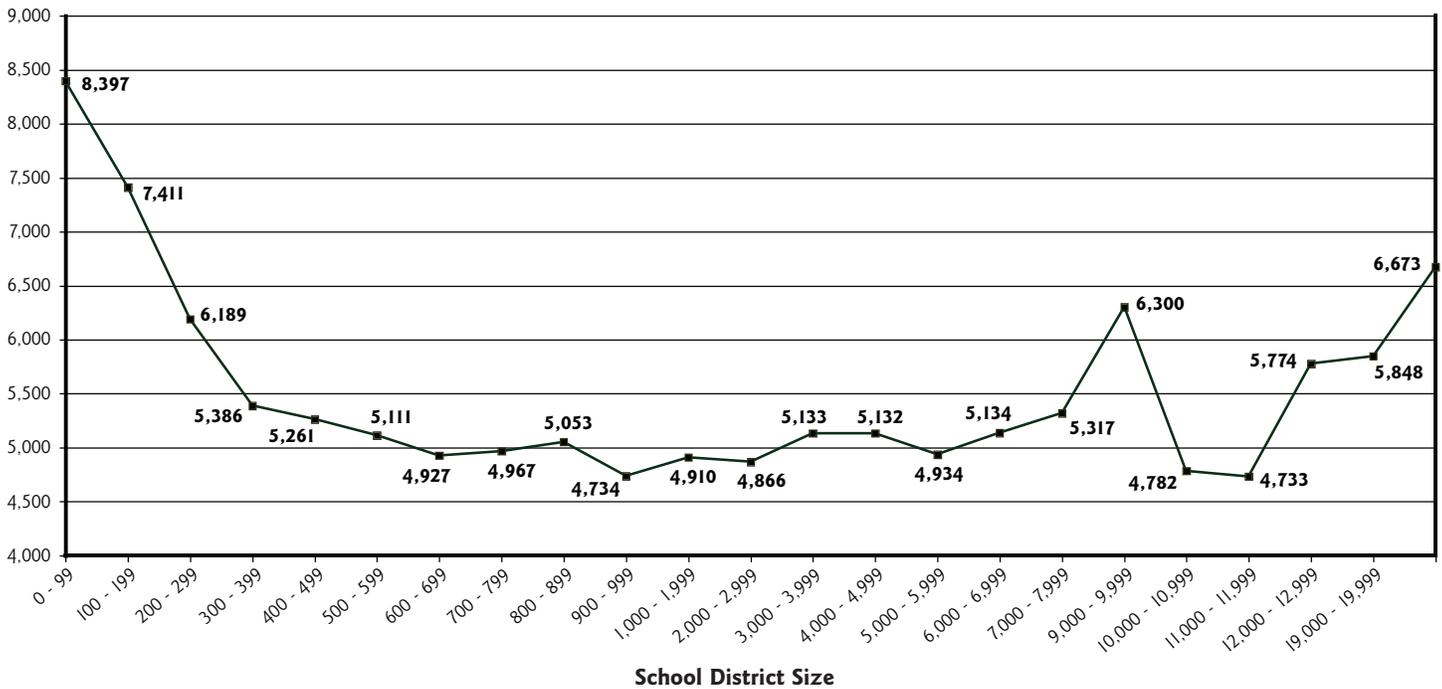
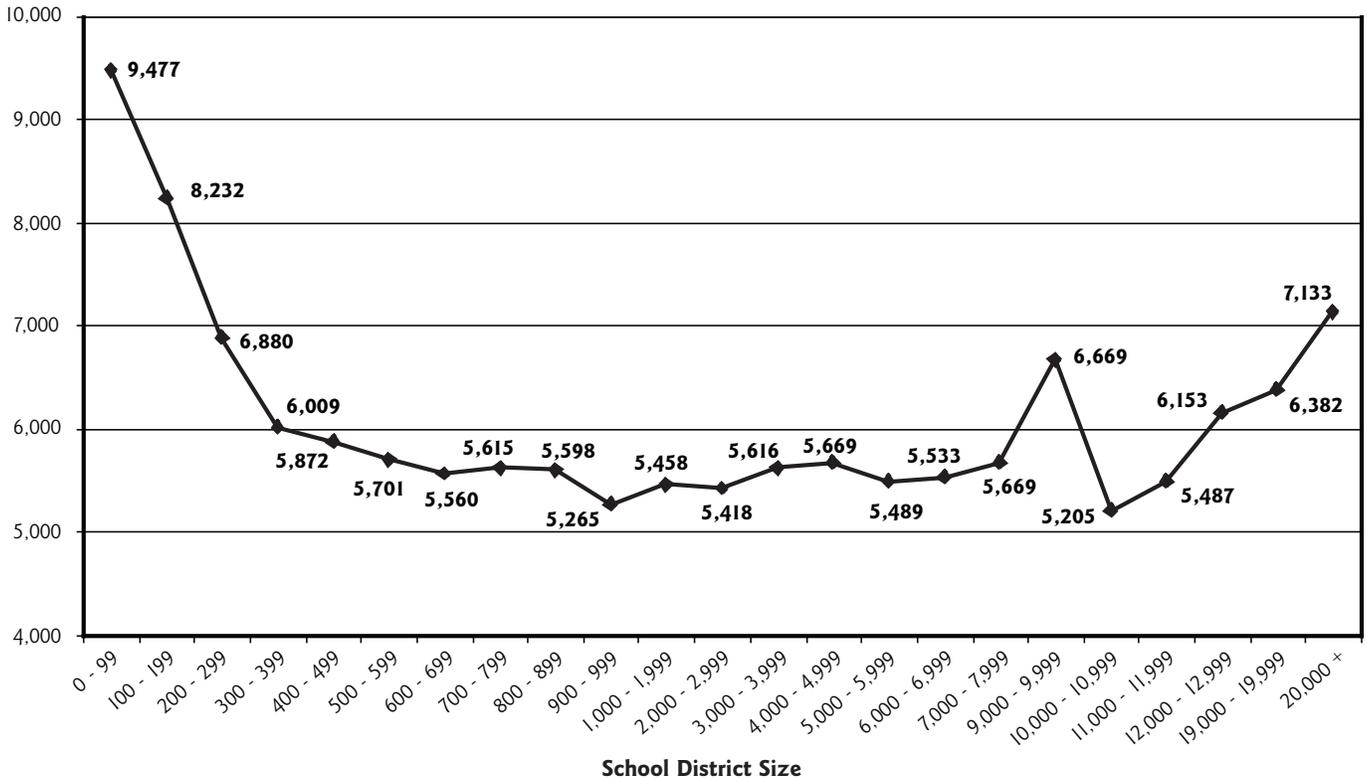


Figure 2
Current Expenditure with Federal Funds per ADM by School District Size
(Average Net Current Expenditure/ADM – \$5,738)
Arkansas 2000–2001



A 1990 study on Arkansas school consolidation explained that certain costs such as capital outlay, staff salaries, utilities, and the like, remain for all school districts regardless of size, but that smaller schools were unable to realize any significant economies as fixed expenses are divided among a limited student population, thereby increasing per student production costs.¹⁷ This study also noted that school districts could be either too small or too large to achieve maximum operating efficiency and that studies on school size have suggested that when a district lies within a range of 600 to 1,600 students, optimum economies of scale can be expected. However, the study pointed out, the scale was subject to circumstances of geographic location, transportation, and capital outlay expenditures. The study cautioned that consolidation of school districts must be considered on an individual basis, weighing the advantages and disadvantages of each particular case, that low pupil-to-teacher ratios in Arkansas school districts were primarily, though not exclusively, the result of operating small high schools.

In past and present studies on Arkansas school district consolidation, economies of scale and efficiency have shown that an optimum enrollment size to allow each district to function at the most effective and efficient level possible is not absolute and that all school districts regardless of size have certain costs; and because of these costs, smaller schools are not able to realize significant economies because the fixed expenses are divided among a smaller student population. Also, a lower student-to-teacher ratio contributes to the consumption of resources. Several of the studies cautioned that consolidation of school districts must be considered on an individual basis.

From past studies on economies of scale and efficiency, the author found that an optimum enrollment size to allow each district to function at the most effective and efficient level was not absolute. After a review of 2000-2001 school district size and expenditure per pupil, and past studies, the conclusion was that this study must look at each school district individually over many variables if a defensible determination was to be made about the projected cost of restructuring. Therefore, the study sought to identify effective and efficient school districts.

Use of Standardized or Z-Scores

The question posed by the study was: If the state educational system were restructured, what amount of cost-savings might be available for educational improvements? The first step in determining the cost-savings of restructuring was to create a plan for identifying school districts that were operating efficiently or that were producing the desired effect with desired costs relative to the state average. Another influence on the construction of the study came from the Town Meetings of the Blue Ribbon Commission¹⁸ that were held across the state in the spring of 2002. Many citizens voiced their concern that school districts should not be judged "just by size" on school district reorganization but that all components of the district should be examined, especially achievement outcomes.

After much reflection, a set of criteria for examining each school district was devised. The criteria were "indicators of efficiency". In all, 28 indicators of operational and academic efficiency were examined, including nine indicators of achievement outcomes. These indicators were selected through four categories that were determined to be instrumental to a school district's operation as an educational institution. The four categories and their indicators of efficiency were: (1)

Fiscal efficiency (8 indicators); (2) academic achievement efficiency (9 indicators); (3) size efficiency (5 indicators); and (4) administration efficiency (6 indicators).

An operational and academic efficiency score was developed for each of the 310 school districts in Arkansas for the purpose of determining the cost and benefits of restructuring. For each district, 19 operational measures and 9 achievement measures were converted to a standardized score.

Each of the 28 operational and academic indicators was converted to a standardized score so that each school district could be compared to the other school districts in the state on each measure. The standardized score or "Z" score would have a mean of zero and a standard deviation of one. The relative position of each school district on each indicator would be the number of standard deviations above or below the mean of zero. The total score of the 28 standardized indicators for each school district would indicate an efficient or inefficient school district relative to the other school districts, as measured by these indicators. It should be noted that free and reduced price lunch status and student race were not included as indicators of operational and academic efficiency as neither are a cost item or an outcome measure. Federal funds and students per square mile were also not included as efficiency measures. Student race, free and reduced price lunch status, and students per square mile were presented in the study only to describe the demographics of each school district.

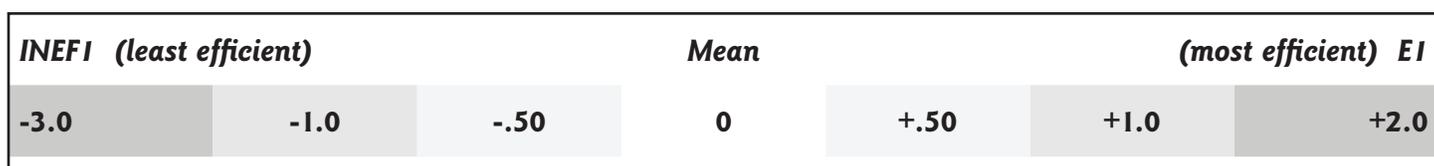
Standardized scores or Z-scores are used to compare scores from different distributions even when the scores are measuring different things (the same concept as percentage). The Z-score is a relative position of a raw score in a distribution relative to the mean and standard deviation of that distribution. The Z-score depends upon the distribution. The highest Z-score in one distribution may be +3 and +1 in another. The Z-score distribution will have a mean of zero and a standard deviation of one. A particular raw score, changed to a Z-score, will show how many standard deviations the raw score is above or below the mean. The formula for deriving a Z-score is: $Z = (\text{raw score} - \text{mean}) / \text{standard deviation}$. By using Z-scores, this study positioned each school district relative to all the school districts in the state on the 28 school district measures. The reliability or internal consistency of the 28 indicators of efficiency used in this study was $r = .86$. A good indicator of reliability is $r = .80$.

The actual costs and performance level of each school district were measured by their relative position above or below the state average. The sum of the costs and performance level scores or Z-scores depicted a school district's ability to produce desired performance outcomes with desired costs relative to the state average. A school district that had high costs or moderately high costs and low student performance was termed inefficient. Data and definitions from the 1999-2000 and 2000-2001 *Annual Statistical Report of the Public Schools of Arkansas* (ASR) were used in this study. The data used for the ASR were self-reported by the individual school districts and were not audited prior to submission to the Arkansas Department of Education.

School Districts by Efficiency Score

After the 28 indicators of efficiency for each school district were converted to a standardized score, the 28 standardized scores were totaled, and the 310 school districts were ranked on the total efficiency score. The total standardized efficiency score for the districts ranged from -3.029 to +2.1903. This indicates that the least efficient school

Graph 1



district, as measured by the 28 indicators, was three standard deviations below the mean and the most efficient school district was two standard deviations above the mean. Overall, 135 school districts had a negative score, or an indication of being inefficient, and 175 had a positive or efficient score.¹⁹

Because there were different degrees efficiency, as measured by the 310 standardized scores, the school districts were placed in eight categories based on their total standardized score ranging from the least efficient to the most efficient. School districts with a standardized score between -3.0 and -1.04 were labeled INEFI, indicating the least efficient school districts. Standardized scores between +1.01 and +2.19 were labeled E1, the most efficient districts. The line graph (See Graph 1) depicts the continuum of standardized scores, with zero as the mean, negative scores to the left of the mean, and positive scores to the right.

Cost-savings to Restructure

Several scenarios were used to compute the cost-savings of school district restructuring. In each of the scenarios, some school districts had to receive extra funding to bring them up to the expected cost level while other districts recorded a savings. The first scenario involved the average cost per student of the 101 most efficient school districts (E1 and E2) as the measure of what an efficient school district's cost per student should be if that school district had an average ADM of 2,000. The current expenditure per student of the 101 most efficient school districts was \$4,958, and the average enrollment in ADM was 2,000.

To arrive at the cost-savings for this first scenario, ADM for each of the 131 least efficient school districts with less than 2,000 students was multiplied by \$4,958. Each product was subtracted from the district's total net current expenditure, resulting in the cost-savings for restructuring to a 2,000 ADM district. Twenty-two of the 131 least efficient school districts had expenditure per student of less than \$4,958; so the cost to level up for those school districts was \$2,847,117. The cost-savings for the remaining districts was \$38,131,904, resulting in a net cost-savings of \$35,284,787.

The second scenario was to apply the average state cost per student of \$5,207 to the 131 least efficient school districts with an ADM of less than 2,000. The net cost-savings was \$18,310,955. The third and fourth scenarios were to apply the average cost per student of the most efficient school districts with an average enrollment of 900 students in ADM to the least efficient school districts with the same or lower ADM. The average cost per student for the most efficient school districts with an average enrollment of 900 students in ADM was \$4,722. Applying this cost to the 117 inefficient school districts with less than 900 students equated to a total net savings of \$40,097,655. Applying the same average cost to the 106 inefficient school districts with less than 600 students resulted in a net savings of \$34,471,410.

From combining school district size and the most efficient school district categories (E1 and E2), the data indicated that the most efficient K-12 Arkansas school districts were those with a student enrollment of at least 900 up to 12,000 students in ADM. The data also indicated that 26 school districts with less than 900 ADM recorded an efficiency score that placed them in the E1 or E2 category, the most efficient category ranks.

Presented in Table 2 is a summary of the cost-savings under different scenarios. The data indicate that the greatest cost-savings of restructuring would occur when the 117 least efficient school districts with less than 900 students would reorganize to form school districts of 900 or greater, creating an annual cost-savings of \$40,097,655. In addition to the cost-savings, the major benefits or restructuring would be higher teacher salaries and educational improvements for 47,500 students. Both efficient and inefficient school districts were found in most school district size categories.

In general, the least efficient school districts had high expenditures per pupil, low K-12 teacher salaries, low pupil-to-teacher ratios, low pupil-to-classified personnel ratios, low pupil-to-administration ratios, declining enrollment, and below average test scores. On all nine measures of academic efficiency, the inefficient school districts recorded the lowest test scores and the most efficient districts recorded the highest test scores. With regard to demographics, school districts in three of the four least efficient categories (INEF1, INEF2, INEF3) recorded

Table 2
Cost-Savings

Cost per Student by Most Efficient School Districts Applied to Least Efficient School Districts

Suggested School District Size in ADM	Average Current Expenditure/ADM of Efficient Districts (\$)	# Least Efficient School Districts with Less Than Suggested ADM	Total ADM of Inefficient School Districts	Net Savings (\$)
600	4,722	106	38,903	34,471,410
900	4,722	117	47,488	40,097,655
1,000	4,736	118	48,934	38,617,996
2,000	4,958	131	68,168	35,284,787
State Average	5,207	135	87,751	23,356,931

Table 3
Race, Free & Reduced Lunch, Square Miles by School District Efficiency Rank
Arkansas

Efficiency Rank	# Districts	2001-2002 % White	2001-2002 % Black	2001-2002 % Hispanic	2001-2002 % Free & Reduced Lunch	ADM/ Square Mile
INEF1	43	53	45	2	71.8	2.8
INEF2	35	70	27	2	61.7	3.7
INEF3	27	68	29	2	60.3	7.3
INEF4	30	84	13	3	53.6	5.8
E4	36	81	16	3	47.7	24.1
E3	40	83	14	3	46.9	10.1
E2	51	93	4	2	42.3	11.2
E1	48	90	5	4	35.7	26.1
State	310	71	23	4	51.4	12.0

Note: INEF1 = Lowest efficiency rank; E1 = Highest efficiency rank.

the highest percentage of students receiving free and reduced price lunch, the highest percentage of African American students, and the lowest number of students per square mile among the eight categories of efficiency. (See Table 3.)

Measuring Adequacy

It would seem that the cost of an adequate education could be determined from the data on the 48 most efficient school districts in the state. After all, these school districts recorded the highest student achievement, the highest teacher salaries, and some of the lowest per student costs for operations and maintenance and administration. This would be in line with the "Successful School Approach" for finding a target base cost.²⁰

The "Successful School Approach" relies upon school districts already achieving state standards to establish the cost of an adequate education. One of the benefits of the successful schools approach is that it allows for development of an efficiency factor. Schools spending a significant amount more per pupil than the average successful school may not be considered when determining a base cost. The average cost of the successful schools to provide an adequate education yields the base cost. The base is then adjusted for students with special needs or students considered at risk. The successful school approach has produced base cost targets currently in use in several states.²¹

The average teacher salary for the 48 most efficient Arkansas school districts was \$37,422 compared to \$34,729 for the state, and the student-to-teacher ratio was 15.5 compared to 13.3 for the state. The cost per student for operations and maintenance was \$512 compared to \$587 for the state, and the cost of a superintendent per student was \$45 compared to the state average of \$116. Total school administration cost per student was \$288 compared to \$328 for the state average. On eight of the nine test score measures, the 48 most efficient school districts scored the highest in the state. The combined enrollment within the 48 districts was 156,666, ranging from enrollment size of 600 to 12,000.

As stated earlier, student race and the percentage of students receiving free and reduced price lunch were not measures of efficiency,

nor was the number of students per square mile. To help present an overall view of the school districts located within the eight categories of efficiency, these demographic measures are presented in Table 3. The 48 school districts in E1, the most efficient school district category, have the highest percentage of Hispanic students and the greatest number of students per square mile. School districts in three of the four least efficient categories, INEF1, INEF2, and INEF3, record the highest percentage of African American students and students receiving free and reduced price lunch. On average, the 48 most efficient school districts have a student population that is 90% white, 4.5% African American, and 4.1% Hispanic, with 63% of the students paying for their school lunch. The state average student enrollment is 78.5% white, 18% African American, and 2.5% Hispanic, with 48.6% of the students paying for their school lunch. Because of the wide student diversity found across the state, the needs of the individual students would have to be considered in addition to this method of determining the cost of an adequate education.

Fiscal and Academic Efficiency Index Construction: Factor Analysis

During the summer of 2003, the Arkansas Association of School Administrators asked for input on an efficiency index that could be used in their education reform model in response to the 2002 *Lake View* case. The basic premise of the previous study on the cost of school district reorganization was used to develop this index. The purpose of the Fiscal and Academic Efficiency Index was to provide a relative measure of school district efficiency that included instructional and non-instructional costs and academic outcomes. The index was defined as a composite measure that indicated a school district's ability to produce desired performance outcomes with desired costs relative to the state average. Instead of using standardized or Z-scores, this index incorporated factor analysis to determine individual school district rankings and composite scores.

The Fiscal and Academic Efficiency Index was constructed by using the statistical procedure of factor analysis. The Index included a three-year average of the most recent available public school district data

for instructional and non-instructional costs and student achievement measures including norm-referenced and criterion-referenced tests. Also, a separate Fiscal Efficiency Index and Academic Efficiency Index were computed using the same method and appropriate variables. (See Appendix for a complete list and definition of variables.) The purpose of the two separate indexes was to better explain and evaluate the results of a school district's composite Fiscal and Academic Efficiency Index score.

Factor analysis is a general scientific method of reducing a large number of variables to a few factors by combining variables that are moderately or highly correlated with each other. Each combined set of variables forms a factor, which is a mathematical expression of the common element in the combined variables. With the process of factor analysis, different investigators using the same research design and factor technique on the same data will arrive at the same results, as follows:²²

- (1) Factor technique for this design using SPSS: Principal Component Analysis with Varimax Rotation, Eigen value over one;
- (2) Missing Values: Exclude cases listwise;
- (3) Factor weights: Computed by taking the percentage of variance attributed to each factor divided by the total explained variance;
- (4) Index scores: The standardized score of the sum of the weighted factor scores. The standardized scores have a mean of zero and a standard deviation of one;
- (5) School District Rating: Through this method a large number of variables are reduced to a scale or an index on which school districts can be rated. The process generates an index or standard score for each public school district;
- (6) Variables included in the factor analysis are instructional and non-instructional cost related variables and student achievement measures for each public school district in Arkansas;
- (7) Descriptive Statistics: Factor Score: -3.53 to +2.15.

Each school district was ranked on the Composite Efficiency Index with accompanying Fiscal Efficiency Index and Academic Efficiency Index. By separating out the Fiscal Efficiency Index and the Academic Efficiency Index, a school district could see in which areas they were high or low in and how the Composite Index was constructed. School districts could have a high Fiscal Efficiency Index score, a low Academic Efficiency Index score or the reverse and still have a positive composite score. This is one of the challenges of a combined fiscal and academic composite score. To address this problem, each of the separate index scores might be assigned a grade ranking of A, B, C, D, F to visually represent how a school district was doing in each category.

The Fiscal and Academic Efficiency Index could be used for ranking, comparative evaluation, assistance identification, and fiscal and academic accountability of the public school districts, as follows:

- (1) Evaluation between cost and effectiveness;
- (2) Accountability of how local and state tax money is being spent relative to all districts in the state and districts with similar demographics;
- (3) Accountability to students and their educational achievement;

- (4) Ranking of the public school districts on fiscal efficiency, academic efficiency and the composite Efficiency Index;
- (5) Comparative evaluation of costs and outcomes by individual public school districts relative to districts with similar demographics, and relative to the state average on component measures;
- (6) Identification of public school districts that may be in need of assistance;
- (7) Evaluation of costs and outcomes relative to the district's educational philosophy and goals.

Conclusion

Overall, the school district superintendents considered the Fiscal and Academic Efficiency Index a good representation of the school districts in Arkansas and adopted the method as part of their reform proposal in answer to *Lake View*. Even though the indexes were constructed from school district data with no intended bias presented in the formulation of the indexes, some districts felt the index was not fair. The 43 least efficient school districts were small districts with high rates of poverty and in some cases, high percentages of African American students. Also, they had relatively high expenditures, high administrative costs, high operation and maintenance costs, low teacher salaries, low pupil-to-teacher ratios, and very low-test scores on nine achievement measures. Here the index could serve as a basis of need with regard to the adequacy study. Of interest is the finding that many small, high poverty school districts had efficient scores, and some large school districts had inefficient scores.

The fiscal and academic efficiency index was not constructed for determining school consolidation but for determining how school districts were operating relative to other school districts in the state. Many districts used the data to improve their fiscal operations relative to districts similar in size and to note their achievement levels relative to school districts with similar students. The utility of the indexes are many, as noted above. A spreadsheet with three year averages of instructional, non-instructional, and achievement measures; and demographic data, composite efficiency index, fiscal efficiency index, and academic achievement index of the 310 school districts was available for each school district to download. Many school districts across the state used the information for internal analysis.

The two methods used for measuring fiscal and academic efficiency, the standardized or Z-score method and the factor analysis method, resulted in similar school district rankings. Both methods measured school districts relative to each other and presented each school district with a standard deviation score that was above or below the mean. From the analysis of the data, the best method for complete disclosure was the presentation of both the Fiscal Efficiency Index score and the Academic Efficiency Index score with a composite index score. This provided a comprehensive view of a district's fiscal operations and academic outcomes relative to the state average. As noted in the Introduction, the state, not the General Assembly, has the legal responsibility to maintain a general, suitable, and efficient system of free public schools in Arkansas. The Fiscal and Academic Efficiency Index was one proposed way to address the constitutional demand for an efficient system of free public schools.

Appendix Variables in Factor Analysis

Instructional and non-instructional cost-related variables and student achievement measures could include but might not be limited to:

Student Achievement Measures

ACT – Composite: Three-year average of the American College Testing (ACT) Assessment, a norm-referenced skill level test over English, mathematics, reading, and science reasoning. The assessment is designed to assess high school students' general educational development and their ability to complete college-level work. ACT scores range from 1 (low) to 36 (high).

Algebra I - End of Course: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population. The Algebra I Spring End of Course Examination, a criterion-referenced test, is based on the Arkansas Curriculum Frameworks and the Algebra I Course Goals as part of the Arkansas Comprehensive Testing Assessment and Accountability Program (ACTAAP) in response to Arkansas Legislative Act 1172.

Geometry – End of Course: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population. The Geometry Spring End of Course Examination, a criterion-referenced test, is based on the Arkansas Curriculum Frameworks and the Geometry Course Goals as part of the Arkansas Comprehensive Testing Assessment and Accountability Program (ACTAAP) in response to Arkansas Legislative Act 1172.

Literacy (Grade 11) End of Course: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population. The Literacy (Grade 11) Spring End of Course Examination, a criterion-referenced test, is based on the Arkansas English Language Arts Curriculum Framework as part of the Arkansas Comprehensive Testing Assessment and Accountability Program (ACTAAP) in response to Arkansas Legislative Act 1172.

Benchmark 4th Grade – Math: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population. The Benchmark exams are criterion-referenced tests aligned to the Frameworks developed by Arkansas teachers and the Arkansas Department of Education. Students scoring at the "advanced" level demonstrate superior performance well beyond "proficient" grade level performance, and students scoring at the "proficient" level demonstrate solid academic performance for the grade tested and are well prepared for the next level of schooling. Other levels of student achievement on the Benchmark exams are "basic", and "below basic".

Benchmark 4th Grade – Literacy: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population.

Benchmark 6th Grade – Math: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population.

Benchmark 6th Grade – Literacy: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population.

Benchmark 8th Grade – Math: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population.

Benchmark 8th Grade – Literacy: Three-year average of the percentage of students scoring at the "advanced" and "proficient" levels, combined population.

SAT Grade 5: Stanford Achievement Test, Ninth Edition, (SAT 9) norm-referenced test. Basic Battery includes a composite score for mathematics, vocabulary, and reading comprehension.

SAT Grade 7: SAT 9 norm-referenced test. Basic Battery includes a composite score for mathematics, vocabulary, and reading comprehension.

SAT Grade 10: SAT 9 norm-referenced test. Basic Battery includes a composite score for mathematics, vocabulary, and reading comprehension.

Instructional and Non-Instructional Cost-Related Measures

Administrative Salary as a Percentage of Net Current Expenditure: Three-year average of the amount paid certified full-time equivalency employees less K-12 certified full-time equivalency teachers divided by net current expenditure, excluding federal funds. This includes the salary of administrative employees including superintendents, assistant superintendents, principals, and supervisors employed by the district and paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included. Benefits paid by the districts such as teacher retirement, FICA/Med, and state-mandated insurance payments are not included.

Administrative Salary per Student in Average Daily Membership (ADM): Three-year average of the amount paid certified full-time equivalency employees less K-12 certified full-time equivalency teachers divided by ADM. This would equal administrative employees including superintendents, assistant superintendents, principals, and supervisors employed by the district and paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included. Benefits paid by the districts such as teacher retirement, FICA/Med, and state mandated insurance payments are not included.

Average Administrative Salary: Three-year average of the amount paid certified full-time equivalency employees less K-12 certified full-time equivalency teachers divided by the number of certified K-12 employees less the number of certified K-12 teachers. Included are administrative employees including superintendents, assistant superintendents, principals, and supervisors employed by the district and paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included. Benefits paid by the districts such as teacher retirement, FICA/Med, and state-mandated insurance payments are not included.

Average K-12 Teacher Salary: Three-year average of K-12 Certified Full-time Equivalency (FTE). Included are K-12 classroom teachers, librarians, counselors, psychologists, and other K-12 certified, non-administrative employees, paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included. Benefits paid by the districts, such as teacher retirement, FICA/Med, and state-mandated insurance payments are not included. In 2000-2001, the amount paid to substitute teachers was excluded in the Annual Statistical Report (ASR). The 1999-2000 ASR included the amount paid to substitute teachers.

Average K-12 Teacher Salary as Percentage of Net Current Expenditure: Three-year average.

Instructional Costs as a Percentage of Current Expenditure: (includes federal funds) Three-year average of Instructional Costs, including: Salaries for instruction; employee benefits for instruction; purchased services for instruction which includes the services of teachers or others who provide instruction to students; computer-assisted instruction expenditures; travel for instructional staff and per diem expenses; tuition; instructional supplies; instructional property; and

other instructional expenditures. It does not include salaries, benefits, or other expenditures for principals or principals' offices, head teachers serving as principals, full-time department chairpersons, supervisors of instruction, teaching school nurses, or librarians. Source: Common Core of Data (CCD), <http://nces.ed.gov/ccd/ccresources.asp>. Current expenditures include: (a) Tuition paid by individuals; (b) transportation fees paid by individuals; (c) Title I expenditures; (d) Title I carryover funds; (e) Title VI expenditures; (f) Title VI carryover funds; (g) food service revenues; (h) student activities revenues; (i) textbook revenues; (j) summer school revenues; and (k) instruction, support services, and non-instructional services except for community services, direct program support. Property expenditures are not included.

Maintenance and Operation (M&O) per Student in ADM: Three-year average of CCD Operations and Maintenance Expenditures by district, including salaries, benefits, purchased services, supplies, property, other, and total, Cycle 1.

Net Current Expenditure per Student in ADM: Three-year average of Net Current Expenditures are current expenditures less exclusions which include: (a) Tuition paid by individuals; (b) transportation fees paid by individuals; (c) Title I expenditures; (d) Title I carryover funds; (e) Title VI expenditures; (f) Title VI carryover funds; (g) food service revenues; (h) student activities revenues; (i) textbook revenues; and (j) summer school revenues. Property expenditures are not included.

Non-Instructional Costs as Percentage of Current Expenditure: Three-year average of Non-instructional services, including food services for students and staff in a school and Enterprise Operations. (1999-2000, 2000-2001). Source: CCD. Includes federal funds.

Pupil-to-Administration Ratio: Three-year average of the number of students in ADM divided by the number of certified full-time equivalent employees less K-12 teachers. Included are superintendents, assistant superintendents, principals, and supervisors employed by the district, and paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included.

Pupil-to-Classified Personnel Ratio: Three-year average of the number of students in ADM divided by the number of classified personnel.

Pupil to K-12 Teacher Ratio (Pupil-Teacher Ratio): Three-year average of the number of students in ADM divided by the number of K-12 certified full-time equivalent (FTE) teachers. The FTE of K-12 certified employees of the district include K-12 classroom teachers, librarians, counselors, psychologists, and other K-12 certified, non-administrative employees paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included.

Superintendent Salary per Student in ADM: Three-year average of Superintendent Salary divided by ADM.

Support Services as a Percentage of Current Expenditure: Three-year average of support services to provide administrative, technical (e.g., guidance and health), and logistical support to facilitate and enhance instruction. Support Services include: (1) Student Support (attendance and social work, guidance, health, psychological services, speech pathology, audiology, and other student support services); and (2) Instructional Staff Support Services, General Administration Support Services, School Administration Support Services, Business Support Services, Operation and Maintenance Services, Student Transportation Support Services, Central Support Services, and Other. Source: CCD.

Demographic Data

Percentage of Students Receiving Free and Reduced Lunch: Total Free and Reduced Lunch count divided by total K-12 grade count.

Percentage of African American Students.

Percentage of Hispanic Students.

Percentage of Students with English as a Second Language.

Public School District Size as measured by average daily membership (ADM).

Data Source

Annual Statistical Report of the Public Schools of Arkansas (ASR) and Arkansas Department of Education "AS-IS." The data used for the *Annual Statistical Reports* are self-reported by the individual school districts. The data are not audited prior to submission to the Arkansas Department of Education. Data definitions are from the 1999-2000, 2000-2001, and 2001-2002 *Annual Statistical Report (ASR)*. See Arkansas Department of Education "AS-IS" at <http://www.as-is.org> and *Annual Statistical Report* at <http://165.29.215.34>.

Endnotes

¹ *Lake View School District No. 25 of Phillips County, Arkansas, et al., v. Mike Huckabee*, Governor of the State of Arkansas, et al., 351 Ark. 31, 91 S.W.3d 472, 2002 WL 31618995 (Ark, Nov. 21, 2002).

² Article 14, Section 1, of the Constitution of the State of Arkansas states: "Intelligence and virtue being the safeguards of liberty and the bulwark of a free and good government, the State shall ever maintain a general, suitable and efficient system of free public schools and shall adopt all suitable means to secure to the people the advantages and opportunities of education."

³ Arkansas Constitution, Article 2, Sections 2, 3, 18.

⁴ Lawrence Picus and Alan Odden, *An Evidenced-Based Approach to School Finance Adequacy in Arkansas*, A study prepared for the Arkansas Joint Committee on Educational Adequacy (Little Rock, Arkansas: September 2003).

⁵ Arkansas Department of Education, *Statewide Information System (2002-2003)*.

⁶ Arkansas Association of School Administrators (AASA), *A Resolution on Behalf of the Public School Students in Arkansas for the Purpose of Providing Them a Quality Education* (Little Rock, Arkansas: AASA, August 2003).

⁷ *Lake View School District No. 25 v. Huckabee*, 340 Ark. 481, 10 S.W.3d 892 (Pulaski County Chancery Court, May 25, 2001). The first litigation started in 1992 when Lake View School District No. 25 sued the Governor of the State of Arkansas and other state officials declaring that the school-funding system was unconstitutional. It was not until 2001 that the Chancery Court concluded the current system unconstitutional under both the Education Article and the Equality Article of the Arkansas Constitution.

⁸ Ronald Herman Bradshaw, "The Financial Feasibility and Desirability of Establishing a County School System in Arkansas" (Ed.D. diss., University of Arkansas, 1984), 9.

⁹ Arkansas Department of Education, *Arkansas Statistical Report 2000-2001* (Little Rock, Arkansas: 2002).

¹⁰ Mary F. Hughes and James E. Metzger, *Restructuring: Cost-savings and Benefits, Arkansas Public School Districts*, February 2003, <http://www.uark.edu/depts/coehp/EDAD.htm> (under Efficiency).

¹¹ Kern Alexander, James Hale, et al., *Educational Equity: Improving School Finance in Arkansas* (Little Rock, Arkansas: Report to the Advisory Committee of the Special School Formula Project of the Joint Interim Committee on Education, 1978).

¹² Bradshaw, 25.

¹³ Alexander et al., 243-244.

¹⁴ Ibid.

¹⁵ Arkansas Department of Education, *Advisory Committee Report to the State Board of Education* (Little Rock, Arkansas: August 2002).

¹⁶ Ibid., 64.

¹⁷ Richard Patrick Paul, "The Arkansas School Consolidation Issue: A Study of the Relationship of Certain Input Variables on School Effectiveness" (Ed.D. diss., University of Arkansas, 1990), 70-72.

¹⁸ Arkansas Act 1398 in 2001 established the Blue Ribbon Commission on Public Education with membership of 25 Arkansas citizens and six legislators to address educational problems and solutions.

¹⁹ For a ranking of the 310 school districts on the 28 indicators of efficiency see, Spreadsheet: Data Restructuring, Sheet - DataEfficSort (prints 70 pages, 88 columns).

²⁰ Janet D. McDonald, Mary F. Hughes, and Gary W. Ritter, "School Finance Litigation and Adequacy Studies," *University of Arkansas Law Review* (under review).

²¹ John Augenblick, John Myers, Justin Silverstein and Anne Barkis, *Calculation of the Cost of a Suitable Education in Kansas in 2001-2002 Using Two Different Analytic Approaches* (Denver, Colorado: Augenblick & Meyers, Inc., 2002), II-2.

²² Rudolf J. Rummel, *Applied Factor Analysis* (Evanston, Illinois: Northwestern University Press, 1970). Also see Meredith D. Gall, Walter R. Borg, and Joyce P. Gall, *Educational Research*, 6th ed. (White Plains, New York: Longman, 1996).

From Courtroom to Classroom: Operationalizing "Adequacy" in Funding Teaching and Learning

**Bruce S. Cooper, Tim DeRoche,
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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

<i>School District</i>	<i>Central Office Staff (FTE)*</i>	<i>Central Office Staff Per 100,000 Pupils</i>	<i>Student/Teacher Ratio</i>
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

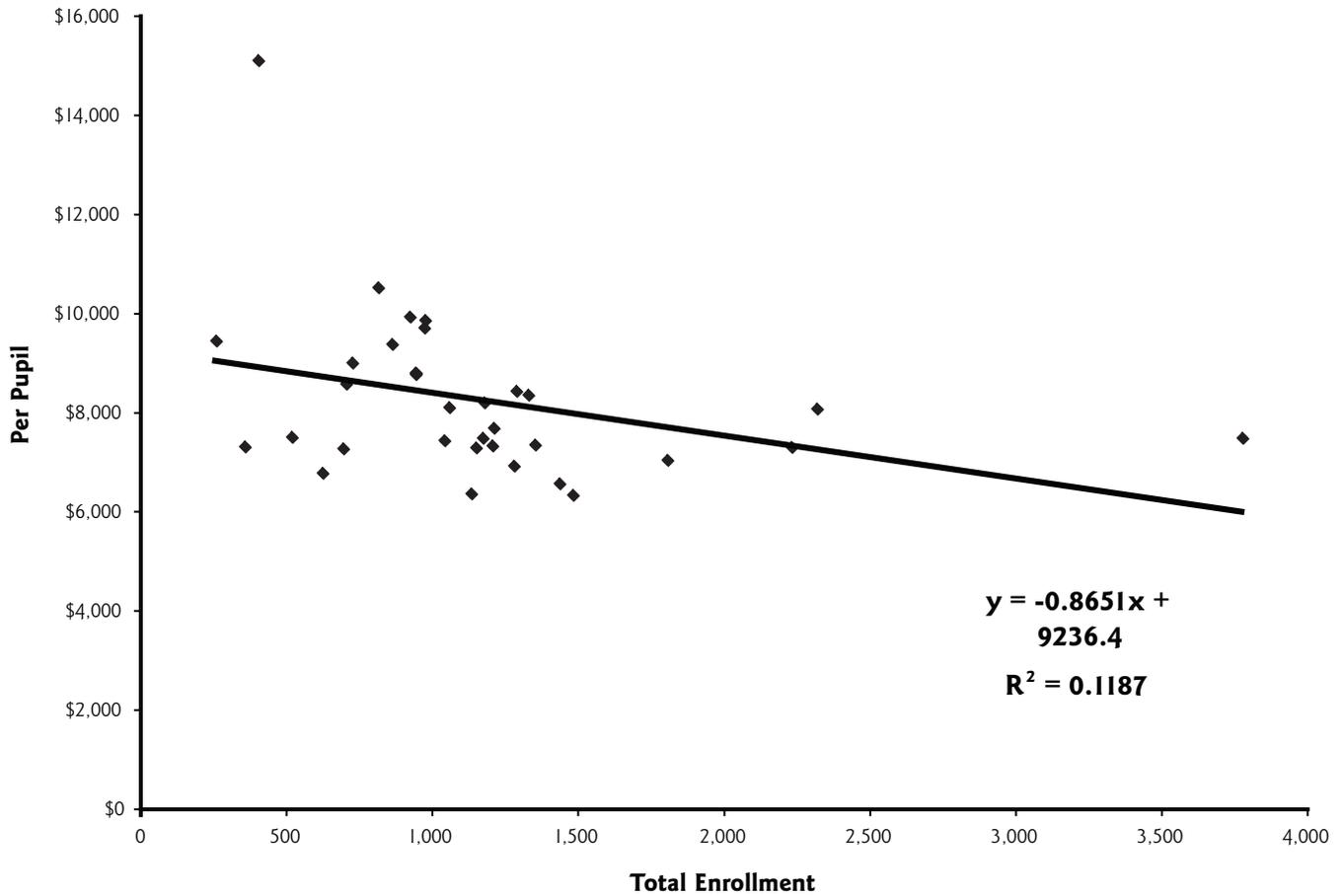


Table 12
Allocated Site-Based Staff Weighting System:
Park East High School, New York City Board of Education, 2001

<i>Roles</i>	<i>Weights for Roles</i>	<i>Number in Job</i>	<i>Total Staff Units</i>
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."

The Fiscal Impact of the Shift from Equity to Adequacy in School Finance Litigation

Forbis Jordan, Teresa Jordan and Kevin Crehan

Introduction

The focus of this study is a comparison of the changes in a set of state-level funding variables in state school finance programs for five groups of states with regard to high court decisions rendered during the 1970-1987 period and the 1988-2004 period. The five groups are as follows: (1) pre-1989 plaintiff victory; (2) pre-1989 defendant victory; (3) post-1988 plaintiff victory; post-1988 defendant victory; and (5) states with no decision by the highest court. The beginning date of 1970 was selected because it provided a logical base from which to determine the impact of litigation, preceding the 1973 *Rodriguez* decision of the U.S. Supreme Court¹ and the 1976 *Serrano* decision of the California Supreme Court.² With the *Rodriguez* decision, legal challenges to state school finance systems shifted from the federal courts to the state courts, and the original *Serrano* decision was amended to rely on state constitutional provisions after the *Rodriguez* decision. Since *Rodriguez*, school finance litigation has been based on the specific wording of the education, taxation, due process, and equal protection clauses in state constitutions.³ *Serrano* was the first decision based on state constitutional provisions. The 1989 date was selected as a breakpoint between the two periods because that was the year in which Kentucky's *Rose* decision⁴ was rendered, a decision considered to be the first instance in which the ruling in state high courts included the concept of adequacy.⁵

Since 1970, challenges to the constitutionality of state school finance programs have been initiated in 45 states.⁶ In states where an opinion was issued by the state's highest court as of May, 2004, plaintiffs have prevailed in 21 states while defendants have prevailed in 17; no high court decision had been issued in 12 states.⁷ As the focus of school finance litigation broadened in the 1990s to include adequacy as well as equity, school finance researchers did not appear to be in agreement about the success of litigation in which adequacy was the focus of the complaint. Lukemeyer found that the general pattern was that cases tended to be unsuccessful when adequacy was the primary complaint.⁸ However, she did find that in some instances adequacy had been a part of the remedy in equity cases where the plaintiffs were successful. At the same time, Crampton and Thompson,⁹

Augenblick, Sharp, Silverstein, and Palaich;¹⁰ Guthrie;¹¹ and Verstegen¹² have emphasized that traditional research techniques do not provide the quantity or quality of information required to demonstrate achievement of the adequacy goal.

The findings from studies by Manwaring and Sheffrin¹³ and Thompson and Crampton¹⁴ contributed to the organization of the study. Manwaring and Sheffrin used data from 1970 to 1990 to examine the effect of litigation in determining the level of education funding. One of their principal findings was that litigation had a differential effect across states leading to increases in funding in some instances and decreases in others. They also concluded that, as a result of litigation, education has received additional state-level attention in the political process and has benefited from the increased attention. Thompson and Crampton¹⁵ reviewed over 200 studies of states that had undergone school finance reform; they contended that litigation was not a fail-proof strategy to increase revenues for education. In their review, they found that it was difficult to claim a direct linkage between litigation and levels of education funding. Of the 200 articles, they found only 29 that addressed the question of measurable efficacy of litigation. Their analysis of the effects of litigation in eleven states suggests that education funding received greater attention as a result of litigation and that the effects may have been more positive than would have occurred without the pressure of litigation. Thompson and Crampton also noted that Ward¹⁶ had contended that, under our system of governance, politics and the economy often exercise more power than the courts. In their conclusions, they cautioned that litigation had not resulted in remarkable gains in education funding and speculated as to whether or not comparable gains could have been achieved under more amicable circumstances.

Analysis by Period of Litigation

Various authors have identified *Rose*¹⁷ as a watershed that broadened the focus of school finance litigation from equity to include adequacy of funding.¹⁸ For example, preceding *Rose*, plaintiffs prevailed in only 5 of the 13 high court decisions handed down between 1971 and 1988, and the content of the decisions did not provide much direction for aspiring plaintiffs. However, following the Kentucky decision in 1989, plaintiffs expanded their complaint to include evidence about programmatic and staffing disparities and have been more successful. Of the 25 decisions between 1988 and 2004, plaintiffs have prevailed in 15 instances.

The Kentucky decision often is referred to as the first adequacy case because it was the first case in which the legislative response was to enact comprehensive school reform -- governance, curriculum, assessment, and school finance. Even though this broadened definition of fairness has been reflected in subsequent judicial decisions, it appears that judicial decisions may be easier to obtain than acceptable legislative remedies that meet judicial requirements and are acceptable to society.¹⁹ See Table 1 for a list of states by chronological period of prevailing high court decisions favoring plaintiffs and defendants and a list of "No Decision" states.

Using a set of 1970 and 2000 state input variables including measures of effort and ability, a 2001 measure of equity, and a NAEP 2003 composite score, this study attempted to answer the following research question: Are there observable differences on selected variables among the five groups of states previously described? The variables used represent state average effort, fiscal ability, pupil-teacher ratio, teacher salaries, and per-pupil expenditures. Two other variables--

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Table 1
States with Prevailing High Court Decisions, May 2004

1971 – 1988		1989 – 2004		No High Court
States with Plaintiff Victory (6)	States with Defendant Victory (7)	States with Plaintiff Victory (15)	States with Defendant Victory (10)	States with No High Court Decision (12)
Arkansas California New Jersey Washington West Virginia Wyoming	Colorado Georgia Maryland Michigan Oregon Pennsylvania Oklahoma	Arizona Connecticut Idaho Kansas Kentucky Massachusetts Montana North Carolina New Hampshire New York Ohio South Carolina Tennessee Texas Vermont	Alabama Florida Illinois Maine Minnesota North Dakota Nebraska Rhode Island Virginia Wisconsin	Alaska Delaware Hawaii Indiana Iowa Louisiana Mississippi Missouri Nevada New Mexico South Dakota Utah

equity of the state's finance system and composite NAEP scores--were reported for one point in time. Data sources included the National Center for Education Statistics, National Education Association, Bureau of Economic Analysis of the U.S. Department of Commerce, Bureau of Labor Statistics of the U.S. Department of Labor, U.S. Census Bureau, and the 2004 issue "Quality Counts" published by *Education Week*.²⁰ The data set included state-level base data commonly associated with school expenditures and revenues for the period from 1969-70 to 1999-2000. The Consumer Price Index from the Bureau of Labor Statistics, U.S. Department of Labor, was used to adjust per capita personal income (PCPI), average teacher salary (ATS), and per-pupil expenditure (APPE) data for inflation. Other variables included measures of equity and a normalized composite index of the 2003 NAEP scores by state for 4th and 8th grade reading and math.²¹ These data were normalized to derive a single score for each state.

State-by-state evaluations of the equity of state school finance programs are not routinely conducted; the only current assessment of school finance programs is the annual report, "Quality Counts".²² Here the equity score for each state was based on the contributions of four variables for the 2001 fiscal year: state equalization effect (50%); wealth neutrality (25%); McLoone Index (12.5%); and coefficient of variation (12.5%). Multiyear comparisons of a state's equity score were not feasible because the components in the calculation process have varied from year-to-year.

Tables are presented for each variable, and means and standard deviations have been calculated for the decision subgroups. Comparisons among the subgroups were made for the following variables for each state:

- %PCPI. Current expenditures for elementary and secondary as a percentage of per capita personal income, a measure of effort.

- %SRS. Percentage of local school revenue for current operation from state sources, a measure of state share.
- APPE. Average per-pupil expenditure, a measure of resources.
- ATS. Average salary for classroom teachers, a measure of teacher pay.
- PTR. Pupil-teacher ratio, a measure of staffing pattern.
- PCPI. Per capita personal income, a measure of fiscal ability.
- Composite NAEP scores for 2003, a measure of student test performance.
- 2001 Equity.²³

Findings

Tables 2-7 contain means and standard deviations for 1970 and 2000 variables, and the change in means and the standard deviations between 1970 and 2000 for the following state-level variables: %PCPI, %SRS, APPE, ATS, PTR, and PCPI. Overall fiscal effort and degree of reliance on state revenue are reflected in the tables based on the first two variables, %PCPI (Table 2) and %SRS (Table 3). The level of funding and staffing practices are shown in the tables as average per-pupil expenditures (Table 4), average teacher salary (Table 5), and pupil-teacher ratio variables (Table 6). The fiscal ability variable (PCPI) is shown in Table 7. Tables 8-10 contain information on the relative equity of the state school finance system and the composite NAEP scores by the state grouping. The number of states in each group is shown in parenthesis. For comparison purposes, "Z Scores" were calculated from the means for each variable; the results are contained in Table 10.

Table 2 contains the means and standard deviations for the effort variable -- the percent of per capita personal income spent for K-12 public education in the state (%PCPI). Assuming that %PCPI is a valid measure of effort, the data in Table 2 indicate that the mean %PCPI declined for all groups between 1970 and 2000. Further analysis of the

Table 2
Group Mean and Standard Deviation for Current Expenditures for Elementary and Secondary Education as a Percentage of Per Capita Personal Income (%PCPI) for 1970 and 2000 and Change from 1970 to 2000

	1970		2000		1970 - 2000 Change	
	Mean (%)	StDev (%)	Mean (%)	StDev (%)	Mean (%)	StDev (%)
All States (50)	4.26	0.56	4.05	0.62	-0.2138	0.5413
PL Pre 1989 (6)	4.48	0.56	4.23	0.76	-0.2533	0.7424
DF Pre 1989 (7)	4.20	0.46	3.92	0.52	-0.2771	0.4802
PL Post 1988 (15)	4.07	0.50	3.98	0.54	-0.0840	0.4015
DF Post 1988 (10)	4.21	0.52	3.98	0.53	-0.2280	0.5769
No Decision (12)	4.47	0.67	4.16	0.79	-0.3075	0.6445

Note: PL = Plaintiff Victory; DF = Defendant Victory.

Table 3
Mean and Standard Deviation for Percentage State Revenue Share (%SRS) for 1970 and 2000 and Change from 1970 to 2000

	1970		2000		1970 - 2000 Change	
	Mean (%)	StDev (%)	Mean (%)	StDev (%)	Mean (%)	StDev (%)
All States (50)	41.25	15.84	52.96	12.61	11.72	13.70
PL Pre 1989 (6)	39.73	12.41	56.42	10.18	16.68	7.44
DF Pre 1989 (7)	39.60	12.60	51.66	13.71	12.06	17.80
PL Post 1988 (15)	38.79	15.89	53.09	10.36	14.29	15.75
DF Post 1988 (10)	37.89	13.65	48.89	12.33	11.00	13.57
No Decision (12)	48.83	20.08	55.24	16.43	6.41	10.85

Note: State Revenue Share equals percentage of local school revenue for current operation from state sources. PL = Plaintiff Victory; DF = Defendant Victory.

Table 4
Group Mean and Standard Deviation for Average Per-Pupil Expenditure (APPE) for 1970 and 2000 and Change from 1970 to 2000

	1970		2000		1970 - 2000 Change	
	Mean (\$)	StDev (\$)	Mean (\$)	StDev (\$)	Mean (\$)	StDev (\$)
All States (50)	3,414	708	7,302	1,445	3,889	966
PL Pre 1989 (6)	3,619	734	7,571	1,834	3,953	1,441
DF Pre 1989 (7)	3,525	663	7,578	1,128	4,053	612
PL Post 1988 (15)	3,324	874	7,438	1,647	4,115	996
DF Post 1988 (10)	3,412	543	7,385	1,218	3,972	896
No Decision (12)	3,360	700	6,769	1,409	3,409	863

Note: PL = Plaintiff Victory; DF = Defendant Victory.

Table 5
Group Mean and Standard Deviation for Average Teacher Salary (ATS)
for 1970 and 2000 and Change from 1970 to 2000

	1970		2000		1970 - 2000 Change	
	Mean (\$)	StDev (\$)	Mean (\$)	StDev (\$)	Mean (\$)	StDev (\$)
All States (50)	36,142	4,982	39,141	5,922	3,000	3,472
PL Pre 1989 (6)	37,620	6,219	40,570	7,867	2,950	4,965
DF Pre 1989 (7)	37,283	4,916	41,831	6,123	4,548	3,304
PL Post 1988 (15)	35,179	4,390	39,330	5,898	4,151	3,418
DF Post 1988 (10)	35,820	4,372	38,530	5,405	2,710	2,954
No Decision (12)	36,207	6,021	37,132	5,382	925	2,533

Note: PL = Plaintiff Victory; DF = Defendant Victory.

Table 6
Group Mean and Standard Deviation for Pupil-Teacher Ratio (PTR)
for 1970 and 2000 and Change from 1970 to 2000

	1970		2000		1970 - 2000 Change	
	Mean	StDev	Mean	StDev	Mean	StDev
All States (50)	22.21	1.87	15.71	2.14	-6.50	1.74
PL Pre 1989 (6)	22.33	2.25	15.98	3.31	-6.35	2.38
DF Pre 1989 (7)	22.74	1.08	16.33	1.33	-6.09	1.78
PL Post 1988 (15)	21.91	1.95	15.51	2.00	-6.40	1.69
DF Post 1988 (10)	21.54	1.64	14.40	1.86	-6.98	1.95
No Decision (12)	22.78	2.13	16.22	2.21	-6.56	1.48

Note: PL = Plaintiff Victory; DF = Defendant Victory.

Table 7
Group Mean and Standard Deviation for Per Capita Personal Income (PCPI)
for 1970 and 2000 and Change from 1970 to 2000

	1970		2000		1970 - 2000 Change	
	Mean (\$)	StDev (\$)	Mean (\$)	StDev (\$)	Mean (\$)	StDev (\$)
All States (50)	17,193	2,840	28,387	4,399	11,194	2,909
PL Pre 1989 (6)	17,560	3,715	28,911	6,261	11,350	2,928
DF Pre 1989 (7)	17,569	1,818	29,462	3,377	11,893	2,218
PL Post 1988 (15)	16,955	2,682	28,855	5,538	11,900	3,474
DF Post 1988 (10)	16,840	2,095	29,147	2,582	12,307	2,476
No Decision (12)	17,382	3,837	26,280	3,335	8,898	1,692

Note: PL = Plaintiff Victory; DF = Defendant Victory.

Table 8
Group Mean and Standard Deviation for Composite NAEP Scores for 2003

	<i>Mean for Composite NAEP Score</i>	<i>Standard Deviation</i>
All States (50)	101.4	9.29
PL Pre 1989 (6)	100.0	9.67
DF Pre 1989 (7)	101.9	5.27
PL Post 1988 (15)	104.5	8.75
DF Post 1988 (10)	104.0	8.45
No Decision (12)	95.9	10.82

Note: PL = Plaintiff Victory; DF = Defendant Victory.

Table 9
Group Mean and Standard Deviation for Equity Scores for 2001

	<i>Mean</i>	<i>Standard Deviation</i>
All States (50)	73.3	8.36
PL Pre 1989 (6)	74.8	6.88
DF Pre 1989 (7)	71.6	8.34
PL Post 1988 (15)	70.6	6.40
DF Post 1988 (10)	69.7	8.59
No Decision (12)	79.8	8.24

Note: PL = Plaintiff Victory; DF = Defendant Victory.

data revealed that 35 of the 50 states had a decline in %PCPI between 1970 and 2000, with an increase for the remaining 15 states. Of the nine states showing the greatest increase between the two dates, six were states in which the plaintiffs had prevailed.

The highest mean, or the highest effort, in 1970 and also in 2000 was in the group of states in which the state's high court had issued a decision favoring the plaintiffs prior to 1989. The smallest decline was in the mean for this group also. The largest decline was in states with no high court decision. The smallest decline was in states with either a plaintiff or defendant victors after 1988, suggesting that the shift to adequacy may have had a positive impact on funding, i.e., a smaller reduction when compared to the means for the other groups of states. This latter condition may be understated because acceptable legislative remedies have not yet been attained in some states where the plaintiffs prevailed.

Data in Table 3 show the increased reliance on state revenues as a source of funds for schools. The percentage of K-12 funding from state revenue sources increased from 16.5% in 1929-30²⁴ to 41.2 % in 1969-70 and further to 53.0% in 1999-2000. As the concept that providing funds for K-12 education is a state responsibility has been established by the courts, the percentage from state sources has increased for a variety of reasons. When local sources provided over 80% of the funding for schools, policymakers were confronted with large differences in taxable wealth among school districts and the resulting wide disparities in educational expenditures per pupil; this led to the enactment of state equalization program that allocated funds in an inverse relation to wealth. Escalating costs of public services, inflation

of property values, and judicial decisions requiring greater equalization in state funding formulas have contributed to the enactment of tax and expenditure limitations in 22 states.²⁵ They are quite different in the details, but the intent is the same. Alternatives include freezing or limiting the growth in governmental spending and/or tax rates or requiring a super-majority voter approval for tax increases.²⁶

As shown in Table 3, in 1970, the range in mean state revenue share among the five groups ranged from 37.89% to 39.73%; in 2000, the range was from 48.89% in states with a defendant victory after 1988 to 56.42% in states with a plaintiff victory before 1989. The mean percentage of revenues from state sources for all groups increased between 1970 and 2000. The greatest increase was in the mean for states with a plaintiff victory before 1989, with a 16.7% change; the smallest increase was in states with no high court decisions, with a 6.41% change. These data provide further credence to the contention that "any" litigation results in increased funding for schools.

Table 4 contains the mean and standard deviation for average per-pupil expenditures (APPE) for 1970 and 2000 and the change in APPE between 1970 and 2000. All APPE data have been adjusted for inflation using 2000 as the base of 1.00. The highest mean in 1970 was \$3,619 for states with a plaintiff victory before 1989, and the lowest was \$3,324 for states with a plaintiff victory after 1988. Of the nine states with an APPE in 2000 that was greater than the mean plus 1.0 standard deviation, five were states in which the plaintiffs had prevailed, two were states in which the defendants had prevailed, and two were "No Decision" states.

Table 10
Z Scores for Means for Multiyear and Single Point Variables

	<i>Pre 1989</i>		<i>Post 1988</i>		<i>No Decision</i>
Variable	States with Plaintiff Victory (6)	States with Defendant Victory (7)	States with Plaintiff Victory (15)	States with Defendant Victory (10)	States with No High Court Decision (12)
Multiyear Variable					
% PCPI	49.3	48.8	52.4	49.7	48.3
% SRS	53.6	50.2	51.9	49.5	46.1
APPE	50.7	51.7	52.3	50.9	45.0
ATS	49.9	54.5	53.3	49.2	44.0
PTR	50.9	52.4	50.6	47.3	49.7
PCPI	50.5	52.4	52.4	53.8	42.1
Single Point Variables					
Equity	51.9	48.0	46.8	45.7	57.8
Composite NAEP	48.5	50.5	53.3	52.8	44.0

Note: %PCPI = Current expenditures for elementary and secondary as a percentage of per capita personal income (measure of effort); %SRS = Percentage of local school revenue for current operation from state sources (state share); APPE = Average per pupil expenditure (resources); ATS = Average salary for classroom teachers (teacher pay); PTR = Pupil-teacher ratio (staffing pattern); and PCPI = Per capita personal income (measure of fiscal ability).

The range among the means in 1970 was less than \$300 per pupil, or 8.8%; the range in 2000 was just over \$800 or 12.0%. The “Pre 1989” groups had the highest mean in 2000, i.e., \$7,578 for states with a defendant victory and \$7,571 for states with a plaintiff victory. This pattern of gains for both plaintiffs and defendants supports the contention of Manwaring and Sheffrin²⁷ that positive changes occur irrespective of which party is perceived to be the winner in the litigation. The effects of the absence of litigation also are illustrated in the lack of progress for the “No Decision” group; this group had the second lowest APPE mean in 1970, the lowest mean in 2000, and the least gain in means between 1970 and 2000.

The mean and standard deviation for average teacher salary (ATS) for 1970 and 2000 and the change between 1970 and 2000 are displayed in Table 5; data were adjusted for inflation using 2000 as the base of 1.00. The highest mean in 1970 was \$37,620 for states with a plaintiff victory before 1989, and the lowest was \$35,179 for states with a plaintiff victory after 1989. The range among the means in 1970 was just under \$2,500 per pupil, or 7.1%; the range in 2000 was just under \$4,700 or 12.7%. The highest mean in 2000 was \$41,831 for states with a defendant victory before 1989, and the second highest was \$40,570 for states with a plaintiff victory before 1989. This pattern of gains for both plaintiffs and defendants supports the contention of Manwaring and Sheffrin²⁸ that positive changes occur irrespective of which party is perceived to be the winner of the litigation. The merits of litigation also are illustrated in the pattern for the “No Decision” group; this group had the third highest mean in 1970, the lowest mean in 2000, and the smallest gain in means between 1970 and

2000, i.e., \$925 compared with \$2,710 for states with a defendant victory after 1988.

Data for the 1970-2000 period for pupil-teacher ratio (PTR) are shown in Table 6. The 1970 range in the means was from 21.54:1 to 22.78:1. The 2000 range was from 16.33:1 to 14.40:1. In 1970, pupil-teacher ratios were greater for “Pre 1989” than those for the “Post 1988” groups, and they also were greater in 2000. Differences in change from 1970 to 2000 ranged from a reduction of 6.98 to 6.09 pupils per teacher. The “No Decision” states did not fare well on this variable. Among the five groups, this group of states ranked last in 1970, with the largest pupil-teacher ratio of 22.78:1. In 2000, they ranked fourth out of the five groups at 16.22:1, slightly above states with a defendant victory before 1989. Their reduction in pupil-teacher ratio by 6.56 students between 1970 and 2000 ranked them second among the five groups, behind states with defendant victories after 1988, who reduced average pupil-teacher ratio by 6.98 students. The data suggest that the changes between 1970 and 2000 may have been attributable to variables other than those in this study; examples of the latter include legislatively mandated class size reduction and staffing changes to provide programs for special needs youth.

Table 7 contains the inflation-adjusted mean and standard deviation for per capita personal income for 1970 and 2000 and the change between 1970 and 2000. The highest mean in 1970 was \$17,569 for states with a defendant victory before 1989, and the lowest was \$16,840 for states with a defendant victory after 1988. The range among the means in 1970 was just under \$724 per pupil, or 4.3%; the range in 2000 was almost \$3,200 or 12.1%. The highest mean in 2000 was \$29,462 for

states with a defendant victory before 1989; and the second highest was \$29,147 for states with a defendant victory after 1988. The lowest was \$26,280 for the “No Decision” group. The reduced relative fiscal capacity attributable to the low rate of growth in the mean PCPI for this group may explain its low ranking in the 2000 and the “change” data for the %PCPI, APPE, and ATS. The “No Decision” group had the third highest mean in 1970, the lowest mean in 2000, and the least gain in means between 1970 and 2000, i.e., \$8.898 compared with \$11.900 for states with a defendant victory after 1988.

Data for 2003 reported in Table 8 represent the first time that NAEP scores have been available for all states. The highest mean composite NAEP scores were in states with a high court decision after 1988. The lowest mean NAEP score and the largest standard deviation were in “No Decision” states. As shown in Table 7, this group had the lowest mean per capita personal income in 2000 and the lowest mean increase for the 1970-2000 period.

Data in Table 9 indicate that the highest mean equity score was in the “No Decision” states – suggesting that this group had the most equitable school finance programs. Of the nine states with equity scores above 80, five were in this group. The lowest mean equity score, i.e., the least equitable school finance program, was found in states with a defendant victory after 1988, and this group also had the largest standard deviation. This suggests that the school finance programs in this group ranked low in equity and high in diversity. As a group, states with high court decisions before 1989 ranked higher than “Post 1988” states; however, as discussed earlier, school finance reforms may not have been enacted in the “Post 1988” states. A detailed review of the equity scores for each state revealed that eight of the twelve “No Decision” states ranked among the top 16 states on the composite equity measure.

Because of the differences in type of data, “Z Scores” with a mean of 50 and a standard deviation of 10 are shown in Table 10. A score of over 50 indicates that the group was above the average for all states for that variable; a score of less than 50 indicates that the group’s score was below the average for all states on that variable. The pattern for states with a plaintiff victory before 1989 indicates that the mean Z Scores were between 49.3 and 53.6 for the multiyear variables while the range in mean Z Scores for states with a defendant victory before 1989 was 48.8 to 54.5. For states with a plaintiff victory after 1988, all of the mean Z scores for the multiyear variables were above 50, but only two of the scores for states with defendant victories after 1988 were above 50. The Z Score for effort (%PCPI) was below 50 for all groups of states except those with plaintiff victories after 1988. For states with a defendant victory after 1988, the mean Z Score was over 50 for three variables: APPE, PCPI, and the composite NAEP score. All of the mean Z Scores for the multiyear variables for the “No Decision” group were below 50. This pattern is a further illustration of the lack of progress on the variables used in this study in the “No Decision” states over the 30-year period. The Z Score patterns for states with plaintiff victories after 1988 provide evidence that on the multiyear variables this group fared better than the other groups, benefiting most from being involved in litigation.

Summary

Since 1970, the constitutionality of the state’s school finance system has been challenged in 45 states. In 38 of those states, the challenge has reached the highest state court, and the court has issued an opinion. Rulings in 21 states have been in favor of the

plaintiffs; rulings have favored the defendants in 17 states. The original complaints focused on the inequities of the state system. Starting with the Kentucky decision in 1989, complaints were broadened to include both equity and adequacy as the focal points. Since that decision, high court rulings have been issued in 25 states, and rulings have been in favor of the plaintiffs in 15 of those states.

Using a set of selected variables, the purpose of this study was to determine which of the following groups benefited most over the 30-year period: states with pre-Kentucky or post-Kentucky decisions for the plaintiffs (pre-1989); states with pre-Kentucky or post-Kentucky decisions for the defendants (post-1988); or states no decision from their respective high courts. In this exploratory effort, the focus was on the changes in six variables from 1970 and 2000. The findings suggest the following detailed responses to the research question: Are there observable differences on selected variables among the five groups of states?

- Among the five groups of states, greatest gains in the mean had been made in states with plaintiff victories after 1988 or those states in which the high court decision came after the Kentucky decision. In contrast to the pattern for the “No Decision” states, the means for states with plaintiff victories after 1988 states showed smallest decline in effort; greatest gains in average per-pupil expenditure and average teacher salary; highest NAEP scores; and scores above the mean on each of the six multiyear variables. These findings are consistent with the contentions of Manwaring and Sheffrin.²⁹

- Irrespective of whether the plaintiffs or the defendants prevailed, state school finance programs appeared to benefit from litigation challenging the constitutionality of the state system. Comparable increases in funding for schools had not been made in those states in which there had been no high court decision. The “No Decision” states ranked last on means for average per-pupil expenditure, average teacher salary, and per capita personal income. Rather than their ranking being attributable to the lack of high court decision, the low ranking in ability may provide a partial explanation of the low ranking on these variables. However, the greatest reduction in effort between 1970 and 2000 was found in the “No Decision” states. This pattern is consistent with the findings of Manwaring and Sheffrin that school finance litigation results in positive reforms in state school finance systems.³⁰

- For all groups of states, fiscal effort for elementary and secondary education, expressed as a percent of per capita personal income, declined between 1970 and 2000. However, the mean average per-pupil expenditure and mean average teacher salary increased at a rate greater than the increase in the consumer price index, and pupil-teacher ratio declined across all groups. The mean decline for all states was 22.2:1 in 1970 to 15.7:1 in 2000.

- Over the 30 year period, the mean share of per-pupil expenditures from state sources increased from 41.25% to 53.0%; this may be attributable to the combined effect of voter resistance to the property tax and the efforts of state legislatures to seek greater equity in state school finance programs. Given the range in property values per students in most states, greater fiscal equity can often be achieved by a reduction in the degree of local school district reliance on local taxes and a shift to the broader tax base of the entire state. The local taxpayer is provided with some relief, but some of that relief may be lost if the reduction in local taxes is offset by an increase in state taxes.

- Given the time required to design and gain consensus for a satisfactory legislative response to a court decision, it is premature to make generalizations about the effect of judicial decisions favoring plaintiffs that were made after 1988. For example, as of May 2004, acceptable legislative solutions had not been enacted in several of these states, including Kansas, Montana, New York, Ohio, and South Carolina. At times, the wheels of justice move slowly; the West Virginia Legislature took over 20 years to enact an acceptable legislative solution.³¹

Conclusions and Generalizations

Five major conclusions and generalizations are drawn from findings of this study. First, even though average per-pupil expenditures and average teacher salaries increased at a rate greater than inflation over the 1970-2000 period, data on fiscal effort, as a percent of a state's personal income, showed a slight decline across all subgroups during the 1970-2000 period. The decline was greatest in states with no high court decision. Secondly, pupil-teacher ratios experienced a consistently favorable decline across all groups of states over the 30-year period. This may be a partial explanation of why average teachers salary did not increase as much as average per-pupil expenditures. Third, in states with high court decisions, the percentage of school revenues from state tax sources increased over the 30-year period. Fourth, when high court decisions were classified as to whether the plaintiff or the defendant was favored in the court's ruling, plaintiffs have been more successful since 1988 when the focus of their complaint was broadened to include both adequacy and equity. Finally, in states that have had high court rulings on challenges to the state's system for financing schools, irrespective of whether the decisions favored the defendants or the plaintiffs, funding for schools adjusted for inflation increased over the 30-year period at a rate greater than in the "No Decision" states.

Recommendations

This was a preliminary, exploratory study that placed states into gross categories, and the analysis of the differences among those categories was based on a limited set of common variables. Opportunities for additional research include individual case studies of state responses or a series of case studies across states using a common research design.³² The focus of additional research might include the following:

- The characteristics of the "No Decision" states and how those characteristics might have affected state action;
- Mitigating variables in a state that affected the legislative response to the high court decision, e.g., changes in the economy of the state or changes in political composition of the state's high court, the state legislature, or the political party of the governor;
- Further cross-state analyses using a more extensive set of state-level economic, demographic, and/or socioeconomic variables;
- The impact of shifting social service priorities on state budgets;
- Types and linkages among enacted school finance, accountability, and governance reforms;
- Identifiable conditions and/or intervening events associated with the period of time between the date of a high court decision and the enactment of acceptable school finance reform legislation.

Endnotes

¹ *San Antonio v. Rodriguez*, 411 U.S. 1 (1973).

² *Serrano v. Priest*, 557 P 2d 929 Cal. (1976).

³ Kern Alexander and Richard G. Salmon, *Public School Finance* (Needham Heights, Massachusetts: Allyn & Bacon, 1995).

⁴ *Rose v. Council for Better Education, Inc.*, 790 S.W. 2d 186 (Ky. 1989).

⁵ Helen F. Ladd and Janet S. Hansen, ed. *Making Money Matter: Financing America's Schools* (Washington, D.C.: National Academy Press, 1999), 107; James W. Guthrie, "Twenty-First Century Education Finance: Equity, Adequacy, and the Emerging Challenge of Linking Resources to Performance," in *Money, Politics and Law: Intersections and Conflicts in the Provision of Educational Opportunity*, ed. Karen DeMoss and Kenneth Wong (Larchmont, New York: Eye on Education, 2004), 1-16.

⁶ In this discussion, states have been classified as "plaintiff victory", "defendant victory", and "no decision" on the basis of the most recent prevailing decision of the state's highest court.

⁷ Molly Hunter, *Finance Litigation* (New York: Campaign for Fiscal Equity, March 28, 2004); Robert Bennett, *An Analysis of Nevada's Public School Funding System*, (Ph.D. diss., University of Nevada, Las Vegas, 2003); Anna Lukemeyer, *Education Finance Equity: Judicial Treatment of Key Issues and Impact of That Treatment on Reform*, (Ph.D. diss., Syracuse University, 1999).

⁸ Lukemeyer, *Education Finance Equity*.

⁹ Faith E. Crampton and David C. Thompson, "When the Legislative Process Fails: The Politics of Litigation in School Infrastructure Funding Equity," in DeMoss and Wong, 69-88.

¹⁰ John Augenblick, Jennifer A. Sharp, Justin R. Silverstein, and Robert M. Palaich, "Politics and the Meaning of Adequacy: States Work to Integrate the Concept into K to 12 School Finance," in DeMoss and Wong, 17-36.

¹¹ Guthrie, "Twenty-First Century Education Finance."

¹² Deborah A. Versteegen, "Financing the New Adequacy: Towards New Models of State Education Finance Systems that Support Standards Based Reform," *Journal of Education Finance* 27 (Winter 2002): 749-782.

¹³ Robert Manwaring and Steven M. Sheffrin, "Litigation, School Finance Reform, and Aggregate Educational Spending," *International Tax and Public Finance* 4 (May 1997): 107-127.

¹⁴ David C. Thompson and Faith E. Crampton, "The Impact of School Finance Litigation: A Long View," *Journal of Education Finance* 27 (Fall 2002): 133-172.

¹⁵ *Ibid.*

¹⁶ James G. Ward, "The Political Ecology of Reform: American Public School Finance in the 1970s and 1980s," *Journal of Education Finance* 14 (Fall 1988): 181-199.

¹⁷ *Rose v. Council for Better Education, Inc.*, 790 S.W. 2d 186 (Ky. 1989).

¹⁸ Ladd and Hansen, 107.

- ¹⁹ Crampton and Thompson, "When the Legislative Process Fails."
- ²⁰ Ronald Skinner and Lisa Staresina, "State of the States," *Education Week* 23 (8 January 2004) 120-121.
- ²¹ Ibid.
- ²² Ibid.
- ²³ Ibid.
- ²⁴ Tom Snyder and Charlene Hoffman, *Digest of Education Statistics*, NCES 2001-034 (Washington, D.C.: U.S. Department of Education, 2001), Table 38.
- ²⁵ William F. Blankenau and Mark L. Skidmore, "School Finance Litigation, Tax and Expenditure Limitations, and Education Spending," *Contemporary Economic Policy* 22 (January 2004): 127-143.
- ²⁶ Ibid.
- ²⁷ Manwaring and Sheffrin, "Litigation, School Finance Reform, and Aggregate Educational Spending."
- ²⁸ Ibid.
- ²⁹ Ibid.
- ³⁰ Ibid.
- ³¹ Crampton and Thompson, "When the Legislative Process Fails."
- ³² Ibid.; Karen DeMoss, "Political Contexts and Education Finance Legislation: Toward a Methodology for Comparative Fiscal Analysis," in DeMoss and Wong, 47-68.

A Closer Look at the Costs of Serving Children "Living on the Edges" of State School Finance Policy: At-Risk, Limited English Proficient, and Gifted Children

Bruce D. Baker

Introduction

Considerable attention has been given over the years to understanding the costs of serving students with disabilities and the design of state funding systems for ensuring that students' special needs can be met by local districts.¹ Significantly less attention has been given to three less-well-defined student populations--at-risk, limited English proficient (LEP), and gifted and talented children--referred to herein as fringe populations because they lie on the ill-defined fringe between general and special education.²

In public school finance policy, fringe populations are often treated with nominal adjustments or add-ons to general aid formulas.³ Supplemental aid allocations for special populations, like general aid quantities, are derived primarily via political deliberation among state legislators. The balance of these provisions generally reflects the balance of political power in state legislatures more so than the balance of student and district needs.⁴ Over the past few decades, increased efforts have been made to introduce empirically determined values into deliberations over adequate general education funding and/or to use empirically determined values to scrutinize current state funding methods. Until recently, those wishing to either supplement or supplant purely political processes with rationally derived cost estimates for fringe populations found themselves with far too little information to adequately inform policy decisions.⁵ Times are changing.

In 2001, Baker performed an analysis of state revenues (1995-1996) to local districts for meeting the needs of at-risk, limited English proficient and gifted children.⁶ Baker attempted to characterize state aid allocations in terms of adequacy, equity, and rationality, which were measured as follows:

- Adequacy was measured by aid allocation per expected need pupil as a percent of core expenditures exceeds minimum reported, though not necessarily empirically cost based, adequacy weight from existing literature (LEP = 1.2, At-Risk = 1.2).

- Equity was measured by aid allocation per pupil significantly correlated in the expected direction ($p < .05$) with 2 of three context measures (median family income, core expenditures per pupil, state revenue share).

- Rationality was measured by aid allocation per pupil and total allocation significantly correlated ($p < .05$) with expected prevalence. (LEP and At-Risk only)

Like numerous previous authors,⁷ Baker relied on relatively arbitrary estimates of the "costs" of providing adequate services for at-risk and limited English proficient children for evaluating the relative adequacy of aid programs. Few state aid programs were found by Baker to be sufficient. No estimates of programming costs or funding adequacy were provided for gifted education. Analyses of aid to gifted education were limited to the equity of state aid allocations to local districts.

Not surprisingly, Baker found significant equity problems in the allocation of supplemental aid for all three populations. In many states, supplemental aid was being allocated flatly with respect to local fiscal capacity and at generally inadequate levels. State aid for gifted education in states such as South Carolina was disproportionately allocated to higher capacity, higher income districts. More surprising was Baker's finding that in many states, aid for special populations was not even highly correlated with the prevalence of students who require supplemental services, even in the case of aid for limited English proficient children, perhaps the easiest of the three populations to define. Baker and Markham concurred.⁸

Only recently has the knowledge base on the cost of adequate educational services in general and for special student populations expanded sufficiently to revisit the adequacy question posed by Baker in 2001. Baker, Taylor, and Vedlitz, in a report to the Texas Joint Committee on Public School Finance, presented an analysis of over 30 studies of the cost of providing an adequate education in over 20 states.⁹ In at least 16 separate studies performed since 1997 (most since 2001), individual estimates of marginal costs of educational services have been provided for economically disadvantaged (at-risk) and limited English proficient children. Sadly, only one study reported cost estimates for gifted education,¹⁰ but the literature on state aid and program costs in gifted education has expanded dramatically in recent years, including some cost estimates.¹¹

This article takes advantage of the emerging evidence on the costs of adequate opportunities for at-risk, limited English proficient and gifted and talented children to revisit the question of the relative adequacy of state aid allocations for these fringe populations. I begin with a review of the research literature on the costs of special programming opportunities or service delivery models for at-risk, limited English proficient and gifted and talented children. Next, I review cost analysis methodologies commonly applied in studies of educational adequacy and address the pros and cons of various methods with respect to the populations in question. Then, I compile the recent evidence regarding the costs of services in state and independently sponsored evaluations of the cost of an adequate education. Finally, focusing on programs and services for limited English proficient children, I provide a detailed analysis of the relative adequacy of state aid programs in five states - Kansas, Colorado, North Dakota, Missouri and Nebraska - using recent cost estimates as benchmarks.

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Brief Review of Literature on Program Costs & State Aid

In this section I provide a brief review of the literature on program costs and state aid programs for meeting the needs of at-risk, limited English proficient, and gifted children. Prior to the recent wave of state level adequacy analyses, little had been written in the school finance policy literature about the needs of fringe populations and associated costs of programming.

Children At-Risk

Cost estimates and/or guidelines for achieving vertical equity for at-risk and limited English proficient pupils have been presented in literature and applied in state policies for several years despite limited empirical bases. The most common estimates indicate a cost of serving both at-risk and limited English proficient pupils at 1.2, or 120% of the cost of educating the “typical” student.¹² A recent National Research Council report noted the following with respect to the 1.2 weighting for at-risk pupils:

While this indicator may be the best currently available for determining a weighting for students in poverty and is easily understood, it results from federal budget decisions about what to spend on Title I, not on a calculation of the costs of education poor children and of compensating for prior deprivation that may affect their education performance.¹³

Results from published analyses of the costs of serving at-risk pupils vary widely. Goertz,¹⁴ for example, found that in a study of schools in 17 districts, Chapter I expenditures ranged from \$175 per pupil in a district with an expenditure range of \$175 to \$1,070, to \$2,500 per pupil. Several authors address costs of serving at-risk children in terms of the costs of operating comprehensive school reform models tailored to the needs of at-risk populations. Odden and Picus cost out the ingredients of offering the Roots and Wings/Success for All, a whole school reform program focused on improving achievement of at-risk pupils, in a school of 500 pupils, arriving at approximately \$1,000 per pupil or \$500,000.¹⁵ King performed similar analyses on three whole school reform models in 1994. Table I summarizes the findings of these cost studies.¹⁶

At-risk children are often identified for state aid allocation purposes via economic criteria such as qualifying for free and reduced price lunch status under the National School Lunch Program. Typically, state aid for at-risk children is used to provide compensatory reading or other remedial programs. Odden and Picus noted that 28 states supported compensatory aid programs in 1993-94.¹⁷ Among those states, Odden and Picus identified five states that specifically used the word “remedial” to describe the educational programming resulting from compensatory aid, at least two of the five states used economic criteria for need identification.¹⁸ Perhaps due in part to the questionable implications of applying economic criteria to educational need, states are increasingly including measures of academic performance, and some have included language proficiency status as a risk indicator.¹⁹ Nonetheless, who is considered at-risk, and how to identify them, varies widely from state to state.

Historically, federal aid has played a limited role in offsetting costs associated with educating children at risk. In an analysis of school district revenues, Parrish and Hikido²⁰ found that 99.2% of districts enrolling expected poverty populations in excess of 25% or their enrollments received federal Chapter I funding in 1991-1992 at an average rate of \$257 (\$207 cost and need-adjusted) per pupil or \$793 (\$781 cost and need-adjusted) per target pupil. Districts with fewer students

in poverty received less funding per enrolled pupil and similar, if not slightly higher, amounts per target pupil.

Baker and Duncombe identified 38 total states providing some form of financial support to meet the needs of at risk children.²¹ Twenty-one states included provisions in general aid programs, and 25 states allocated categorical aid separate from general aid programs. Baker and Duncombe and Carey²² estimate implicit weights of the amount of aid received by local districts from states to accommodate children in poverty. Implicit weights are measures of aid actually allocated to local districts whereas explicit weights are those specified in state school finance policies. Implicit weight analysis involves estimating the population in need, most commonly with Census data, estimating the aid allocated to that population and determining the ratio of need-targeted aid to average or “general” education revenues.²³ Using Carey’s weights, eleven states (out of 39) had a poverty weight above 25%. Only two states had weights this high using Baker and Duncombe’s estimates. Three of the New England states (Connecticut, New Hampshire, and Massachusetts) had particularly high poverty weights, and all of these states had statutory poverty weights of 25% or higher.

Limited English Proficient Children

Studies of the costs of providing bilingual education or transitional programming have also produced widely varying results, ranging from less than an extra 5% to an extra 100%.²⁴ Parrish estimated the costs of serving limited English proficient students under alternative instructional models in California and found the average total marginal cost of serving LEP students to be \$361 (marginal instructional cost = \$186, administrative and support cost \$175).²⁵ Across four approaches to service delivery, marginal costs were approximately 18% above classroom costs with classroom costs ranging from \$1,409 to \$1,978 per pupil and total costs, including support for LEP students, ranging from \$1,756 to \$3,505 per pupil. Parrish and Hikido noted that the \$361 marginal cost is only 8% above average expenditures per pupil in California, which at the time were \$4,598.²⁶ Findings of these cost studies are summarized in Table I.

A handful of states reported in *Public School Finance Programs of the United States and Canada: 1998-1999* indicated that programs for LEP children were primarily a federal responsibility, through ESEA Title VII (now Title III) funding.²⁷ Baker and Markham indicated that federal aid, for the most part, has provided negligible support to local districts.²⁸ They noted that in 1995-1996 only 112 of nearly 16,000 public school districts reported receiving any Title VII aid, and that aid, on average, amounted to approximately \$260 per expected LEP pupil. Parrish and Hikido found similarly that even among districts with the highest percentages of LEP students in 1991-1992, only 19.8% received federal Title VII funding.²⁹ They further noted that “Because this [Title VII] is a discretionary rather than a formula grant program, these funds do not flow heavily to districts with high concentrations of LEP students.”³⁰

Funding for bilingual education programs and other services for limited English proficient students existed in 29 states in 1998-99. Twelve states included adjustments to basic aid programs, and 19 states allocated some form of categorical aid. Baker and Markham found that many states not providing supplemental funding for limited English proficient children had significant estimated LEP populations, with some districts exceeding 25% limited English proficiency.³¹ Baker and Markham also found that among states allocating aid for LEP pupils and in states where local school districts reported that aid on

Table 1
Summary of Studies of the Costs of Serving At-Risk, LEP and Gifted Children

Cost Estimate	Source	Method	Context
At-Risk			
\$175 to \$2,500 per	Goertz, 1988 (1)	Chapter 1 expenditures	New Jersey
\$522 to \$1,293 per (ADA) to implement Slavin's <i>Success for All</i>	King, 1994	Resource Cost - Whole school reform approach	
\$96 to \$532 per pupil (ADA) to implement Levin's <i>Accelerated Schools</i>	King, 1994	Resource Cost - Whole school reform approach	
\$206 to \$556 per pupil to implement Comer School Development Project	King, 1994	Resource Cost - Whole school reform approach	
\$1,000 per pupil (ADA) (school of 500) to implement <i>Success for All</i>	Odden and Picus, 2000	Resource Cost - Whole school reform approach	
Limited English			
5% marginal cost	Carpenter-Huffman & Samulon, 1981 (2) Gonzalez, 1996 (3)		
100% marginal cost	Chambers & Parrish, 1983	Resource Cost	
18% average marginal cost above classroom cost, or 8% above state average PPE across program & placement types	Parrish, 1994	Resource Cost	California
Gifted			
\$2,061 (regular teaching assignment) or \$1,655 (special education teaching assignments)	Chambers, 1999	Resource Cost	Ohio
30 to 60%	Baker & Nimz,	Staffing Costs	Hypothetical

(1) In Picus and Odden (2000).

(2) Ibid.

(3) Ibid.

the Census Fiscal Survey of Local Governments,³² aid allocations per target pupil varied widely, from nearly zero percent to over 100% of core instructional spending per pupil.

Gifted Children

Presently, there is little existing evidence regarding the resource costs of adequate services for gifted children. Baker and Friedman-Nimz applied a cursory analysis of adding qualified gifted education

specialists to elementary schools of approximately 400 students, yielding marginal costs of .3 to .6 per gifted pupil (assuming 5% of the student population as primary beneficiaries of services).³³ Chambers provided additional insights into resource costs for gifted children in Ohio, but the analysis was limited to personnel costs and estimated with data on current practices rather than ideal conditions.³⁴ Using average caseloads and contact hours, and average expenditures per pupil hour, the average cost per participating pupil for K-12 gifted and

talented instruction was approximately \$2,061 (regular teaching assignment) or \$1,655 (special education teaching assignment).³⁵ These costs were comparable in Chambers' analyses to costs per pupil-hour of providing self contained bilingual/multicultural programs (regular teaching assignment) or costs per pupil-hour of providing programs for the developmentally handicapped (special education teaching assignment). Case loads, or class sizes, for gifted education in Ohio ranged between 15 and 20. Marginal cost estimates were not provided. Expenditures per pupil in Ohio were approximately \$5,550 in 1996, leading to a marginal cost of about 30% to 37%, similar to that found by Baker and Friedman-Nimz.³⁶

State definitions of gifted and talented children vary widely.³⁷ As a result, actual prevalence is difficult, if not impossible, to estimate. While some states specify particular percentiles on standardized achievement tests or cut-off scores on intelligence tests, most allow considerable flexibility to local districts. In 1995, thirty-one states mandated identification of gifted children, but only 24 mandated services for those children.^{38, 39}

A relatively large number of states, forty-two, allocate funding for programs for gifted and talented children, a possible testament to the strength of parent lobbying groups. While funding is allocated, however, much of the funding appears to be negligible, and several states provide only discretionary and/or competitive grants to select districts applying for a finite pot of funds. Baker and Friedman-Nimz and Baker and McIntire estimated the aid received by local districts from states for providing gifted education services, finding aid per target populations (estimated at flat 5%) ranged from only a few dollars to over \$600 per pupil (South Carolina) and nearly \$2,000 per pupil (Florida). Implicit weights of state aid ranged from less than 1% to over 30%.⁴⁰

Overview of Cost Measurement in the New Adequacy Context

This section presents an overview of methodologies commonly used in the estimation of basic and marginal costs. I choose to classify somewhat differently these methodologies, limiting the set to two basic approaches: (1) resource cost or ingredients approaches; and (2) statistical modeling approaches. Notably absent in this discussion are what some refer to as "successful schools" studies of the type that simply calculate average current expenditures of schools or districts achieving a given set of standards. I do not discuss such studies herein because they fail to address additional costs of serving the special populations discussed in this article, and when successful schools studies do address such costs, they do so by either of the two methods discussed herein. Further, analysis of the expenditures of high performing schools or districts is, in fact, a simplified form of the statistical modeling approach discussed in this section, where the model includes only one dependent variable (expenditure) and one independent variable (performance).

Resource Cost Studies

The Resource Cost Model (RCM) is a method that has been used extensively for measuring the costs of educational services.⁴¹ In general, RCM is a method for measuring costs of services, existing or hypothetical, adequate or not. The RCM methodology typically involves three steps: (1) identifying and/or measuring the resources (people, space, and time) used in providing a particular set of services; (2) estimating resource prices and price variations from school-to-school or district-to-district; and (3) tabulating total costs of service delivery by totaling

the resource quantities (resource intensity) and the prices. Resource cost methods have been used for calculating the cost of providing adequate educational services since the early 1980s.⁴²

Two relatively new variants of RCM have been specifically tailored to measure the costs of an "adequate" education, a professional-judgment driven RCM and an evidence-based RCM. The difference between them lies in the strategy for identifying the resources required to provide an adequate education. In professional judgment studies, focus groups of educators and policymakers are typically convened to prescribe the "basket of educational goods and services" required for providing an adequate education. In evidence-based studies, resource needs for staffing and staff development are derived from "proven effective" Comprehensive School Reform (CSR) models like Robert Slavin's *Roots and Wings/Success for All*, that focus on improving educational outcomes in high poverty schools.⁴³ More recent evidence-based analyses have striven to integrate a variety of "proven effective" input strategies such as class size reduction, specific interventions for special student populations, and comprehensive school reform models, rather than relying on a single reform model.

Statistical Modeling Studies

Less common among recent analyses of educational adequacy are statistical methods that may be used either to estimate: (1) the quantities and qualities of educational resources associated with higher or improved educational outcomes; or (2) the costs associated with achieving a specific set of outcomes, in different school districts, serving different student populations. The first of these methods is known as the education production function, and the second of these methods is known as the education cost function. The two are highly interconnected and—like successful schools analyses—require policymakers to establish explicit, measurable outcome goals.

Education production function analysis can be used to determine which quantities and qualities of educational resources are most strongly, positively associated with a designated set of student outcomes. For example, is it better for a school to have more teachers or fewer teachers with stronger academic preparation at the same total cost to maximize some desired outcome? Further, education production function analysis can be used to determine whether different resource quantities and qualities are more or less effective in districts serving different types of students (economically disadvantaged, English language learners), or in different types of districts (large urban, small remote rural).

In cost function analysis, the goal is to estimate the cost of achieving a desired set of educational outcomes and further to estimate how those costs differ in districts with certain characteristics, serving students with certain characteristics. For example, achieving state average outcomes in a high poverty urban district may have quite different costs than achieving the same outcomes in an affluent suburban one. A cost function that has been estimated with existing data on district spending levels and outcomes, and including data on district and student characteristics, can be used for predicting the average cost of achieving a desired level of outcomes in a district of average characteristics serving a student population of average characteristics. Further, the cost function can be used to generate a cost index for each school district that indicates the relative cost of producing the desired outcomes in each school district. For example, it would likely be found that per pupil costs of achieving target outcomes are higher than average in small, rural school districts, that costs are higher in

school districts with high percentages of economically disadvantaged and limited English proficient children, and that costs are higher where competitive wages for teachers are higher.

The cost function is an extension of the production function where the goal is to estimate directly, in a single model, the costs of achieving desired outcomes, while with a production function, the goal is to identify those inputs that produce desirable outcomes, and subsequently estimate the cost of those inputs. To date, outcome measures used in cost function studies have been narrowly specified, including primarily measures of student achievement in core subject areas.

Reconciling the Various Approaches

In a perfect world, with perfect information regarding the relationship between resource mix and student outcomes (for guiding bottom-up analysis), perfect data on student outcomes, and perfect measures of district inefficiency (for guiding top-down analysis), resource cost and statistical cost function analysis would produce the same results. All distortions to or differences in cost estimates would be eliminated in each type of analysis.

Resulting distortions of resource-oriented versus performance-oriented analyses may be quite similar or quite different. Ideally, investigators using resource cost approaches for calculating the cost of adequacy would have perfect information regarding the lowest cost mix of resources that would lead to the desired educational outcomes for a given set of students under a given set of conditions. As noted, resource mix is most often arrived at not by estimating the relationship between resource mix and existing student outcomes, but either by the recommendations of expert panels (professional judgment), or by identifying specific educational reform models believed by researchers to be effective. To date, evidence on the effectiveness, and more specifically the cost-effectiveness of comprehensive school reforms that commonly guide such analyses remains questionable at best.⁴⁴

Where the prescribed resource mix is not the most efficient mix that could be purchased at a given total cost, resource cost analyses will lead to distortions in cost indices, and these distortions may or may not apply uniformly across districts of varied scale or of varied student populations. For example, resource intensity required to achieve specific outcomes in a certain type of district may be overstated by expert panels or prescribed models. It is safe to assume that most cost indices produced by resource cost analyses include at least some such distortion.

Similar problems exist in the estimation of statistical models of costs. Statistical models of costs rely on existing school district expenditure data and estimated relationships between expenditure data and current levels of student outcomes. Attempts are made to subtract inefficiencies from expenditure data; that is, it is possible that a district with a specific set of characteristics currently spends more than necessary to achieve its current level of outcomes. Further, it is possible that common patterns of inefficiency exist across all or similar sets of districts in a state. Where some or all of these inefficiencies go unmeasured, actual costs (assuming either average or maximum efficiency) of outcomes may be overstated for some or all districts.

Application Issues with At-Risk, LEP and Gifted Children

The two basic cost estimation methods may have very different implications and yield very different cost estimates for each population discussed in this article. In cost function analysis, it may be difficult to estimate statistically the costs of achieving a given outcome standard for a population of at-risk and/or LEP children who have never

approached that level of outcome in the past. Extrapolation of the cost function "beyond the sample" may yield exorbitant marginal costs for these populations. More palatable cost targets may be estimated via resource cost analysis where experts prescribe particular service delivery models assumed to be associated with desired outcomes. In reality, these service delivery models may be insufficient for achieving desired outcome levels and may be backed by questionable evidence and/or assumptions.

Baker and Friedman-Nimz address extensively the conundrum of accommodating gifted children in current standards-based cost frameworks.⁴⁵ In cost function analysis in particular, one might find negative estimates for the marginal costs of bringing gifted children to a standard they have already surpassed, implying a form of intellectual recapture. As discussed by Baker and Friedman-Nimz, the problem lies in our current approaches to standards and accountability which presently provide gifted children little opportunity to extend themselves beyond the minimum bar. Resource cost analysis provides a reasonable alternative for estimating the marginal costs of ensuring that adequate support services for accelerated and/or enriched learning exist for gifted children. This latter approach rests on the assumption that policymakers believe it important to extend learning opportunities beyond the minimum bar for a state's most capable students.

Compiling the Recent Evidence from the Adequacy Literature

In this section, I provide an abbreviated summary of the findings of Baker, Taylor and Vedlitz,⁴⁶ focusing specifically on the marginal costs associated with educating fringe populations. I begin with a brief primer on the expression of marginal costs in aid formulas and in different types of cost analyses. I include this primer both to promote the use of apples-to-apples comparisons of marginal costs, and to make clear when I am actually comparing apples with oranges.

Primer on the Expression of Marginal Costs

Marginal costs, as discussed herein are ratios of the additional cost of providing appropriate services or achieving desired outcomes with a specific population, with respect to the average student population. Marginal costs in state aid formulas are typically expressed as pupil weights, supplemental block grants per pupil in need, or additional resource reimbursement plans. In the case of pupil weights, those weights are most often expressed relative to a base state aid per pupil, or foundation aid level in the state school finance formula. Foundation aid levels are rarely representative of actual spending levels. For example, in 2003-2004, the Kansas base aid per pupil was \$3,863 but the average state and local annual general operating revenue per pupil was \$6,368 per pupil. These differences are important in gauging the true value of explicit weights in the aid formula and comparing those weights to adequacy estimates. A 10% weight for at-risk children in the Kansas aid formula yields \$386.30 per pupil, or about 6% of average general revenue (excluding special education).

Marginal costs can also be expressed in different ways in cost analyses. In most recent professional judgment studies, one can readily identify the basic costs of operating districts, though in most recent cases three to five alternate basic costs are applied for different size districts to capture economies of scale effects. Ultimately, the basic cost is the base cost estimate for the scale-efficient (usually the largest) district. Basic costs, in this case, refer to the costs of providing general education programs, or the cost of operating a district of a given size, assuming no children with special needs. Marginal

costs in professional judgment analyses are most often expressed with respect to these basic costs. As such, a marginal cost of 30% for at-risk children would mean that the cost of educating an at-risk child is 30% above the cost of providing a basic education program. This assumption is less true of evidence-based analyses which tend to structure general education programs around models intended for serving at-risk populations.

Assumptions are somewhat different in cost function analyses. Generally, marginal costs are expressed with respect to a district serving a student population of average characteristics. For example, it may be found that a district of average characteristics (average percent LEP,

average percent at-risk, average size, average competitive wage etc.) should be able to achieve state average outcomes with approximately \$6,000 per pupil. It may then be estimated that the average cost of achieving state average outcomes with an at-risk pupil is \$8,000, or 33% above the cost of average outcomes in the average district. The average district under these circumstances likely has at least some children with special needs making the comparison basis different from and arguably higher than the basic cost estimate in professional judgment studies. That said, I mix these apples and oranges in the remainder of this section.

Table 2
Marginal Costs of Student Needs from Recent Adequacy Studies

	<i>Method</i>	<i>Average</i>	<i>High</i>	<i>Low</i>
<i>Economic Disadvantage</i>				
Kansas	RCM	0.44	0.58	0.33
Montana	RCM	0.38	0.42	0.36
Colorado	RCM	0.48	0.61	0.37
Missouri	RCM	0.37	0.43	0.32
North Dakota	RCM	0.37	0.45	0.23
Nebraska	RCM	0.35	0.45	0.26
Kentucky	RCM	0.21 (1)	0.24	0.20
New York (2002)	ECF	1.14 (2)	1.34	0.98
Texas (2004)	ECF	0.32 (3)	0.36	0.27
Wisconsin	ECF	1.59		
Average				0.57
Average RCM				0.37
Average ECF				1.02
<i>Limited English Proficient</i>				
Kansas	RCM	0.61	1.03	0.21
Colorado	RCM	1.24	3.00	0.57
Missouri	RCM	0.47	1.17	-
North Dakota	RCM	0.56	1.01	-
Nebraska	RCM	1.48	1.91	0.97
Kentucky	RCM	0.21	0.24	0.20
New York (2002)	ECF	1.22 (2)	1.29	1.18
Texas (2004)	ECF	0.20 (3)	0.30	0.11
Average				0.75
Average RCM				0.76
Average ECF				0.71
<i>Gifted and Talented</i>				
Kentucky	RCM	0.02 (1)	0.02	0.01

(1) (\$817 marginal cost per all pupils/.528 average poverty share) / \$6,551 total base cost large.

(2) Based on estimates by district type (New York City, Other Large Cities, Downstate, Upstate).

(3) Gronberg et al., 51.

Marginal Cost Findings

Table 2 summarizes the marginal cost findings of ten separate state level analyses of the cost of providing an adequate education.⁴⁷ To the extent possible, estimates have been manipulated to be comparable. In all cases, marginal costs were estimated with respect to total district cost estimates. Recall, however, that total district basic costs differ conceptually between resource cost and cost function models. Average, high, and low estimates are provided in Table 2 to paint a realistic view of the range of estimates. Most variation between estimates from a given study results from differences in marginal costs over basic costs across districts of different size or geographic location; that is, the additional costs of serving the at-risk child in the small rural district are in most cases different from the additional costs of accommodating an at-risk child in the large poor urban district.

For economically disadvantaged or at-risk children, most marginal cost estimates land between 30% and 50% above basic or average costs. Thirteen of the 28 estimates in Table 2 lie between 35% and 45% above basic or average costs. Two education cost function studies, in New York and in Wisconsin, produce significantly higher marginal costs of achieving state average outcomes for at-risk children. In each case, the additional costs exceed 100% of the cost of achieving average outcomes with an average mix of students.

Marginal costs for limited English proficient children are generally less consistent across all studies, but the differences in estimates by methodology are smaller. On average, the marginal cost of achieving desired outcomes exceeds 70% for LEP children. Three of eight average marginal cost estimates exceed 100% additional costs, and six of eight exceed 40%.

Marginal costs for gifted children were estimated in only one study and appear relatively low as compared with current spending practices in Ohio as analyzed by Chambers⁴⁸ or compared to Baker and Friedman-Nimz estimates of marginal costs.⁴⁹ Baker and Friedman-Nimz estimated the costs of providing one qualified specialist per 300 total enrolled pupils and compared that cost to average current expenditures per pupil. Versteegen assigned a somewhat higher case load for gifted education specialists.⁵⁰ Interestingly, Versteegen's dollar figure of \$15 per all enrolled pupils is still higher than other studies that have recommended allocations for gifted education. The 1997 Wyoming adequacy study performed by Management, Analysis and Planning, Inc. (MAP), concluded that proposed small class sizes in the general formula, coupled with a supplemental flat grant of \$9 per Average Daily Attendance (ADA) would be sufficient to promote schoolwide talent development.⁵¹ No cost justification was provided for the \$9 figure although it was accepted by the Wyoming Supreme Court as rational in the absence of contradictory evidence.⁵²

Dissecting the Relative Adequacy of Current Policies: The Example of LEP Children

In this section, I present a detailed analysis of the relative adequacy of current funding compared with cost estimates for limited English proficient children in five states – Kansas, Colorado, Missouri, North Dakota and Nebraska. I focus on opportunities for limited English proficient children, rather than at-risk or gifted children for a variety of reasons. Most notably, while there is ambiguity in the identification of each student population and their educational needs, gaining consensus on LEP children, who they are and what they need, is perhaps least problematic of the three. Second, unlike gifted children, census data can be used to estimate prevalence of limited English

proficiency.⁵³ Third, as discussed by Baker⁵⁴ and more thoroughly by Baker, Green, and Markham,⁵⁵ LEP children may have more diverse and potentially more viable legal options in both federal and state courts for challenging the relative adequacy of state funding. Finally, despite the greater clarity of educational need and rapidly increasing prevalence of children facing language barriers to learning, fewer states provide supplemental resources for LEP children than for either at-risk or gifted children.

Table 3 summarizes the school level staffing proposals for serving LEP children from professional judgment driven resource cost analyses. Table 3 is provided to add some insight into the underlying resource configurations that led to the marginal costs presented in Table 2. Table 3 includes only estimates for scale-efficient – large – districts. Table 3 indicates that regardless of state context, panels of education experts working with consultants on behalf of both legislatures (Kansas, North Dakota) or special interests (Colorado, Missouri, Nebraska) consistently indicated that elementary and secondary level LEP children required additional personnel at rates of approximately 20 LEP children per full time teacher with one or more instructional aides per teacher. These staffing requirements led to per LEP pupil additional (above regular program) costs of \$2,403 to \$3,822 per pupil at the elementary level and \$2,851 to \$4,937 per pupil at the secondary level.

Table 4 includes consultants' estimates of adequate basic aid per pupil and consultants' estimates of the adequate adjustment per LEP child (including non-personnel costs). Note that adequacy for LEP children is achieved by the combination of general and supplemental funding. Like Table 3, Table 4 includes cost estimates for scale-efficient districts. In Kansas, a district serving 11,200 pupils was estimated to have basic costs per pupil in 2001 of \$5,811. The adequate LEP adjustment for a district of that size was estimated at \$5,993 for a total allocation per LEP child of \$11,804 (assuming that child is not also from an economically disadvantaged background). In contrast, in 2001 the basic allotment in large Kansas districts was \$3,955, and the LEP/Bilingual Education Adjustment was \$744 for a cumulative basic allocation of \$4,699, less than half that deemed adequate by the legislature's own consultants. The case is similar for the other states in Table 4, with only Nebraska exceeding 50% of adequacy for LEP children in its basic formula allotment, due both to Nebraska's higher general aid and larger LEP supplement.

The basic formula allotment comparisons to adequacy estimates in the upper portion of Table 4 likely underestimate the actual resources available in local school districts for LEP children. However, basic formula allotments do represent that amount of funding guaranteed by the state to be available. Arguably, the basic aid formula alone should ensure adequate funding.

The lower sections of Table 4 compare actual current expenditures per pupil to adequacy targets rather than comparing the minimum amount guaranteed by aid formulas. Note that current expenditure data include expenditure of federal funds as well as expenditures on children with disabilities. A debatable point is whether state legislatures alone are responsible for ensuring adequate funding regardless of federal effort, or whether federal funds may be combined with state and local funds to achieve state defined adequacy targets. Because adequacy estimates for large, scale-efficient districts are used in Table 4, average current expenditures per pupil are calculated for only large districts (enrolling > 2,000 pupils).⁵⁶ Current expenditures are reported for the average large district and for the average of large districts in the top 10% of districts by LEP student concentration. In Kansas, Nebraska,

Table 3
School Level Cost Estimates for LEP Children

	<i>Kansas</i>	<i>Colorado</i>	<i>Missouri</i>	<i>North Dakota</i>	<i>Nebraska</i>
Elementary					
Students	430	400	450	322	350
ELCB Students	17	44	4	3	18
Teachers	1	2	0.20	0.30	1
Salary	\$37,183	\$39,183	\$40,046	\$43,572	\$35,695
Cost	\$44,620	\$94,039	\$9,611	\$15,686	\$42,834
Aides	1	4	-		1
Salary	\$16,960	\$13,086	\$13,433		\$17,848
Cost	\$20,352	\$62,813	-	-	\$21,418
Cost Per Pupil	\$3,822	\$3,565	\$2,403	\$5,229	\$3,570
Middle					
Students	430	400	506		680
ELCB Students	17	44	5		34
Teachers	1	2	0.20		2
Salary	\$37,183	\$39,183	\$40,046		\$35,695
Cost	\$44,620	\$94,039	\$9,611		\$85,668
Aides	3	2	-		2
Salary	\$16,960	\$13,086	\$13,433		\$17,848
Cost	\$61,056	\$31,406	-		\$42,835
Cost per Pupil	\$6,216	\$2,851	\$1,922		\$3,780
Secondary					
Students	1,150	800	1,348	276	1,900
ELCB Students	46	88	13	3	95
Teachers	2	4	1	0.30	5
Salary	\$37,183	\$39,183	\$40,046	\$43,572	\$35,695
Cost	\$89,239	\$188,078	\$48,055	\$15,686	\$214,170
Aides	4	4	1		5
Salary	\$16,960	\$13,086	\$13,433		\$17,848
Cost	\$81,408	\$62,813	\$16,120	-	\$107,088
Cost per Pupil	\$3,710	\$2,851	\$4,937	\$5,229	\$3,382

and North Dakota (1 district), large districts with high LEP populations spent less per pupil than large districts on average. Large districts with high LEP concentrations also tended to have higher poverty rates than low LEP concentration districts.

Adequacy estimates at the bottom of the table are based on calculated adequate base aid, estimated adequate poverty weights, LEP weights, and poverty and LEP shares. For example, the figure of \$7,010 per pupil for a high concentration LEP Kansas district includes a base aid of \$5,811, poverty supplement of 15.7% times the estimated poverty weight of .44 times the base (\$5,811) and LEP supplement of 13.3% times the LEP weight of 1.03 times the base. Note that U.S. Census Bureau data are used for poverty estimates, resulting in significant underestimation of poverty, hence conservative estimates of the cost

of adequacy in high LEP districts. Even with conservative estimates, high LEP concentration districts fall consistently short of adequate funds across the states under investigation, and minimum spending high concentration LEP district in each state falls substantially below adequate levels.

Conclusions and Policy Implications

Findings of numerous recent studies produce a compelling argument that the costs of providing appropriate services for at-risk children are likely between 35% and 45% above average or basic costs and that the costs of achieving desired outcomes with at-risk children may approach or even exceed 100%. These findings are significantly different from standard recommendations and frequently used analytical weights

Table 4
Relative Adequacy Comparisons for LEP Children

	Kansas (a)	Colorado	Missouri (b)	North Dakota	Nebraska
Basic Adequacy Estimates					
"Adequate" Basic Aid	\$5,811	\$6,815	\$7,832	\$6,005	\$5,845
"Adequate" LEP Adjustment	\$5,993	\$4,837	\$4,746	\$6,046	\$5,682
Adequacy for LEP Child	\$11,804	\$11,652	\$12,578	\$12,051	\$11,527
Revenue Guaranteed by Aid Formula					
Minimum Guaranteed Foundation	\$4,107	\$4,202	\$4,043	\$2,287	\$4,814
LEP Adjustment in Aid Formula	\$744	\$400	-	\$300	\$1,204
Base Revenue per LEP Child	\$4,851	\$4,602	\$4,043	\$2,587	\$6,018
Percent Adequate	41%	39%	32%	21%	52%
Current Expenditures (Average District) (c)					
Mean Current Expenditures per Pupil	\$6,501	\$6,435	\$6,570	\$5,839	\$6,371
Mean % LEP	4.9%	10.1%	1.2%	0.0%	5.9%
Mean % Poverty	11.1%	10.2%	13.8%	10.3%	11.4%
Current Expenditures (High % ELCB District) (c)					
Mean Current Expenditures in Top 10% LEP	\$6,390	\$6,733	\$8,286	\$4,929	\$5,614
Minimum Current Expenditures in Top 10% LEP	\$5,112	\$5,912	\$4,571	\$4,929	\$5,314
Mean % LEP in Top 10% LEP Districts	13.3%	25.8%	4.7%	1.6% (d)	25.3%
Mean % Poverty in Top 10% LEP Districts (e)	15.7%	18.4%	30.3%	11.2%	16.7%
Adequacy Comparisons					
Computed "Adequate" Revenue per Pupil	\$7,010	\$8,507	\$8,783	\$6,365	\$7,688
Mean as % of Adequate	91%	79%	94%	77%	73%
Minimum as % of Adequate	73%	69%	52%	77%	69%

(a) Kansas Minimum Foundation = $1.0632 \times \$3,720 = 3,955$ (2001).

(b) Missouri Minimum Foundation = $.0275 \times 147,022 = 4,043$ (2003). Actual amount was reduced due to the budget shortfall.

(c) Districts enrolling greater than 2,000 pupils.

(d) North Dakota districts did not report LEP/ELCB counts in the NCES/LEAU. U.S. Census data used as proxy.

(e) Source: U.S. Census Bureau data. 5%–17%.

of 20% above average costs. In fact, only one resource cost study produced a weight nearly this small. Similarly, findings of numerous recent studies suggest that the relative costs of service delivery for limited English proficient children probably lie somewhere between 40% and 100% above basic or average costs. In the case of LEP children, resource cost estimates and cost function estimates fall closer to the same range. Again, these estimates differ markedly from both commonly referenced weights of 20% or prior research.⁵⁷

The case for supplemental funding for gifted children remains more complicated. Resource cost analysis suggest marginal costs on the order of 30% to 50%; yet cost functions based on standard levels of outcomes would still imply negative marginal costs for many gifted children. Clearly the adequate provision of differentiated curricular opportunities to gifted children is contingent on access to appropriately trained teachers, whether those teachers are purchased with sufficient general funding or supplemental aid for gifted education.

These new findings and evolving methods may inform education finance policy analysis and design in a number of ways. First, more

consistent empirical evidence regarding the costs of serving specific student populations may directly or indirectly inform the design of state school finance systems. Findings from recent analyses may be incorporated directly into state aid formulas as pupil need adjustments or may serve as benchmarks for evaluating current school finance systems and guiding reforms. States, including Texas, are currently leading the way to new frontiers of empirically-guided policy, considering the use of econometric models as a basis for benchmarking the balance of future school finance policy.⁵⁸ Second, new evidence regarding costs associated with specific student needs may aid education policy researchers in making more appropriate cost-adjusted comparisons of district, school, and child level resources. Much has been made over the past several years regarding the need for such cost-adjusted comparisons.⁵⁹

It remains difficult for policymakers to accept the consistencies in recent empirical evidence when policy analysts and researchers continue to vary so much in their interpretations and use of the evidence. Most researchers and the education media continue to rely

on arbitrary cost adjustments for measuring the relative adequacy of financial resources across districts and across states,⁶⁰ the most problematic case being the widely read and cited *Education Week, Quality Counts* report which annually compares the relative adequacy of funding from state to state using a mix of inaccurate and arbitrary cost adjustments resulting in erroneous rankings.⁶¹ Recent research by Duncombe and Johnston uses education cost function analysis to generate cost indices for adjusting resource levels of Kansas school districts and then applies conventional equity statistics.⁶² In doing so, they find that little changed in cost-adjusted resource distribution following what were reported to be major structural changes to the state's aid formula in the early 1990s. In contrast, in testimony in defense of the state of Kansas, Picus used pupil weights directly from the Kansas state aid formula to adjust for cost, finding the system to be highly equitable.⁶³ A district court judge rejected Picus' analyses on the basis that the weights underlying the analysis had little or nothing to do with costs.⁶⁴ Until policy researchers are willing to accept new, more rigorous standards for evaluating and adjusting the costs of serving specific student populations, we can expect to have limited positive influence on policymakers.

There remains much scrutiny over the reliability of current methods for estimating either the absolute or relative costs of education. Doubt over the reliability of emerging methods and resulting estimates is often used by state legislatures to defend the status quo either in the context of political deliberation or the context of school finance litigation. The relevant policy question herein is not whether the current state of the art for measuring educational adequacy has been perfected such that identical results can be produced in every case regardless of methodology, but whether findings of recent studies applying various methods are more consistent and more empirically sound than existing state policies and/or "standards of practice" frequently cited by consultants and policymakers in the absence of empirical evidence.

Endnotes

¹ Jay. G. Chambers, "Patterns of Expenditures on Students with Disabilities: A Methodological and Empirical Analysis," in *Funding Special Education*, Nineteenth Annual Yearbook of the American Education Finance Association, ed. Thomas. B. Parrish, Jay G. Chambers, and Cassandra M. Guarino (Thousand Oaks, California: Corwin Press, 1999), 89-123; Thomas. B. Parrish and Jane Wolman, "Trends and New Developments in Special Education Funding: What the States Report," in Parrish et al., 203-229.

² Bruce D. Baker, "Living on the Edges of School Funding Policy: The Plight of At-Risk, Limited English Proficient and Gifted Children," *Educational Policy* 15 (November 2001): 699-723.

³ In some states, funding for gifted and talented children is governed under special education program funding rather than as an add-on to general funds.

⁴ Bruce D. Baker and William Duncombe, "Balancing District Needs and Student Needs: The Role of Economies of Scale Adjustments and Pupil Need Weights in School Finance Formulas," *Journal of Education Finance* 29 (Winter 2004): 195-222; Christopher Adolph, *How Parties Distribute School Finance by Income and Race* (Cambridge, Massachusetts: Kennedy School of Government, Harvard University, 2002); Thomas. B. Timar, "Politics, Policy, and Categorical Aid: New Inequities in California School Finance," *Educational Evaluation and Policy Analysis* 16 (Summer 1994): 143-160; David L. Colton, "The Weighting Game: Two Decades of Fiscal Neutrality in New Mexico," *Journal of Education Finance* 22 (Winter 1996): 28-59; Stanley Pogrow and Swift Douglas, "New Mexico School Finance Revisited: The Politics of Revising a Weighted-Pupil Formula," *Journal of Education Finance* 5 (Summer 1977): 114-123.

⁵ Note that while Guthrie and Smith (1998) provided a supplement to the original MAP report focused specifically on "disadvantaged, limited English proficient, gifted" students, the supplement falls well short of providing a well defined, empirically based framework for serving fringe populations. On Feb. 23, 2001, the Wyoming State Supreme Court (*Wyoming v. Campbell*, No. 00-120 (Wyo. 2001), at 79) concurred that the proposed program for limited English proficient was insufficient and that the proposed program for gifted education, while sufficient, was not empirically based (*Wyoming v. Campbell*, at. 84).

⁶ Baker, "Living on the Edges of School Funding Policy."

⁷ Thomas B. Parrish, Christine S. Matsumoto, and William J. Fowler, Jr., *Disparities in Public School District Spending 1989-90: A Multivariate, Student-weighted Analysis, Adjusted for Differences in Geographic Cost of Living and Student Need* (Washington, D.C.: National Center for Education Statistics, 1995) NCES 95-300R.

⁸ Bruce D. Baker and Paul Markham, "State School Funding Policies and Limited English Proficient Children," *Bilingual Research Journal* 26 (Fall 2002): 659-680.

⁹ Bruce D. Baker, Lori Taylor and Arnold Vedlitz, *Measuring Educational Adequacy in Public School* (Austin, Texas: Texas Joint Select Committee on Public School Finance, 2004), <http://www.capitol.state.tx.us/psf/Reports/Measuring%20Educational%20Adequacy.pdf>.

- ¹⁰ Deborah A. Verstegen, "Calculation of the Cost of an Adequate Education in Kentucky: A Professional Judgment Approach," *Education Policy Analysis Archives*, 12 no. 8 (2004), <http://lepaa.asu.edu/epaa/v12n8/>; Deborah A. Verstegen, *Calculating the Cost of an Adequate Education in Kentucky*, a paper prepared for the Council for Better Education (2003).
- ¹¹ Bruce D. Baker and Reva C. Friedman-Nimz, "State Policy Influences Governing Equal Opportunity: The Example of Gifted Education," *Educational Evaluation and Policy Analysis*, (in press); Bruce D. Baker and Reva C. Friedman-Nimz, "Gifted Children, Vertical Equity and State School Finance Policies and Practices," *Journal of Education Finance* 28 (Spring 2003): 523-556; Bruce D. Baker and Reva C. Friedman-Nimz, "Determinants of the Availability of Opportunities for Gifted Children: Evidence from NELS '88", *Leadership and Policy in Schools* 1 no. 1(2002): 52-71; Bruce D. Baker and Jay McIntire, "Evaluating State School Funding for Gifted Education Programs," *Roeper Review* 26 (Summer 2003): 173-179; Bruce D. Baker, "Gifted Children in the Current Policy and Fiscal Context of Public Education: A National Snapshot and Case Analysis of the State of Texas," *Educational Evaluation and Policy Analysis* 23 (Fall 2001): 229-250; Bruce D. Baker, "Measuring the Outcomes of State Policies for Gifted Education: An Equity Analysis of Texas School Districts," *Gifted Child Quarterly* 45 (Winter 2001): 4-15.
- ¹² Parrish et al., *Disparities in Public School District Spending 1989-90*; Thomas B. Parrish and Christine S. Hikido, *Inequalities in Public School District Revenues* (Washington, D.C.: National Center for Education Statistics, 1998), NCES 98-210.
- ¹³ Helen F. Ladd and Janet Hansen, ed. *Making Money Matter: Financing America's Schools* (Washington, D.C.: National Academy Press, 1999), 127.
- ¹⁴ Goertz in Allan R. Odden and Lawrence O. Picus, *School Finance: A Policy Perspective*, 2d ed. (New York: McGraw-Hill, 2000), 212.
- ¹⁵ Odden and Picus, 213.
- ¹⁶ Jennifer King, "Meeting the Educational Needs of At Risk Students: A Cost Analysis of Three Models," *Educational Evaluation and Policy Analysis* 16 (Spring 1994): 1-19.
- ¹⁷ Odden and Picus, 200.
- ¹⁸ Excluding those states identifying the funding as serving "reading programs" (California), "learning assistance" (Washington), "reading improvement" (Illinois) or others generally classified as "compensatory."
- ¹⁹ Odden and Picus, 215-217.
- ²⁰ Parrish and Hikido, *Inequalities in Public School District Revenues*.
- ²¹ Baker and Duncombe, "Balancing District Needs and Student Needs."
- ²² Kevin Carey, *State Poverty-Based Education Funding: A Survey of Current Programs and Options for Improvement* (Washington, D.C.: Center on Budget and Policy Priorities, 2002).
- ²³ Baker and Duncombe, "Balancing District Needs and Student Needs."
- ²⁴ Carpenter-Huffman and Samulon (1981) and Gonzalez (1996) in Odden and Picus, 214.
- ²⁵ Thomas B. Parrish, "A Cost Analysis of Alternative Instructional Models for Limited English Proficient Students in California," *Journal of Education Finance* 19 (Winter 1994): 256-278.
- ²⁶ Parrish and Hikido, *Inequalities in Public School District Revenues*.
- ²⁷ Catherine C. Sielke, John Dayton, C. Thomas Holmes, and Anne L. Jefferson, ed., *Public School Finance Programs of the United States and Canada: 1998-99* (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 2001), NCES 2001-309.
- ²⁸ Baker and Markham, "State School Funding Policies and Limited English Proficient Children."
- ²⁹ Parrish and Hikido, *Inequalities in Public School District Revenues*.
- ³⁰ *Ibid.*, 75.
- ³¹ Baker and Markham, "State School Funding Policies and Limited English Proficient Children."
- ³² U.S. Bureau of the Census, *Public Elementary-Secondary Education Finance Data*, <http://www.census.gov/govs/www/school.html>
- ³³ Baker and Friedman-Nimz, "Gifted Children, Vertical Equity, and State School Finance Policies and Practices."
- ³⁴ Chambers, "Patterns of Expenditures on Students with Disabilities."
- ³⁵ *Ibid.*, 108.
- ³⁶ Based on pupil-weighted average of current expenditures less state aid allocation for special education using U.S. Census fiscal survey of local governments (1996).
- ³⁷ Kristen R Stephens and Francis A Karnes, "State Definitions for the Gifted and Talented revisited," *Exceptional Children* 66 (Winter 2000): 219-238.
- ³⁸ Includes only those states with legislative mandates and not administrative rules or department of education guidelines.
- ³⁹ Council of State Directors of Programs for the Gifted and Talented, *State of the States Gifted and Talented Report* (1996).
- ⁴⁰ Baker and Friedman-Nimz, "Gifted Children, Vertical Equity and State School Finance Policies and Practices,"; Baker and McIntire, "Evaluating State School Funding for Gifted Education Programs."
- ⁴¹ Chambers, "Patterns of Expenditures on Students with Disabilities"; William Hartman, Denny Bolton, and David Monk, "A Synthesis of Two Approaches to School-Level Financial Data: The Accounting and Resource Cost Model Approaches," in *Selected Papers in School Finance, 2000-01*, ed. William J. Fowler (Washington, D.C.: U.S. Dept. of Education, 2001).
- ⁴² Jay G. Chambers and Thomas B. Parrish, *The Development of a Resource Cost Model Funding Base for Education Finance in Illinois*, Report prepared for the Illinois State Board of Education (Palo Alto, California: Associates for Education Finance and Planning, Inc., 1982); Jay G. Chambers, *The Development of a Program Cost Model and Cost-of-Education Model for the State of Alaska. Volume II - Technical Report* (Palo Alto, California: Associates for Education Finance and Planning, Inc., 1984).

⁴³ Allan R. Odden, "Costs of Sustaining Educational Change Via Comprehensive School Reform," *Phi Delta Kappan* 81 (February 2000): 433-438.

⁴⁴ Henry M. Levin, *The Cost-Effectiveness of Whole School Reforms*. Urban Diversity Series No. 114 (New York: Institute for Urban and Minority Education, Eric Clearinghouse on Urban Education, 2002), ED465851.

⁴⁵ Baker and Friedman-Nimz, "Gifted Children, Vertical Equity and State School Finance Policies and Practices."

⁴⁶ Baker et al., *Measuring Educational Adequacy in Public School*.

⁴⁷ Tables 2, 3, and 4 draw upon the following studies: John Augenblick and John Myers, "Calculating the Cost of an Adequate Education in Colorado Using the Professional Judgment and Successful School Districts Approaches," a report submitted to Colorado School Finance Project (Denver, Colorado: 2003); John Augenblick, John Myers, John Silverstein, and Anne Barkis, "Calculation of the Cost of an Adequate Education in Kansas in 2000-2001 Using Two Different Analytic Approaches," a report submitted to the Legislative Coordinating Council, State of Kansas (Denver, Colorado: 2001); John Augenblick and John Myers, "Calculation of the Cost of an Adequate Education in Missouri Using the Professional Judgment and the Successful School Districts Approaches," a report submitted to the Missouri Education Coalition for Adequacy (Denver, Colorado: 2003); John Augenblick and John Myers, "Calculation of the Cost of an Adequate Education in Nebraska in 2002-2003 Using the Professional Judgment Approach," a report submitted to Nebraska State Education Association, Greater Nebraska Schools Association, Lincoln Public Schools, Nebraska Association of School Boards, Nebraska Coalition for Educational Equity and Adequacy, Nebraska Council of School Administrators, Nebraska Rural Communities Association, Omaha Public Schools, and Westside Community Schools (Denver, Colorado: 2003); Augenblick, Palaich and Associates, "Calculation of the Cost of an Adequate Education in North Dakota in 2002-2003 Using the Professional Judgment Approach," a report submitted to the North Dakota Department of Public Instruction (Denver, Colorado: 2003); John Myers and Justin Silverstein, "Calculation of the Cost of an Adequate Education in Montana in 2001-2002 Using the Professional Judgment Approach," submitted to Montana School Boards Association, Montana Quality Education Coalition, Montana Rural Education Association, Montana Association of School Business Officials, Montana Association of County School Superintendents (Denver, Colorado: 2003); Andrew Reschovsky and Jennifer Imazeki, "The Development of School Finance Formulas to Guarantee the Provision of Adequate Education to Low-Income Students," in *Developments in School Finance*, 1997, ed. William J. Fowler, Jr. (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 1998), NCES 98-212; William D. Duncombe, Anna Lukemeyer, and John Yinger, "Financing an Adequate Education: A Case Study of New York," in *Developments in School Finance: 2001-2002*, Fiscal Proceedings from the Annual State Data Conferences of July 2001 and July 2002, ed. William F. Fowler, Jr. (Washington, D.C.: U.S. Department of Education, U.S. Department of Education, National Center for Education Statistics, 2003) 127-54; Timothy Gronberg, Dennis Jansen, Lori Taylor, and Kevin Booker, "School Outcomes and School Costs: The Cost Function Approach," (Austin, Texas: Texas Joint Select Committee on Public

School Finance, 2004) <http://www.capitol.state.tx.us/psf/Reports/school%20outcomes%20and%20school%20costs.doc2.pdf>.

⁴⁸ Chambers, "Patterns of Expenditures on Students with Disabilities"; or Jay. G. Chambers, "Measuring Resources in Education: From Accounting to the Resource Cost Model Approach," Working Paper Series #1999-16 (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, Office of Educational Research and Improvement, 1999).

⁴⁹ Baker and Friedman-Nimz, "Gifted Children, Vertical Equity, and State School Finance Policies and Practices."

⁵⁰ Deborah A. Versteegen, "Calculation of the Cost of an Adequate Education in Kentucky."

⁵¹ James Guthrie and James R. Smith, *Wyoming Education Finance Issues: Programs for Students with Special Needs (Disadvantaged, Limited English Proficient, Gifted)* (Davis, California: Management Analysis and Planning, Inc., 1998).

⁵² *Wyoming v. Campbell*, No. 00-120 (Wyo. 2001), at 84.

⁵³ Baker (2001) and Parrish and Hikido (1998) all use school district special tabulations of the U.S. Census Bureau variable indicating the percent of children between 5 and 17 who speak English "not well" or "not at all." Further, since 1998, the National Center for Education Statistics Common Core of Data – Local Education Agency Universe Survey has included district-reported counts of identified LEP pupils.

⁵⁴ Baker, "Living on the Edges of School Funding Policy"; or Baker, "Gifted Children in the Current Policy and Fiscal Context of Public Education"; or Baker, "Measuring the Outcomes of State Policies for Gifted Education."

⁵⁵ Bruce D. Baker, Preston C. Green and Paul Markham, "Legal and Empirical Analysis of State Financing of Programs for Children with English Language Communication Barriers," a paper presented at the Annual Meeting of the National Association for Bilingual Education, Albuquerque, New Mexico, 2004.

⁵⁶ See Matthew Andrews, William Duncombe, and John Yinger, "Revisiting Economies of Size in American Education: Are We Any Closer to Consensus?" *Economics of Education Review* 21 (June 2002): 245. The lower threshold was identified by Andrews et al. as the point at which district level costs begin to level off.

⁵⁷ Thomas B. Parrish, "A Cost Analysis of Alternative Instructional Models for Limited English Proficient Students in California," *Journal of Education Finance* 19 (Winter 1994): 256-278.

⁵⁸ In April 2004, the Texas House of Representatives introduced a school finance plan consisting of a series of need based block grants that would be guided by Education Cost Function analysis presented to the Texas Joint Select Committee on Public School Finance. A presentation on the "Cost Guided" aid formula can be seen at: <http://www.house.state.tx.us/fx/av/committee78/40424a49.ram> (3:10 time mark). Details of the plan are described in HB 1 of the special session on school finance of the 78th Texas Legislature.

⁵⁹ William Fowler and David H. Monk, *A Primer for Making Cost Adjustments in Education* (Washington, D.C.: U.S. Department of Education, 2001), <http://nces.ed.gov/pubs2001/2001323.pdf>; Parrish et al., *Disparities in Public School District Spending 1989-90*.

⁶⁰ Ross Rubenstein, "National Evidence on Racial Disparities in School Finance Adequacy," in *Developments in School Finance, 2001-02*, ed., William J. Fowler (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 2003), 91-110.

⁶¹ See, for example: <http://www.edweek.org/sreports/qc04/reports/resources-t1b.cfm>. *Education Week* in making their resource adequacy comparisons from state to state adjust for the cost of serving at-risk children using the arbitrary weight of 1.2 and for children with disabilities using a moderately supportable weight of 1.9. The authors do not adjust at all for prevalence of LEP children. A dated (1993 - 94) and problematic index is used to adjust for regional price differences, and no index is used to adjust for differences in costs associated with scale and/or sparsity, perhaps the largest factor influencing costs in many states. See Baker and Duncombe (2004). The result of using arbitrary adjustments in some cases, dated adjustments in others, and no adjustments in others is that the state-by-state rankings and comparisons presented in *Quality Counts*, reported by local news organizations and cited by state departments of education, are erroneous and misleading.

⁶² William Duncombe and Jocelyn Johnston, "Is Something Better than Nothing? An Assessment of School Finance Reform in Kansas," a paper presented to the Conference on State Aid to Education. Maxwell School of Citizenship and Public Affairs, Syracuse University, 2002. <http://www-cpr.maxwell.syr.edu/efap/upcoming%20events/Duncombe%20draft%20paper.pdf>.

⁶³ *Montoy v. State*, No. 99-C-1738 (Shawnee County, Nov. 21, 2001)

⁶⁴ In *Montoy v. Kansas*, Judge Terry Bullock, regarding the weighted equity analysis of Dr. Lawrence O. Picus, noted that "Dr. Picus testified he believes Kansas has a 'substantial amount' of school equity, but in so opining he also testified that he assumed the Kansas system of weighting was based on actual costs to educate, which it is not." §80

Toward a New Adequacy in Public School Finance: Analytical and Political Issues

Michael F. Addonizio

Efforts to improve the fairness and quality of our public education system through school finance reform date back to the dawn of the twentieth century with the work of Cubberly and others.¹ These efforts, carried out in universities, state legislatures, and the courts, have focused on the concepts of equity, adequacy, and educational need. Litigation over these issues dates back more than forty years, beginning with the *McInnis and Burruss* cases in Illinois and Virginia, respectively.² These cases, which challenged the constitutionality of differences in school district expenditures across each state, were prompted by the increasing use of the federal equal protection clause to enforce rights for individuals who had been subject to discrimination.³ However, in addition to the claim that education is a fundamental right, plaintiffs argued that differences in per pupil spending had to be related to “educational need” and not to educationally irrelevant factors such as local taxable wealth. During the late 1960s, however, educators had no widely accepted definition of “educational need,” let alone any means to measure it. Consequently, in both cases the court ruled that the suits were non-justiciable because the court lacked a standard by which to assess plaintiffs’ claims.

In the wake of *McInnis and Burruss*, advocates for more equal school funding sought a legal theory that not only was grounded in equal protection doctrine but also provided the court with a standard with which to determine whether the school finance system met equal protection requirements. Such a standard was provided in the landmark case of *Serrano v. Priest*, when plaintiffs focused attention on the basic unfairness of spending disparities arising from differences in local school district wealth.⁴ Although the U.S. Supreme Court closed the door to school finance reform in federal court in *San Antonio School District v. Rodriguez*,⁵ numerous lawsuits in state courts followed in *Serrano*’s wake. These challenges generally rested upon the principle of fiscal neutrality. This principle, crafted by Northwestern University law professor John Coons and two law students, William Clune and Stephen Sugarman,⁶ and invoked by the California Supreme Court in *Serrano*, holds that the resources available for a child’s education should depend not on the wealth of the child’s local community but on the wealth of the state as a whole. Thus, a fiscally neutral finance system displays no systematic relationship between per pupil spending and local property wealth. Such a system is usually pursued through a guaranteed tax base (GTB) or district power equalizing (DPE) formula.⁷

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These formulas, however, began to lose their appeal for policymakers by the mid-1980s. Not only are they unlikely to equalize spending levels across local communities, they will not in theory sever the relationship between local wealth and per pupil spending.⁸ Local voters make decisions about school spending on the basis of local tax price, income, and taste preferences. To the extent these determinants are correlated with wealth, local spending will vary with wealth, regardless of a GTB or DPE aid formula.⁹ Further, school district spending levels may be both fiscally neutral and horizontally equitable and yet be insufficient in the eyes of parents, educators, and policymakers. In order to reduce uncertainty about local support for public schools, many states adopted foundation formulas to assure a minimum level of per pupil revenue in every local district. By 1998-99, 44 states had a foundation program or foundation component to their school aid program.¹⁰

Nevertheless, despite the judicial activism and finance reforms of the post-*Serrano* era, spending disparities across local districts did not change much in the 1980s and 1990s.¹¹ More significantly, the finance reforms of the last three decades, with their emphasis on the fiscal capacity of local districts, do not appear to have seriously addressed the fundamental matter of student achievement; that is, systems of school finance should help foster high levels of learning for all students, regardless of their background or degree of socioeconomic disadvantage. Levels of achievement remain distressingly low in many poor inner city schools, particularly among African-American, Hispanic, and Native-American children.¹² Accordingly, finance reform advocates sought to move the focus of reform from the wealth-spending nexus to the linkage of finance to student achievement.¹³

This new concept of educational adequacy received its first dramatic judicial expression in *Rose v. Council for Better Education*.¹⁴ The Kentucky Supreme Court ruled that the state’s constitution required the state to provide all students with equal access to educational opportunities and ordered a complete overhaul of the state’s educational system.¹⁵ This concept of adequacy, which seeks to link school finance explicitly to the quality of educational resources provided to children, has been applied by a number of state courts since *Rose*.¹⁶ In all, courts in at least 10 states have declared state school financing systems unconstitutional because they have failed to provide all students with, in the words of the courts, an adequate education.¹⁷

Education Goals and School Accountability

In 1989, the year in which the Kentucky Supreme Court handed down the landmark decision in *Rose*, President George H.W. Bush convened the first-ever education summit in Charlottesville, Virginia, with the governors of the states and territories. At this unprecedented summit, political leaders at the federal and state levels agreed to establish national education goals for America’s public schools. This national focus on educational goals culminated in the 1994 passage by the U.S. Congress of legislation declaring that “all students can learn and achieve to high standards and must realize their potential if the United States is to prosper.”¹⁸

The 1994 reauthorization of the Elementary and Secondary Education Act of 1965 established “adequate yearly progress” as the accountability measure for Title I schools and districts. Each state was required to develop its own formula based on state assessments in at least reading and mathematics. States varied considerably in their approaches to adequate yearly progress, with the result that Title I schools and districts were held to different standards across the states. The 2001 reauthorization of Title I, the No Child Left Behind (NCLB) Act, sought

to bring more uniformity to the states' adequate yearly progress requirements.¹⁹ This legislation also substantially changed how adequate yearly progress results are used, focusing on low-performing Title I schools and establishing a set of reforms and sanctions for schools and districts that fail to achieve adequate yearly progress results.

In response to these federal mandates, the states have adopted or refined outcome goals for schools and students and placed new emphasis on school accountability for student achievement. By 2000, forty-eight states had implemented standardized testing, including tests in mathematics and English or reading, as an integral part of statewide school accountability programs.²⁰ The other two states – Iowa and Nebraska – required their districts to test students in specified grades or grade spans. Other elements of this educational reform movement include standards for student and school performance, teacher competency testing, and school accreditation programs. This school accountability movement, of course, has been given greater urgency by the requirements and sanctions imposed by NCLB on schools and districts that fail to meet adequate yearly progress requirements.

Money Matters

The shift of focus from equity or wealth neutrality to adequacy in school finance debates ascribes greater importance to the money and achievement nexus. Equity refers to fairness in the distribution of some resource or burden. In the context of school finance, the resource has generally been money. Reformers, of course, generally believed that money directly influenced, or could influence, student achievement, but the design of equity-based finance formulas did not involve measures of student achievement. Indeed, research in school finance and school effectiveness often proceeded along separate tracks. The concept of adequacy, on the other hand, depends crucially on the relationship between money and achievement. Put another way, adequacy rests on the proposition that expenditures make a difference in the quality of education.

This proposition holds that higher salaries attract better teachers; smaller classes allow for increased attention and more individualized instruction, particularly effective with younger children from low-income families; and individual technology in the hands of talented and trained personnel improves teaching and learning. The considerable skepticism surrounding this proposition, which dates back to the landmark “Coleman Report”²¹ and attained considerable influence in policy debates through Hanushek’s summaries of the quantitative research literature, have been alleviated to some degree by more careful and sophisticated studies published recently.²² For example, the rise in achievement for economically disadvantaged students appeared to coincide with the concentration of increased resources on their education.²³

This line of research is more crucial to discussions of funding adequacy than funding equity because adequacy is based on outcomes, either expected or desired, while equity is not. For this reason, school efficiency is a key variable in constructing an adequacy-based funding formula, while far less important in fashioning equity-based formulas such as GTB or DPE. Indeed, under an adequacy-based funding regime, both funding levels and school efficiency become explicit policy targets.

Determining the Cost of an Adequate Education

The adequacy standard for public school finance enjoys substantial support among legislators and the courts in the abstract. Operationalizing the concept, however, has proved difficult and controversial,

largely because this approach reverses the traditional approach to school funding. Traditionally, legislatures have set school appropriations based upon government revenue levels and political decisions about tax rates and competing public budgets. Expenditures on various educational resources, such as classroom teachers, support personnel, facilities, and equipment, were constrained by appropriations levels and a distribution of achievement outcomes across groups of children results. The decision variable was the money, not the outcomes. The adequacy standard reverses this decision process. Policymakers determine target achievement levels. The educational programs and services required to reach these achievement targets are specified, along with their dollar costs, and the associated appropriations are approved. School efficiency, the transformation of inputs into outcomes, is explicitly or implicitly factored into the analysis.

Attempts by states to link their school finance systems with various definitions of educational adequacy, however, have uncovered several conceptual and technical challenges that remain unresolved.²⁴ For example, what specific competencies should be included in the high minimum outcomes for all students, and how should they be measured?²⁵ Once these competencies and associated performance measures are determined, what educational resources or ingredients are needed for their achievement, and what are their costs? How should these ingredients vary with student, school, and geographic characteristics, and how do their prices vary over time?²⁶ To address the linkages between educational resources, processes, and outcomes and translate them into school finance systems, researchers and policy analysts have created four different methodologies.²⁷

Statistical Modeling

This approach, the most analytically sophisticated of the four, begins with the specification of an acceptable level of student performance and then uses multiple regression analysis to estimate the dollar cost of the ingredients (i.e., programs and services) that produced those outcomes; that is, expenditure per pupil is the dependent variable, and the independent variables are student and district characteristics and the desired achievement levels. This method assumes the existence of an educational production function but does not explicitly account for school or district efficiency in transforming inputs into outcomes.²⁸ In effect, this approach assumes that inefficiency is randomly distributed across all local schools and is not associated with particular school or district characteristics.

This method suffers from several shortcomings. First, its complexity, while appealing to economists and other quantitative analysts, is ill-suited for public policymaking. Consequently, it has not yet been used by any state to construct a school aid formula. A further problem is the method’s theoretical dependence on an educational production function, the existence of which remains at issue despite a huge research literature that has examined the relationship between educational resources and outcomes.²⁹ Analysis of education production is notoriously difficult.³⁰ First of all, education is characterized by multiple outcomes. Schools are charged with developing cognitive skills in a number of areas, as well as affective traits, like promoting democratic values and furthering other social goals. Some outcomes are jointly produced, e.g., cognitive skills and self-esteem, while others may be mutually exclusive, e.g., higher academic standards and higher graduation rates. Second, even if it were possible to separate outcomes, there is no obvious way to assign *a priori* weights to reflect the relative value of each. Consequently, there is no unambiguous way

to sum the various production activities into a single outcome measure. Researchers have responded to the problem of joint production of educational outcomes by focusing on one relatively easy to measure and assuming the other outcomes are produced as by-products. This approach emphasizes student learning and the testing of cognitive skills in key subjects, such as reading and mathematics, and simplifies the analysis of school performance. This approach also enjoys a wide political consensus across the states and provides the basis of school accountability in NCLB. Indeed, the requirements of NCLB provide increased impetus to adequacy approaches to school finance, but the statistical modeling approach remains solely in the realm of research and not policy.

Empirical Observation

A simpler approach to estimating the cost of educational adequacy involves identifying schools or districts where pupil performance is deemed acceptable and determining their expenditures. Like statistical modeling, this approach requires an operational definition of acceptable student performance but may accommodate a set of outcome measures rather than the single measure required by regression analysis. This approach assumes that any district or school can replicate another's results with the same per pupil revenue, adjusted for variations in the cost of educational resources. As such, this method fails to control for variation in student characteristics, thus providing a biased estimate of the true cost of an adequate education for each school or district. The magnitude of this bias could be reduced, of course, by adjusting estimated school or district costs with an index of student need, thereby sacrificing some simplicity.³¹

Further, the selection of a particular school or district as exemplary will have enormous fiscal consequences for the state. Consider two districts with roughly equal achievement levels but substantially different expenditures, adjusted for cost and need differentials. The total cost of an adequacy formula may vary enormously with the choice of benchmark district. At the same time, the "printout politics" surrounding the choice of benchmark may cloud the central issue of selecting an efficient district where the level of student performance could be reasonably expected of all local districts.³²

Professional Judgment

A third approach to determining school finance adequacy is to consult professional educators. Here the state would create several teams of education leaders who independently identify successful education programs and their key ingredients. The ingredients are then priced and total program costs calculated for a school. As with the empirical observation approach, estimated costs could be adjusted for differences in student characteristics. Originally developed by Jay Chambers and Tom Parrish as the Resource Cost Model (RCM), this approach has been used in school finance adequacy studies in at least nine states.³³ Unlike the two approaches described above, this strategy does not require a statewide assessment system. A challenge with this approach, however, is to find consensus among the educators as to the requisite education programs and ingredients.

Whole-School Designs

A final approach to educational adequacy draws upon the considerable work done since 1990 in crafting "whole school designs" that would support high achievement by all students.³⁴ Although the relative effectiveness of these designs has yet to be established in controlled, experimental research, anecdotal evidence suggests these designs are

effective in improving student performance, and careful analysis of their associated costs can inform efforts at funding educational adequacy. At the same time, however, care must be taken in drawing general conclusions about educational costs and effects from a relatively small number of cases of effective school reform.³⁵

Cost Adjustments

Once the ingredients of an adequate educational program have been identified, costs must be determined. It is well-established that these costs vary across local districts because of variations in resource costs (primarily personnel) and student needs. Educational costs, however, received little attention in school finance debates until the late 1990s when growing interest in school finance adequacy led some policy makers to adjust aid formulas for cost differentials.³⁶

The most important school input in terms of both cost and educational importance is teachers. Teacher compensation levels reflect both cost and quality variables. Matters of teacher quality, indicated by characteristics such as advanced degrees, academic records, and professional recognition, are largely controllable by the hiring district. In contrast, factors influencing cost, such as the characteristics of the student body, working conditions in the schools, and the hospitality and living costs of the communities, are generally beyond the district's control. An adequacy-based school finance system should compensate local districts for uncontrollable cost factors. A teacher salary index that quantifies such factors has been developed by Jay Chambers.³⁷

Much work has been done on geographic cost differences, but state aid distribution formulas rarely include explicit adjustments for these differentials.³⁸ On the other hand, states often adjust aid for the higher cost of educating children with exceptional needs. Such aid is provided through either adjustments in general aid formulas or categorical grants. There appears to be little consistency across states in how these adjustments are determined however. Moreover, these adjustments generally appear to be based on expenditures rather than costs since they are not directly related to some measure of student performance.³⁹

Conclusions

The adequacy approach to public school finance represents the convergence of two previously separate movements in public education: the finance equity movement that began with *Minnis*, *Burruss*, and *Serrano*; and the educational standards and accountability movement that dates from the publication of *A Nation at Risk*, gathered momentum with the adoption of national education goals and reached its most urgent stage with passage of No Child Left Behind Act of 2001. The success of this approach, however, depends on the synchronicity of both analytical and political efforts. At this time, it is clear that the former have eclipsed the latter. Through the good work of researchers and policy analysts, we have moved beyond the question "Do resources matter?" and now understand more clearly how schools succeed or fail. We now understand the importance of teacher quality, for example, and the promise and pitfalls of reducing class size. Further, we appreciate the extent to which contextual variables, both observed and unobserved, affect student achievement; and we have learned how to design aid distribution formulas to compensate districts for the differential costs of bringing children to a designated level of achievement.

However, while much progress has been made on the analytical side, school finance decisions continue to be driven by revenue limita-

tions and political sentiment. Further, such sentiment has produced current state and local tax burdens that are at historical lows. At the same time, it is entirely likely that school finance adequacy studies will find current funding levels to be wholly inadequate, particularly in urban areas. In the absence of increased resource levels or dramatic improvements in school productivity, the achievement gap is not likely to narrow significantly. To the extent that actual school funding levels fall below levels considered adequate by educators and school advocates, the states and Congress will face increasing pressure to relax current requirements and sanctions for poorly performing schools. In that sense, adequacy is the price of school accountability.

Endnotes

¹ James W. Guthrie, Walter I. Garms and Lawrence C. Pierce. *School Finance and Education Policy: Enhancing Educational Efficiency, Equality, and Choice*, 2d ed. (Boston, Massachusetts: Allyn and Bacon, 1988).

² *Melinnis v. Shapiro*, 293 F. Supp. 327 (N.O. Ill. 1968) affirmed; *Burruss v. Wilkerson*, 310 F. Supp. 572 Virg. (1969), affirmed, 397 U.S. 44 (1970).

³ Allan R. Odden and Lawrence O. Picus. *School Finance: A Policy Perspective* (Boston,: McGraw Hill, 2d ed., 2000), 26.

⁴ *Serrano v. Priest*, 96 Cal. Rptr. 601, 487 P. 2d 1241, 5 Cal. 3d 584 (1971).

⁵ *San Antonio Independent School District v. Rodriguez*, 411 U.S. 1 (1973).

⁶ John E. Coons, William H. Clune III and Stephen D. Sugarman. *Private Wealth and Public Education* (Cambridge, Massachusetts: Harvard University Press, 1970).

⁷ James L. Phelps and Michael F. Addonizio, "District Power Equalizing: Cure-All or Prescription?," *Journal of Education Finance* 7 (Summer 1981): 64-87.

⁸ Martin S. Feldstein, "Wealth Neutrality and Local Choice in Public Education," *American Economic Review* 65 (June 1975): 75-89.

⁹ Michael F. Addonizio, "Intergovernmental Grants and the Demand for Local Education Expenditures," *Public Finance Quarterly* 19 (March 1991): 209-232.

¹⁰ Catherine C. Sielke, John Dayton, Thomas Holmes and Anne L. Jefferson, ed. *Public School Finance Programs of the United States and Canada: 1998-1999* (Washington, D.C.: U.S. Department of Education, National Center of Educational Statistics, 2001).

¹¹ Helen F. Ladd and Janet Hansen, ed. *Making Money Matter: Financing America's Schools* (Washington, D.C.: National Academy Press, 1999).

¹² Christopher Jencks and Meredith Phillips, ed. *The Black-White Test Score Gap* (Washington, D.C.: Brookings Institution Press, 1998).

¹³ See, for example, Allan Odden and William H. Clune, "School Finance Systems: Aging Structures in Need of Renovation," *Educational Evaluation and Policy Analysis*, 20 (Fall 1998): 157-177; Allan Odden and Carolyn Busch, *Financing Schools for High Performance: Strategies for Improving the Use of Educational Resources* (San Francisco, California: Jossey-Bass, 1998).

¹⁴ *Rose v. Council for Better Education*, 790 S.W. 2d 186 (Ky. 1989).

¹⁵ The decision of the court in *Rose* was dramatic, but not unprecedented. In the 1982 *Pauley v. Bailey* case in West Virginia, the trial court ruled that a "thorough and efficient" education required equal programs and services across all school districts. This ruling, which the state did not appeal, led to the development of a state Master Plan of standards for all operating programs and facilities. Funding the plan would have required a near doubling of resources in the state; so the plan was only partially implemented. However, in 1997 a court ordered the state to fully fund the plan. See *Pauley v. Bailey*, C.A. No. 75-126 (Cir. Ct. Kanawha Cty., W.Va. 1982), initially decided as *Pauley v. Kelley*, S.E. 2d 859 (W. Va. 1979).

¹⁶ See, for example, *Abbott v. Burke*, 575 A. 2d 359 (N.J. 1990); *Campbell County School District, State of Wyoming, et. al. v. State of Wyoming*, 907 P. 2d 1238 (Wy. 1995); *McDuffy v. Secretary of the Executive Office of Execution*, 615 N.E. 2d 516 (Mass. 1993).

¹⁷ Paul A. Minorini and Stephen D. Sugarman, "Educational Adequacy and the Courts: The Promise and the Problem of Moving to a New Paradigm," in *Equity and Adequacy in Education Finance: Issues and Perspectives*, Helen F. Ladd, Rosemary Chalk, and Janet Hansen, ed. (Washington, D.C.: National Academy Press, 1999), 175-198.

¹⁸ Goals 2000: Educate America Act, P.L. 103-227, Section 301(1).

¹⁹ No Child Left Behind Act of 2001, Public Law 107-110.

²⁰ Margaret E. Goertz and Mark C. Duffy with Kerstin Carlson Le Floch, *Assessment and Accountability in the 50 States: 1999-2000*. CPRE Research Report Series RR-046 (Philadelphia, Pennsylvania: Consortium for Policy Research in Education, 2001).

²¹ James S. Coleman, Ernest Q. Campbell, Carol J. Hobson, James McPartland, Alexander M. Mood, Frederic D. Weinfeld, and Robert L. York. *Equality of Educational Opportunity* (Washington, D.C.: U.S. Department of Health, Education and Welfare, 1966).

²² Eric Alan Hanushek, "A More Complete Picture of School Resource Policies," *Review of Educational Research* 66 (1996): 397-409; Eric Alan Hanushek, "Assessing the Effects of School Resources on Student Performance: An Update," *Educational Evaluation and Policy Analysis* 19 (Summer 1997): 141-164. For an example of more recent work, see Henry M. Levin and Patrick J. McEwan, *Cost-Effectiveness and Educational Policy* (Larchmont, New York: Eye on Education, 2002).

²³ David Grissmer, Ann Flanagan, and Stephanie Williamson, "Does Money Matter for Minority and Disadvantaged Students: Assessing the New Evidence," in *Developments in School Finance: 1997*, William J. Fowler, Jr., ed., NCEs 98-212 (Washington, D.C.: U.S. Department of Education, 1998), 15-30.

²⁴ For a more detailed discussion of these issues, see William S. Koski and Henry M. Levin, "Twenty-Five Years after *Rodriguez*: What Have We Learned?" *Teachers College Record* 102 (March 2000): 480-513; Andrew Reschovsky and Jennifer Imazeki, "Achieving Educational Adequacy through School Finance Reform," *Journal of Education Finance* 26 (Spring 2001): 373-396.

²⁵ As noted earlier, virtually every state has answered this question with their adoption of standardized testing programs.

²⁶ The considerable challenge of achieving vertical equity is noted by Koski and Levin (2000). They argue that no set of school interventions can fully compensate for differences in socioeconomic background. They further contend that schools alone may be incapable of meeting adequacy requirements; that is, for children from impoverished families, educational adequacy may well require increased public investment in health care, housing, nutrition, preschool enrichment, and job training for parents.

²⁷ For a detailed discussion of these methods, see Andrew Reschovsky and Jennifer Imazeki, "Let No Child Be Left Behind: Determining the Cost of Improving Student Performance," *Public Finance Review* 31 (May 2003): 263-290; James W. Guthrie and Richard Rothstein, "Enabling 'Adequacy' to Achieve Reality: Translating Adequacy into State

School Finance Distribution Arrangements," in Ladd et al., 209-259; William D. Duncombe and John M. Yinger, "Performance Standards and Educational Cost Indices: You Can't Have One Without the Other," in Ladd et al., 260-297.

²⁸ These adequacy models are themselves cost functions, not production functions. Cost functions and production functions contain the same information, and one can be derived from the other. For a discussion of this duality property, see Hal R. Varian, *Microeconomic Analysis*, 2d ed. (New York: Norton & Co., 1984), 62-73.

²⁹ For a brief sampling of this literature, see Eric A. Hanushek, "The Economics of Schooling," *Journal of Economic Literature* 24 (September 1986): 1141-1177; Rob Greenwald, Larry V. Hedges and Richard D. Laine, "The Effect of School Resources on Student Achievement," *Review of Educational Research* 66 (Fall 1996): 361-396; Eric A. Hanushek, "Assessing the Effects of School Resources on Student Performance: An Update," *Educational Evaluation and Policy Analysis* 19 (Summer 1997): 141-164; Alan B. Krueger, "Experimental Estimates of Education Production Functions," *The Quarterly Journal of Economics* 114 (May 1999): 497-532.

³⁰ For a summary of these difficulties, see Robert Bifulco and Stuart Bretschneider, "Estimating School Efficiency: A Comparison of Methods Using Simulated Data," *Economics of Education Review* 20 (October 2001): 417-429. For an overview of the debate about the existence of an educational production function, see David H. Monk, *Educational Finance: An Economic Approach* (New York: McGraw-Hill, 1990), especially chapter 11. This brief summary draws upon Monk's overview.

³¹ See, for example, Michael F. Addonizio, "From Fiscal Equity to Educational Adequacy: Lessons from Michigan," *Journal of Education Finance* 28 (Spring 2003): 457-484.

³² For a simulation of this method and an estimate of the sensitivity of total state formula cost to the selection of benchmark district, see Addonizio, "From Fiscal Equity to Educational Adequacy."

³³ For a discussion of the RCM, see Jay G. Chambers and Thomas B. Parrish, *The Development of a Resource Cost Model Funding Base for Education Finance in Illinois* (Stanford, California: Associates for Education Finance and Planning, 1983); Jay G. Chambers and Thomas B. Parrish, "State-Level Education Finance," in *Advances in Educational Productivity*, Herbert J. Walberg, ed., (Greenwich, Connecticut: JAI Press, 1994), 45-74.

³⁴ Odden and Busch, *Financing Schools for High Performance*; Odden and Picus, 332-345.

³⁵ Reschovsky and Imazeki, "Achieving Educational Adequacy through School Finance Reform."

³⁶ Pathbreaking work in this area was done in the 1980s. For a discussion of intrastate cost-of-education indices, see Jay G. Chambers, "Cost and Price Level Adjustments to State Aid for Education: A Theoretical and Empirical View," in *Perspectives in State School Support Programs*, Forbis Jordan and Nelda H. Cambron-McCabe, ed. (New York: Ballinger, 1981), 39-85. For more recent work, see William D. Duncombe, John Ruggiero, and John M. Yinger, "Alternative Approaches to Measuring the Cost of Education," in *Holding Schools Accountable: Performance-Based Reform in Education*, Helen F. Ladd, ed. (Washington, D.C.: The Brookings Institution, 1996): 327-356.

³⁷ Using 1990-91 data from the national *Schools and Staffing Survey*, Chambers constructed a teacher salary index for every district in the U.S. based on cost factors (e.g., crime rates, student body characteristics, etc.) beyond the control of local school districts. Jay G. Chambers, *Public School Teacher Cost Differences Across the United States*. Analysis/methodology Report (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, October 1995), NCEES 95-758.

³⁸ The few states that do account for geographic differences include Ohio, which uses state wage indices, and Colorado, Florida, and Wyoming, which use consumer price indices. For a discussion of the strengths and weaknesses of these approaches, see Richard Rothstein and Lawrence Mishel, "Alternative Options for Deflating Education Expenditures over Time," in *Developments in School Finance*, 1996, ed. William J. Fowler, Jr. (Washington, D.C.: National Center for Education Statistics, 1997), 159-182.

³⁹ Reschovsky and Imazeki, "Achieving Educational Adequacy through School Finance Reform." For a comprehensive discussion of the use of cost adjustments in education, see William Fowler and David H. Monk, *A Primer for Making Cost Adjustments in Education* (Washington, D.C.: OERI, U.S. Department of Education, 2001).

Appendix

A Brief Discussion of Production and Cost Functions

The existence of an education production function is a subject of some controversy. It is not surprising, therefore, that statistical modeling has not yet been used by any state to design an adequacy-based school aid system. This appendix will briefly discuss the properties and equivalence of production and cost functions and their use in the construction of adequacy-based school aid distribution formulas.

A Basic Production Model

A production function is a model of the economic relationship between the maximum level of output that can be produced from any given combination of inputs. The production function allows for inputs to be combined in varying proportions to produce an output in many ways. Production functions describe what is technically feasible when the firm operates efficiently; that is, when the firm uses each combination of inputs as efficiently as possible. If the supply levels of the various inputs are known and the production function is also known, the maximum level of production can be determined. Anything short of maximum attainable output indicates technical inefficiency.

A second dimension to production efficiency involves input costs. Consider, for example, two alternative manufacturing processes that utilize different input combinations to produce the same product, say, an automobile. One process may be labor-intensive while the other relies more heavily on robotics. Assuming each process makes the best possible use of each set of inputs – that is, each process is technically efficient – the least costly input combination is preferred on allocative efficiency grounds. Production efficiency requires both technical and allocative efficiency.

Minimizing production costs

If there are two inputs, capital K and labor L , the production function $F(K,L)$ describes the maximum output that can be produced for every possible combination of inputs. Production theory assumes that each of the inputs has positive but decreasing marginal products.¹ A competitive firm takes the prices of labor w and capital r as given and seeks to minimize the cost of producing a fixed level of output. This cost-minimization problem can be written as

$$\text{Minimize } C = wL + rK \quad (1)$$

Subject to the constraint that a fixed level of output Q_0 be produced:

$$F(K,L) = Q_0 \quad (2)$$

C represents the cost of producing the fixed output level Q_0 and w and r are the prices of labor and capital, respectively.

This constrained optimization problem can be solved using the method of Lagrange multipliers to determine how much capital and labor the firm should hire.² The solution tells us that the firm is minimizing costs when it chooses its inputs or factors of production so as to equate the ratio of the marginal product of each factor by its price.³ Intuitively, we can see this if we suppose that at some (nonoptimal) input combination MP_K/r is greater than MP_L/w . Here, the firm could lower its cost while still producing the same output by using more capital and less labor.

Maximizing production output

A firm's input decision has a dual nature; that is, the optimum choice of K and L can be analyzed not only as the problem of choosing

the lowest-cost input combination that will produce the given level of output, but also as the problem of maximizing the level of output given a cost (i.e., budget) constraint and input prices. This output maximization problem can be written as

$$\text{Maximize } F(K,L) \quad (3)$$

Subject to the cost constraint that

$$wL + rK = C \quad (4)$$

As with the cost minimization problem, this constrained optimization problem can be solved by the method of Lagrange multipliers to determine the input levels the firm should hire. This solution is identical to that of the cost minimization problem: Output is maximized when the firm chooses its inputs so as to equate the ratio of the marginal product of each factor divided by its price— hence the equivalence of production functions and cost functions. Given a specific production function $F(L,K)$, we can derive the equivalent cost function $C(Q)$.

Toward an Education Production Function

Hanushek has proposed a framework for an education production function that distinguishes among family backgrounds, peer, and school inputs.⁴ This production function can be expressed as

$$O_{it} = g(X_{it}, S_{it}, B_{it}) \quad (5)$$

Where O_{it} represents all outcomes, X_{it} is a vector of all school inputs, S_{it} is a vector of peer inputs, and B_{it} is a vector of family background characteristics. The subscript i indexes the school or district, and subscript t indexes the year. Thus, the school district's problem is to employ the school inputs so as to maximize outcomes given the peer and family inputs.

To derive a cost function from the production function, the analyst estimates a school district expenditure equation, which specifies the relationship between school expenditures and school inputs. This expenditure equation can be expressed as

$$E_{it} = f(X_{it}, P_{it}, D_{it}) \quad (6)$$

Where E_{it} represents per pupil expenditures, P_{it} is a vector of school input prices and D_{it} is a vector of unobserved school district characteristics that influence district spending (e.g., the inefficiency of the district).

Finally, equation (5) is solved for X_{it} , the school inputs, which are then plugged into the expenditure equation (6). This gives the cost function, represented by equation (7):

$$E_{it} = h(O_{it}, P_{it}, S_{it}, B_{it}, D_{it}, \mu_{it}) \quad (7)$$

where μ_{it} is a random error term.

Equation (7) is typically estimated in log-linear form with district-level data. The dependent variable is the log of per-pupil expenditures, and the estimated coefficients indicate the contribution of the various district characteristics to the cost of education, holding constant the level of outcome.⁵ Once the cost function is estimated, a cost index can be constructed for each district. This index is then used to calculate the amount a district would have to spend, given the input prices and contextual influences it faces, to produce the specified level of outcome.

Of the four approaches to estimating the cost of an adequate education, this is the most conceptually complete; that is, the statistical modeling approach most efficiently controls for district efficiency and the unobserved influences on school outcomes when estimating educational costs.

Endnotes

¹ Writing the marginal product of capital as $MPK(K,L) = \partial F(K,L)/\partial K$, we assume $MPK(K,L) > 0$ and $\partial MPK(K,L)/\partial K < 0$. Similarly, if the marginal product of labor is given by $MPL(K,L)$, we assume $MPL(K,L) > 0$ and $\partial MPL(K,L)/\partial L < 0$.

² For an explanation of the method of Lagrange multipliers see, for example, Robert S. Pindyck and Daniel L. Rubinfeld, *Microeconomics*, 3d ed. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1995), 130-137.

³ Mathematically, this is given by $MPK(K,L)/r = MPL(K,L)/w$.

⁴ Eric A. Hanushek, "Conceptual and Empirical Issues in the Estimation of Education Production Functions," *Journal of Human Resources*, 14 (Summer 3): 351-388.

⁵ Estimation of this equation involves several major conceptual issues, including the endogeneity of educational outcomes, i.e., a district's spending decision will influence outcomes, the measurement of an index of educational outcomes, and the equation's two error terms. For a discussion of these issues and econometric techniques to address them, William D. Duncombe and John Ruggiero, and John M. Yinger, "Alternative Approaches to Measuring the Cost of Education," in *Holding Schools Accountable: Performance-Based Reform in Education*, Helen F. Ladd, ed. (Washington, D.C.: Brookings Institution Press, 1999), 327-356.

Exploring Implications of *Brown* for Schools of Choice and Raising Academic Standards

Richard A. King, Linda Vogel
and Kathryn Whitaker

After the 1954 *Brown v. Board of Education* decision,¹ policies designed to comply with the decision were often declared to be unconstitutional. In celebration of the 50th anniversary of this historic event, we return to these subsequent holdings to provide a context for understanding issues facing today's policymakers and educational leaders. Our two foci will be schools of choice and expectations for all students to meet high academic standards.

Remedies to End Segregation and Promote Equity

In 1954, the U.S. Supreme Court reviewed the segregation of students by race in the public schools of Kansas, South Carolina, Virginia, and Delaware. The unanimous decision in *Brown* held that segregation violated the equal protection clause of the Fourteenth Amendment, stating "We conclude that in the field of public education the doctrine of separate but equal has no place. Separate educational facilities are inherently unequal."² This landmark holding ended *de jure* segregation – that created by official state law or other policies – of public schools. However, the court did not specify remedial actions for dismantling dual school systems.

One year later, *Brown II* required desegregation of schools "with all deliberate speed."³ This uncertain timeline recognized the complex "problems related to administration, arising from the physical condition of the school plant, the school transportation system, personnel, revision of school districts and attendance areas ... and revision of local laws and regulations which may be necessary in solving the foregoing problems."⁴ The justices also differentiated the roles of school leaders and the courts that would later review remedies, as follows: "School authorities have the primary responsibility for elucidating, assessing, and solving these problems; courts will have to consider whether the action of school authorities constitutes good faith implementation of the governing constitutional principles."⁵ The court not only permitted

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a lax timeline for change, but also it gave states and school districts great latitude to fashion policies that often delayed or avoided action to achieve the goals of admitting students to schools without regard to race and promoting equal educational opportunities.

Ending de jure Segregation

Within only a few years, the U.S. Supreme Court responded to states' resistance to create a unitary system of public schools to serve students of all races. After President Eisenhower sent federal troops to enforce a desegregation order, the Arkansas governor ordered the national guard to prohibit African-American students from entering schools to which they had been assigned. The court articulated clearly that states could not avoid federal court orders:

In short, the constitutional rights of children not to be discriminated against in school admission on grounds of race or color declared by this Court in the *Brown* case can neither be nullified openly and directly by state legislators or state executive or judicial officers, nor nullified indirectly by them through evasive schemes for segregation whether attempted "ingeniously or ingenuously."⁶

Several decisions have implications for restructuring schools, particularly through choice policies. Fearing resegregation, the court struck down a Knoxville, Tennessee, policy that would have permitted students to transfer back to their original segregated schools.⁷ Virginia repealed the state's compulsory education law, making school attendance a local option. When one county funded private schools for white students with public funds, the court ordered the locality to raise taxes and operate a nondiscriminatory public school system.⁸ Another Virginia county initiated a freedom-of-choice plan to allow parents to choose schools for their children. The court's review of this policy indicated a preference for other approaches such as zoning to achieve quicker, more effective conversions to unitary status. However, in *Green*, the court found adopting schools of choice had merit when implemented effectively, stating: "Where it offers real promise of aiding a desegregation program to effectuate conversion of a state-imposed dual system to a unitary, nonracial system there might be no objection to allowing such a device to prove itself in operation."⁹

Frustrated by the slow pace of meaningful integration, activists urged Congress to adopt legislation promoting equal educational opportunities and incentives for desegregation. The Civil Rights Act of 1964 prohibited discrimination by race and other characteristics in educational programs and employment. This law also initiated the policy of withholding federal funds to encourage school systems to comply with mandates. The Elementary and Secondary Education Act of 1965 brought financial assistance to improve language and mathematics skills in schools serving children from low-income families.¹⁰ The 1972 Emergency School Assistance Act (ESAA) rewarded school systems that had already desegregated and encouraged others to do so voluntarily with financial assistance. Facing the threat of the loss of funding or investigations by the newly created Office of Civil Rights, school officials began to take seriously their duty to desegregate schools.

Reversing the Effects of Discriminatory Policies

More troubling to the courts in years following *Brown* was deciding whether public policies that did not require, but had an effect of, separating students by race violated the Fourteenth Amendment. So-called *de facto* segregation often resulted from housing patterns

as individuals chose to live in given neighborhoods; from decisions of banks to approve mortgages for African-Americans in only certain sections of a city, or redlining; or from such school board actions as establishing neighborhood attendance areas that encompass students of one race, i.e., gerrymandering. Federal courts concluded that there is an affirmative duty to integrate schools when segregation is created by official action.¹¹ State and local officials are then required to assign students and personnel and to construct facilities in ways that bring about integration when the *de facto* segregation is found to be unconstitutional *de jure* segregation.¹²

In 1971, the U.S. Supreme Court examined the effects of a North Carolina school district's policies after state-mandated *de jure* segregation had officially ended and presented alternatives to remedy the continuing *de facto* segregation.¹³ School authorities could assign teachers on a racially-neutral basis, consider racial quotas as a starting point rather than a rigid requirement, ensure that school construction or abandonment would not perpetuate the dual system, scrutinize one-race schools to ensure that the racial composition did not result from discriminatory actions, alter attendance zones, or bus students to dismantle the dual system.¹⁴

In 1973, the court further clarified these forms of segregation in ordering busing in Denver in *Keyes*, stating: "We emphasize that the differentiating factor between *de jure* segregation and so-called *de facto* segregation to which we referred to in *Swann* is *purpose* or *intent* to segregate."¹⁵ The plaintiffs argued that manipulating student attendance zones, school site selection, and a neighborhood school policy had maintained segregated schools. The court concluded that evidence of "an unconstitutional policy of deliberate racial segregation" in one area of the school district was sufficient to hold the board responsible for perpetuating a dual school system.

Whereas initial remedies centered on the assignment of students and personnel to alter the racial makeup of schools, recent options are designed to enrich the learning experiences of minority students. These might include early childhood interventions, curriculum development, remedial reading, reduction in class size, counseling and career guidance, and professional development.¹⁶ When the cost of such remedies was of issue, the U.S. Supreme Court in *Missouri v. Jenkins* agreed with a lower court's imposition of a tax increase in excess of statutory limitations.¹⁷ The Kansas City school district could thus raise revenue for educational programs, summer school, full-day kindergartens, tutoring, class size reduction, magnet schools, and facility improvements to overcome the effects of segregation. A subsequent decision, however, denied a plan that called for state funds to increase teacher and staff salaries above suburban school districts.¹⁸ The state was then able to end support for desegregation, and the district could discontinue its commitment to magnet schools.

The adequacy of funds to enable excellent schools for all students has been the subject of judicial reviews in other states. Segregated schools under the *Plessy* standard were to have access to equal facilities, teachers, instructional materials, and transportation.¹⁹ In reality, schools were far from equal at the time of *Brown*, and inequities persist today despite several decades of efforts to equalize revenues among school districts. Yet, in 1973, the U.S. Supreme Court declared that funding inequities did not offend the equal protection clause of the U. S. Constitution and were thus a matter for state legislatures and courts.²⁰ Subsequent decisions had mixed outcomes with the majority of state courts finding education to be a fundamental interest to be provided to all on equal terms. However, other state courts upheld

policies that allowed unequal funds due to variations in local property values as being rationally related to state interests in furthering local control of education.²¹

School finance challenges have shifted in recent years from urging equity through resource distribution to ensuring an adequate level of funds in poor communities. In 1989, the Kentucky Supreme Court declared that the entire system of public schools to be unconstitutional.²² The court specified seven competency areas that would enable students to compete in academics or the labor market and ordered the legislature to revamp the finance structure to equalize revenue so that all districts could educate to the higher standards. In a series of challenges to the state's finance system, the New Jersey Supreme Court ordered unequal spending and supplemental programs and services to the advantage of 28 urban areas, stating:

For these special needs districts, a thorough and efficient education— one that will enable their students to function effectively in the same society with their richer peers both as citizens and as competitors in the labor market— is an education that is the substantial equivalent to that afforded in the richer districts.²³

These decisions and others in the late 1990s held states responsible for providing adequate resources to improve educational opportunities. They also demonstrated the willingness of courts to influence policies in ways that enable students, many of whom are racial and ethnic minorities, in poor communities to access high quality education.

Achieving Unitary Status

Judicial reviews in the past decade have considered the point at which school districts once found to have operated a "dual" system have subsequently achieved "unitary" status. The U.S. Supreme Court defined a unitary school system as one "within which no person is to be effectively excluded from any school because of race"²⁴ Another decision identified several factors that continue today to assist lower courts and school authorities determine unitary status: the composition of the student body, faculty, staff, transportation, extracurricular activities, and facilities.²⁵

In reviewing the status of the DeKalb County (Atlanta) school district, the court stated an objective of restoring state and local control of school operations was as follows: "Returning schools to the control of local authorities at the earliest practicable date is essential to restore their true accountability in our governmental system."²⁶ The lower court could thus grant the district control over the four satisfied factors (student assignment, transportation, facilities, and extracurricular activities) while retaining court supervision of faculty, administrative assignments, and a seventh criterion, the quality of education.

We conclude this discussion of past decisions by revisiting *Brown*. Several lower court reviews over the years noted that the Topeka school district had not fulfilled its affirmative duty to fully desegregate. However, in 1999, the U.S. District Court for Kansas declared that the district had achieved unitary status, stating: "... defendant has complied in good faith with mandates of the court over a reasonable period of time; the vestiges of past discrimination in the school district have been eliminated to the extent practicable; and defendant has demonstrated a good faith commitment to the law and the Constitution which presages no future need for judicial intervention."²⁷

Schools of Choice and Heightened Academic Standards

This overview of remedies to undo prior segregation and promote equality of opportunities provides a context for exploring issues that face policymakers today. In particular, policies that grant greater choice among schools to parents and that demand high academic standards should be examined in relation to the goal of *Brown* to ensure non-segregated schools.

Promoting Choice Among Schools

For many years, educators, policymakers, and other constituent groups have called for greater choice among schools. The primary varieties of school choice are magnet schools under the control of local school boards, semi-autonomous charter schools within the public school system, and vouchers that permit public-private school choice. We examine these forms of choice and consider this policy in relation to goals articulated in *Brown*.

Magnets, Charters, and Vouchers. In an effort to desegregate school systems through voluntary movement of students among schools, many urban districts embraced the magnet school concept. These schools typically concentrate on a particular strength, specialty, or educational subject area in order to attract students. Consequently, parents can choose an educational program that most closely fits their children's needs. Some of the most common magnet school specialties are science and technology, mathematics, and fine arts/performing arts. The movement to create magnet schools grew rapidly in response to federal grant programs, particularly under ESAA to promote desegregation and maintain a racial balance.²⁸ Magnet schools have been a valuable tool for urban districts trying to implement desegregation laws.²⁹

Another form of choice gaining momentum is charter schools. These schools represent a grassroots effort to provide opportunities for students, parents, teachers, administrators, and community members to create innovative educational programs.³⁰ When legislative or citizen initiatives failed to bring vouchers to advance public-private school choice, many advocates embraced the charter school concept as an acceptable policy option. Charter schools that operate via a contract with a school district or other government entity are free of many of the restraints of school district governance.³¹ Legislation today grants charter schools fiscal and educational autonomy in exchange for accountability for improving pupil achievement. Currently 40 states have enabling legislation, and the number of charter schools has increased substantially since Minnesota enacted the first legislation in 1991.³² According to the National Center for Education Statistics, there were 2,348 charter schools during the 2001-2002 school year.³³

In addition to promoting parental choice, reasons cited for starting charter schools include the opportunity to provide enhanced teaching and learning, ability to operate a school according to a particular philosophy, freedom to innovate, increased parental control over education, and opportunity to serve at-risk youth.³⁴ Despite a promise of improved achievement, results are mixed as to whether charter schools have greater achievement gains than traditional schools. Some suggest that there are no data that show charter schools perform better than other public schools.³⁵

Opening the door to an even greater degree of school choice, some districts and states have initiated pilot programs to test whether including private and parochial school options via vouchers can increase academic achievement of low-income and minority students.³⁶ A voucher is a publicly funded scholarship that allows parents to select

what they believe to be the best school for their children. Two of the best known voucher programs allow low-income children in Milwaukee and Cleveland access to educational opportunities beyond those offered in their home school districts.³⁷ The U.S. Supreme Court permitted this form of public assistance for families to choose private schools without offending the Establishment Clause of the First Amendment.³⁸ Another program implemented in Florida adopted vouchers as an accountability tool. Students in low performing schools can opt out and receive a voucher to attend a private school.³⁹

Proponents of school choice include liberals, conservatives, minorities, religious leaders and those from every socioeconomic status.⁴⁰ Advocates cite the likelihood of increased student achievement, improved educator professionalism, more responsiveness to parents, decreased bureaucracy, greater parent involvement, and overall renewal in educational institutions as reasons for adopting choice proposals.⁴¹ Supporters argue that charter schools give better options to parents, allow for innovation and improved student achievement, and are not hampered by school district boundaries that produce segregated patterns.⁴² Perhaps the most cited reason given in support of school choice is the enhanced possibility for equal educational opportunity for low socioeconomic families and low achieving students.⁴³

In contrast, critics of school choice maintain that accountability to the public will likely be reduced, and minimum standards will not be maintained. Under choice systems, some argue that the selectivity of students would likely increase inequality between and among schools. Furthermore, the geographic distribution of students by race and economic class can produce inequitable choices and increase segregation by race, ethnicity, and poverty. Critics also maintain that providing information on schools can be costly, inadequate, and more readily available to families of higher socioeconomic status.⁴⁴ Opponents of school vouchers criticize the blurring of boundaries between private and public sectors. They claim that private schools are not held to the same stringent accountability measures as public schools.⁴⁵ Research has not yet determined the overall success of voucher programs in producing high quality schools.⁴⁶ Additionally, issues of equity persist. Critics suggest that the amount of a voucher would not cover the tuition of many private schools, placing poor families at a disadvantage. Also parents from low socioeconomic backgrounds may not be able to provide transportation to schools outside their neighborhoods. Critics of voucher programs argue that poor students would be relegated to the worst schools, further hampering equity efforts.

Segregation by Choice. A major fear of school choice opponents is resegregation along racial, ethnic, and socioeconomic lines if parents were given free rein over where they send their children to school. Data already support the fact that many urban public school districts are more segregated presently than in past years. A Harvard University report found "virtually all school districts analyzed are showing lower levels of inter-racial exposure since 1986, suggesting a trend towards resegregation, and in some districts, these declines are sharp."⁴⁷ Other reports cite a trend toward resegregation in public schools as well.⁴⁸ The question becomes: Does providing choice among schools contribute to resegregation? If so, courts may ask to what degree do policymakers adopt choice plans with the intent of segregating schools by race or ethnicity?

A recent RAND report noted that the effects of choice programs on integration efforts are largely unknown. Across the United States, charter schools have a similar racial and ethnic balance as public schools, but according to this report, evidence from other nations

suggests that large-scale, unregulated choice programs can lead toward greater racial and ethnic stratification.⁴⁹ For example, in New Zealand's, schools that were relatively high in minority enrollment at the outset of school choice initiatives came to have a higher minority enrollment as a consequence of choice.⁵⁰ In a study conducted in a large school district in Colorado, race and ethnicity were prominent features in open enrollment patterns related to school choice.⁵¹ The study found that whites left high minority schools at a disproportionate rate. Due to the repetition of this pattern since the 1990s, the schools became significantly more stratified in terms of race and ethnicity.⁵² The data also demonstrated that school choice had not improved academic achievement, but rather school choice contributed to a two-tiered system of advantaged and disadvantaged schools.⁵³

A report from the Civil Rights Project at Harvard University posits that white students are most racially isolated in Catholic and other religious private schools.⁵⁴ This trend has implications for the implementation of voucher programs. Proponents suggest that minority students would have greater access to private schools. However, the Harvard report maintains that African American students in private schools are just as segregated from whites in public schools. Moreover, since most private schools do not provide free transportation, segregation would likely be increased with the implementation of vouchers.

Some critics of charter schools maintain that these schools further stratify students along racial and socioeconomic lines as well.⁵⁵ Frankenberg and Lee found that charter schools have high levels of segregation and that African American students enrolled in segregated charter schools experienced high levels of racial isolation and were exposed to very low percentages of white students.⁵⁶ Based on the findings of this study, there is little evidence that charter schools foster more integrative environments. In order to promote integration, these researchers suggested that charter schools should ensure that all potential students and parents receive full information, provide free transportation, and avoid screening children for admission to charter schools.

Various policymakers have stressed the importance of school choice as a policy tool to promote racial equity and integration. They have suggested the need for government regulation of education markets, including the redesign of charter laws so that mechanisms exist to promote racial integration.⁵⁷ In addition, state education agencies should be charged with the responsibility to develop policies to ensure racial integration. If various configurations of school choice continue, and in fact expand, issues of racial and ethnic segregation must be closely monitored so that our system of elementary and secondary education does not return to the conditions present in 1954.

Demanding Higher Academic Standards

The 2001 reauthorization of the Elementary and Secondary Education Act as the No Child Left Behind Act (NCLB) Act made the closing of the achievement gap between minority and disadvantaged children and their counterparts an explicit goal.⁵⁸ This education reform centers on holding all states, school districts, and schools accountable for ensuring that all students meet high academic standards. If a school repeatedly fails to adequately educate disadvantaged students, NCLB provides guidelines to allow disadvantaged students to use Title I funds to transfer to a higher-performing public or private school or to receive supplemental educational services from a provider of choice. While declaring the equity of educational achievement of minority students as the intent, a closer examination of the implementation of NCLB casts doubts on the ability of the legislation to achieve this goal and may

even call into question if having all students meet the same learning expectations is the real intent of this policy. Indeed, the resegregation of schools along poverty lines, dominated by minority groups, might be an unintended consequence of this noble-sounding policy.

NCLB codifies and mandates the development of state learning standards and testing systems to measure student achievement to an identified level of competency with individual schools being held accountable for students' meeting of the required level of mastery via state assessments. The fashioning of standards is a tricky task in itself; standards that are too vague become meaningless, but too narrowly defined standards constrain local curriculum and instructional choice.⁵⁹ The development of reliable and valid large scale state assessment instruments is even trickier and difficult to use for anything but a superficial snapshot comparison of student testing performance.⁶⁰

Even if a state assessment is soundly constructed, the consequences of testing and accountability systems for minority students can be quite negative.⁶¹ An examination of student performance on the Illinois Standards Assessment Test (ISAT) demonstrated that low income, minority status, mobility rate, and limited English proficiency factors accounted for 80% of the variance of test achievement.⁶² The state accountability system became a ranking of schools from "high-income, predominantly White, affluent schools with stable student bodies to low-income, minority schools with highly mobile students," with corresponding rewards and punishments. NCLB goes beyond the ranking of schools to require states to provide a system of support for schools that fail to demonstrate adequate yearly progress (AYP) among minority and disadvantaged subgroups. While NCLB does not specify what interventions can be effectively used to support or reform schools that repeatedly fail to demonstrate AYP, repeated failure to show AYP will result in students first being allowed to transfer to more successful schools and, if failure to show AYP persists, the reorganization of that school under charter school status.

The growth of charter schools and voucher programs as standards and assessments drive parental decisions about schools may intensify the trend toward resegregation. Particularly in urban areas, studies suggest that the flight of more affluent white parents to schools that are high achieving will accelerate if test scores and school labels are the means for measuring the quality of education.⁶³ This is particularly alarming in such major metropolitan areas as Denver, Colorado where the court-ordered school desegregation plan under the previously described *Keyes* decision appeared to be successful according to 1989-90 data. However, despite little change in neighborhood composition, one study concluded that the degree of school segregation had risen dramatically in the past decade.⁶⁴

Under NCLB, assessment results must be reported by student subgroups—poverty, race, ethnicity, disability, and limited English proficiency. There are numerous studies that document the existence and severity of an achievement gap between minority and white students.⁶⁵ The identification of these subgroups is detrimental in itself by reinforcing "for many the notion that some groups are 'naturally' inferior to others in cognitive ability."⁶⁶ The policy extension of such a belief is that there is little point in spending public resources to level the playing field, possibly bringing standards and performance down for white students. This subgroup identification also encourages policymakers to think in terms of ethnicity or race, immutable conditions, rather than focusing on the issue of poverty and related dysfunction that could be addressed through more general social policies. The issues related to poverty found to be the biggest determinant of test

performance can include family dysfunction, poor parenting skills, transience, substance abuse, the devaluing of academic performance, and violence.⁶⁷ The NCLB policy definition of low achieving groups in terms of race or ethnicity might obfuscate the roots of low student performance, justifying subsequent actions that do nothing to assist the low performing students.

The *Brown* decision centered around the issue of equal access to educational quality of equal worth.⁶⁸ The process of education was judged according to the diversity of the student population. Policies enacted through the mid-1980s focused explicitly on reducing opportunity barriers and equalizing access and treatment in public school. While complete integration, as well as equal access and treatment, were never fully realized, several studies concur that significant advances were made, producing a high-water mark of public school integration in the late 1980s.⁶⁹ As public attention shifted to public education outputs in the form of standardized test achievement, resegregation began, according to these same studies. Accountability policies that labeled and ranked schools raised parental awareness of “achieving” and “failing” schools (the latter label was eventually softened to “low performing”). Affluent families that were able relocated to “better” schools or enrolled their students in charter or private schools.⁷⁰

NCLB facilitates this *de facto* resegregation by intensifying public awareness of school labels, but does perhaps more damage in promoting a competition of test scores among schools. This competition leads to many practices that discourage the achievement of minority students while dividing class and school composition along racial lines. First, disadvantaged students may be retained or “red-shirted,” particularly in kindergarten, on the premise that they will be more prepared, academically and socially, to achieve better on tests given in the early primary grades. There has been an increase of “red-shirting” of kindergartners, as well as fourth, fifth, and seventh graders in Chicago public schools “due to the unrelenting pressure to raise test scores.”⁷¹ Red-shirting of students does result in better test results when the students are one year older.⁷² The long-term effects of retention, however, are continued low achievement and higher likelihood of dropping out of school.⁷³ Several studies suggest that tying promotion to test scores could increase racial/ethnic disparities in retention.⁷⁴ By extension, this would also increase racial/ethnic disparities in school dropout rates, retaining whites while encouraging minorities to dropout.

Another educational practice that has become increasingly justified under NCLB is the practice of homogeneous tracking. Minority students have been consistently found to be under-represented in “upper” track or college preparatory classes, even during the high-water period of integration.⁷⁵ Homogeneous ability grouping is the logical method of providing NCLB-identified subgroups, such as limited English proficient students or students qualifying for free or reduced lunches (the common school criteria for poverty), the special services needed to increase their test achievement. Although the goal of increased student achievement for all students is the motivation for this new round of tracking, the effect is *de facto* within-school segregation. Groups of minority students may pass white students in the hallway but never have more than a handful of white students in their classes and perhaps not even a common lunch period. The few white students in these classes too often share one or more risk factors with the low tracked minority students and provide a very limited exposure to any diversity of socioeconomic backgrounds. After-school academic remediation programs for at-risk or disadvantaged students encouraged by NCLB

and Title I funds might also limit extracurricular interaction of minority students with white or more affluent peers.

Advancing Equity Goals While Encouraging Choice and High Standards

Ending government-sanctioned segregation, the *Brown* decision ushered in several phases of judicial and legislative activity. In the 1960s and 1970s, federal courts imposed remedies to balance the racial composition of faculty and students in reversing the effects of *de jure* and *de facto* segregation. Federal funds encouraged schools to equalize educational opportunities, and state courts pressed many legislatures to reduce inequities in resources among districts. During the 1980s and 1990s, courts wrestled with the difficult question of when is a school system free of the vestiges of intentional segregation, and thus achieved “unitary” status. Although many policymakers and school administrators celebrated the end of court-ordered desegregation, critics might characterize this phase as court-sanctioned resegregation of schools as policymakers once again favored neighborhood schools.

In yet another phase that continues into the 2000s, state and federal legislatures are sanctioning school choice programs and tightening academic standards with a goal of ensuring that all children can access a high quality education. Congress enacted far-reaching legislation to require state standards and assessments and to encourage school choice. At the same time, the U.S. Supreme Court upheld vouchers to enable low-income students to attend private schools at public expense. Whereas the stated purpose of these actions is to improve education for all children, these two policy approaches will have great impacts on the racial, ethnic, and economic segregation of students. To the extent that these policies are designed with the intent to segregate by race or ethnicity, or that they have the effect of segregation, they work against the equity goals articulated in *Brown* and other judicial decisions.

Policymakers, courts, and the public must address the following questions as we strive to reach goals of achieving a desegregated system:

- How do we know when the goals of desegregation and equal educational opportunity have been achieved? Is it a reflection of racial balance of students and personnel among schools; balances within classes and programs of a given school; or racially neutral outcomes, e.g., educational achievement?
- Which policies best ensure that racial balances achieved under court orders, including mandatory busing, continue once unitary status is achieved? How can school boards and educators guard against the likely resegregation of schools?

Schools of choice have been a policy option for many years. Examining the freedom-of-choice plan adopted in Virginia, the U.S. Supreme Court sanctioned the use of choice where it could be implemented effectively.⁷⁶ Magnet schools have been a favored remedy in many cities, encouraging students of all races and economic backgrounds to attend specialized schools. To the degree that current choice plans – charter schools and vouchers – are effective, the public and the courts should embrace these policies as furthering the goals articulated in *Brown* and other decisions. Indeed, many parents and policymakers argue that these forms of educational choice offer an opportunity to improve the quality of education for all students. However, the studies examined in this paper suggest that these choice programs may work against equity goals. Policymakers should consider the following questions:

- Is there an intent to segregate schools on the basis of race or ethnicity when adopting magnet schools, charter schools, or vouchers?
- Under what conditions should choice options operate to prevent the resegregation of America's schools? What regulations are essential in this new decentralized environment to ensure that policies enabling schools of choice are not in reality the tools of segregationists?
- How can school choice plans enhance student achievement and provide better educational options for all students, and not just for higher socioeconomic groups?

Similarly, the public and school officials should applaud efforts to improve schools' abilities to provide equal and adequate opportunities for all students to achieve high academic standards. Recently enacted federal legislation will impact schools throughout the nation as they struggle to achieve these goals. However, schools are demonstrating low levels of diversity exposure and the acceleration of resegregation through racial identification, ability tracking, and school choice. These are emerging consequences of NCLB, a policy intended ostensibly to equalize the opportunity and learning of minority students with their more advantaged peers. Several points deserve consideration of policymakers as they weigh the educational measurement process and value of educational outcomes:

- How can schools prevent unintended consequences of accentuating achievement gaps and raising dropout rates of poverty students when strengthening academic standards?
- To what extent must federal and state resources provide essential capacity building, i.e., improving schools' access to adequate human and financial resources, to enable all schools in all communities to raise student performance to meet high expectations?
- Is the spirit of *Plessy's* "separate but equal" ruling being reborn through tracking systems that place a disproportionate number of minority students in remedial classes and reduce interracial exposure within schools? How can the potential effects of identifying achievement subgroups by race and ethnicity be minimized?

Only through a reawakening of the public to the perils of policies that hasten a return to the segregated schools will meaningful change occur. Policymakers, courts, educators, and citizens must speak out about the potential negative consequences of schools of choice and heightened academic standards. We must adopt policies at all governance levels – federal, state, and local – that guard against a society in which children learn in settings that are characterized primarily by racial, ethnic, and economic segregation rather than by the nature of the educational programs within.

Endnotes

- ¹ *Brown v. Board of Education of Topeka*, 347 U.S. 483, 74 S.Ct. 686 (1954).
- ² *Ibid.*
- ³ *Brown v. Board of Education of Topeka*, 349 U.S. 294, 75 S.Ct. 753 (1955).
- ⁴ *Ibid.*
- ⁵ *Ibid.*
- ⁶ *Cooper v. Aaron*, 358 U.S. 1, 78 S.Ct. 1401 (1958).
- ⁷ *Goss v. Board of Education*, 373 U.S. 683, 83 S.Ct. 1405 (1963).
- ⁸ *Griffin v. School Board of Prince Edward County*, 377 U.S. 218, 84 S.Ct. 1226 (1964).
- ⁹ *Green v. School Board of New Kent County*, 391 U.S. 430, 88 S.Ct. 1689 (1968).
- ¹⁰ Elementary and Secondary Education Act of 1965. P.L. 89-910.
- ¹¹ *Alexander v. Holmes County Board of Education*, 396 U.S. 19, 90 S.Ct. 29 (1969).
- ¹² Kern Alexander and M. David Alexander, *American Public School Law*, 5th ed. (Belmont, California: Wadsworth Group, 2001).
- ¹³ *Swann v. Charlotte-Mecklenburg Board of Education*, 402 U.S. 1, 91 S.Ct. 1267 (1971).
- ¹⁴ Michael W. LaMorte, *School Law: Cases and Concepts*, 7th ed. (Boston, Massachusetts: Allyn and Bacon, 2002).
- ¹⁵ *Keyes v. School District No. 1, Denver*, 413 U.S. 189, 93 S.Ct. 2686 (1973).
- ¹⁶ Alexander and Alexander, *American Public School Law*.
- ¹⁷ *Missouri v. Jenkins*, 495 U.S. 33, 110 S.Ct. 1651 (1990).
- ¹⁸ *Missouri v. Jenkins*, 515 U.S. 70, 115 S.Ct. 2038 (1995).
- ¹⁹ *Plessy v. Ferguson*, 163 U.S. 537; 16 S. Ct. 1138; 41 L. Ed. 256; 1896.
- ²⁰ *San Antonio Independent School District v. Rodriguez*, 411 U.S. 1 (1973).
- ²¹ See Richard A. King, Austin D. Swanson, and Scott R. Sweetland, *School Finance: Achieving High Standards with Equity and Efficiency*, 3d ed. (Boston, Massachusetts: Allyn and Bacon, 2003).
- ²² *Rose v. Council for Better Education*, 790 S.W.2d 186 (Ky. 1989).
- ²³ *Abbott v. Burke*, 643 A.2d 575 (1994).
- ²⁴ *Alexander v. Holmes County Board of Education*, 396 U.S. 19, 90 S.Ct. 29 (1969).
- ²⁵ *Green v. School Board of New Kent County*, 391 U.S. 430, 88 S.Ct. 1689 (1968).
- ²⁶ *Freeman v. Pitts*, 503 U.S. 467, 112 S.Ct. 1430 (1992).
- ²⁷ *Brown v. Unified School District No. 501*, 56 F.Supp.2d 1212 (Kan. 1999).
- ²⁸ Erika Frankenberg and Chungmei Lee, *Race in American Public Schools: Rapidly Resegregating School Districts*. (Cambridge, Massachusetts: The Civil Rights Project, Harvard University, 2002).

- ²⁹ See Kevin J. Dougherty and Lizabeth Sostre, "Minerva and the Market: The Sources of the Movement for School Choice," in *The Choice Controversy*, ed. Peter W. Cookson (Newbury Park, California: Corwin, June, 1992), 24-45; LaMorte, *School Law*.
- ³⁰ Lori A. Mulholland and Louann A. Bierlein, *Understanding Charter Schools*, Fastback No. 383 (Bloomington, Indiana: Phi Delta Kappa Educational Foundation, 1995).
- ³¹ Brian P. Gill, P. Michael Timpane, Karen E. Ross, and Dominic J. Brewer, *Rhetoric Versus Reality: What We Know and What We Need to Know About Vouchers and Charter Schools* (Santa Monica, California: RAND, 2001).
- ³² U. S. General Accounting Office, *School Vouchers: Publicly Funded Programs in Cleveland and Milwaukee*, GAO-01-914 (Washington, D.C.: U. S. General Accounting Office, 2001).
- ³³ Lee M. Hoffman, *Overview of Public Elementary and Secondary Schools and Districts: School Year 2001-2002* (Washington, D.C.: National Center for Education Statistics, May 2003).
- ³⁴ Alex Medlar and Joe Nathan, *Charter Schools: What Are They Up To?* (Denver, Colorado: Education Commission of the States, 1995).
- ³⁵ Erika Frankenberg and Chungmei Lee, *Charter Schools and Race: A Lost Opportunity for Integrated Education* (Cambridge, Massachusetts: The Civil Rights Project, Harvard University, 2002).
- ³⁶ See Joseph P. Viteritti, *Choosing Equality: School Choice, The Constitution, and Civil Society* (Washington, D.C.: Brookings Institution Press, 1999); Gill et al. *Rhetoric Versus Reality*.
- ³⁷ U.S. General Accounting Office, *School Vouchers*.
- ³⁸ *Zelman v. Simons-Harris*, 536 U.S. 00-1751, 153 L.Ed.2d 604 (2002), <http://laws.findlaw.com/us/000/00-1751.html>
- ³⁹ Martin Carnoy, "School Choice: Or Is It Privatization?" *Educational Researcher* 29 (October 2000): 15-20.
- ⁴⁰ Myron Lieberman, *Public Education: An Autopsy* (Cambridge, Massachusetts: Harvard University Press, 1993).
- ⁴¹ See John Chubb and Terry M. Moe, *Politics, Markets, and America's Schools* (Washington, D.C.: Brookings Institution Press, 1990); Gill, et al. *Rhetoric Versus Reality*.
- ⁴² Chester Finn, Jr., Bruno V. Manno, and Greg Vanourek, *Charter Schools in Action: Renewing Public Education* (Princeton, New Jersey: Princeton University Press, 2000).
- ⁴³ Mary A. Raywid, "Choice Orientations, Discussions, and Prospects," in *The Choice Controversy*, ed. Peter W. Cookson, Jr. (Newbury Park, California: Corwin, 1992), 3-23.
- ⁴⁴ See Gill et al. *Rhetoric Versus Reality*; Carnoy, "School Choice."
- ⁴⁵ Timothy McDonald, "The False Promise of Vouchers" *Educational Leadership* 59 (April 2002): 33-37.
- ⁴⁶ Gill et al. *Rhetoric Versus Reality*.
- ⁴⁷ Frankenberg and Lee, *Race in American Public Schools*.
- ⁴⁸ John R. Logan, *Choosing Segregation: Racial Imbalance in American Public Schools, 1990-2000* (Albany, New York: Mumford Center for Comparative Urban and Regional Research, 2002).
- ⁴⁹ Gill et al. *Rhetoric Versus Reality*.
- ⁵⁰ Edward B. Fiske and Helen F. Ladd, *When Schools Compete: A Cautionary Tale* (Washington, D.C.: Brookings Institution Press, 2000).
- ⁵¹ Kenneth Howe, Margaret Eisenhart, and Damien Betebenner, "The Price of Public School Choice," *Educational Leadership* 59 (April, 2002): 20-24.
- ⁵² Ibid.
- ⁵³ Ibid.
- ⁵⁴ Sean F. Reardon and John T. Yun, *Private School Racial Enrollments and Segregation* (Cambridge, Massachusetts: The Civil Rights Project, Harvard University, 2002).
- ⁵⁵ Casey D. Cobb and Gene V. Glass, "Ethnic Segregation in Arizona Charter Schools," *Education Policy Analysis Archives* 7 (January, 1999): 23-46.
- ⁵⁶ Frankenberg and Lee, *Charter Schools and Race*.
- ⁵⁷ Cobb and Glass, "Ethnic Segregation in Arizona Charter Schools."
- ⁵⁸ No Child Left Behind Act of 2001, Public Law 107-110.
- ⁵⁹ Linda Darling-Hammond, *The Right to Learn: A Blueprint for Creating Schools that Work* (San Francisco, California: Jossey-Bass, 1997).
- ⁶⁰ National Research Council, *Knowing What Students Know: The Science and Design of Educational Assessment* (Washington, D.C.: National Academy Press, 2001).
- ⁶¹ *Education Week*, "Gaining Ground: States Have Come a Long Way in Designing Standards and Tests, But Not Far Enough," in *Quality Counts 2001: A Better Balance* (Bethesda, Maryland), 11 January 2001.
- ⁶² William Rau, Mark N. Shelley, and Frank D. Beck, "The Dark Engine of Illinois Education: A Sociological Critique of a 'Well-crafted (Testing) Machine,'" *Educational Policy* 15 (July, 2001): 404-431.
- ⁶³ See Frankenberg and Lee. *Race in American Public Schools*; Logan, *Choosing Segregation*; Gary Orfield and Chungmei Lee, *Brown at 50: King's Dream or Plessy's Nightmare?* (Cambridge, Massachusetts: The Civil Rights Project, Harvard University, 2004).
- ⁶⁴ Logan, *Choosing Segregation*.
- ⁶⁵ See, for example, Christopher Jencks and Meredith Phillips, ed., *The Black-white Test Score Gap*. (Washington, D.C.: The Brookings Institute, (1995); L. Scott Miller, *An American Imperative: Accelerating Minority Educational Advancement* (New Haven, Connecticut: Yale University Press, 1995); Abigail Thernstrom and Steven Thernstrom, *No Excuses: Closing the Racial Gap in Learning*. (New York: Simon & Schuster, 2003); Julian Weissglass, "The SAT: Public-spirited or Preserving Privilege?" *Education Week* (Bethesda, Maryland), 15 April 1998.
- ⁶⁶ Kenneth Carlson, "Test Scores by Race and Ethnicity," *Phi Delta Kappan* 85 (January 2004): 379-380.
- ⁶⁷ See Carlson, "Test Scores"; J. David Hawkins, Todd I. Herrenkohl, David P. Farrington, Devon Brewer, Richard F. Catalano, Tracy W. Harachi, and Lynn Cothorn, "Predictors of Youth Violence," *Juvenile Justice Bulletin*, April 2000 (Washington, D.C.: U. S. Department of Justice, April 2000). Rau et al., "The Dark Engine."

⁶⁸ Caroline Hendrie, "In U.S. Schools, Race Still Counts: Despite Progress, Challenges Loom." *Education Week* (Bethesda, Maryland), 16 January 2004.

⁶⁹ See Rebecca Gordon and Libero D. Piana, *No Exit? Testing, Tracking, and Students of Color in U.S. Public Schools* (Oakland, California: Applied Research Center, 1999), <http://arc.org/Pages/Estudy.html>; Frankenberg and Lee, *Charter Schools and Race*; Hendrie, "In U.S. Schools, Race Still Counts"; Nancy Kober, *It Takes More Than Testing: Closing the Achievement Gap*. (Washington, D.C.: Center on Education Policy, 2001); Logan, *Choosing Segregation*; Orfield and Lee, *Brown at 50*; Reardon and Yun, *Private School Racial Enrollments and Segregation*.

⁷⁰ See Frankenberg and Lee, *Race in American Public Schools*; Orfield and Lee, *Brown at 50*.

⁷¹ Rau et al. "The Dark Engine."

⁷² George F. Madaus and Maguerite Clarke, *The Adverse Impact of High-stakes Testing on Minority Students: Evidence from 100 Years of Test Data* (Boston, Massachusetts: National Board of Educational Testing and Public Policy, 1998).

⁷³ See, for example, Shane R., Jimmerson, Phillip Ferguson, Angela D. Whipple, Gabrielle E. Anderson, and Michael J. Dalton, "Exploring the Association Between Grade Retention and Dropout: A Longitudinal Study Examining Socio-emotional, Behavioral, and Achievement Characteristics of Retained Students," *The California School Psychologist* 7 (January 2002): 51-62; Madaus and Clarke, *The Adverse Impact of High-stakes Testing on Minority Students*.

⁷⁴ See Robert M. Hauser, Devah I. Pager, and Solon J. Simmons, "Race-Ethnicity, Social Background, and Grade Retention," a paper presented at the annual meeting of the American Sociological Association, Washington, D.C., August, 2000; Gill et al. *Rhetoric Versus Reality*; Jimmerson et al., "Exploring the Association Between Grade Retention and Dropout."

⁷⁵ Jeannie Oakes, "Two Cities' Tracking and Within-School Segregation," *Teachers College Record* 96 (Summer 1995): 681-691; Jomills H. Braddock and Marvin Dawson, Marvin, "Ability Grouping, Aspirations and Attainments: Evidence from the National Educational Longitudinal Study of 1988," *Journal of Negro Education* 62 (Summer, 1993): 324-337.

⁷⁶ *Green v. School Board of New Kent County*, 391 U.S. 430, 88 S.Ct. 1689 (1968).

Save a Place for Leadership in the Debate on Adequacy: A New Model for Developing Leadership for Schools

Mary Devin

Introduction

In the midst of discussions on adequacy of funding, schools are being held accountable for the success of all students and for raising student performance to the highest level ever. It is not unreasonable to fear that essential requirements for the latter will be overlooked as the debate concerning the former intensifies and that issues of funding the existing school model will divert attention from pertinent questions about how to make a new vision for schooling a reality. The No Child Left Behind Act of 2001 (NCLB) established the expectation for schools to successfully educate all of the children of all of the people.¹ Approaches to teaching and learning are being reviewed as never before, and emerging research is confirming there is an important and positive relationship between the role of the principal and student learning. Assuring all students receive the benefits of this quality leadership needed for the schools of the future is an issue of adequacy.

The Problem

The number of openings for principals is predicted to grow by 20% by 2008 as baby boomers reach retirement age.² Practitioners worry if there will be enough applicants to fill those vacancies, but the concern goes beyond the numbers. The growing body of evidence on the importance of the principal's role in improving teaching and learning is shifting the focus to quality of preparation for these candidates. Researchers from the University of Minnesota and the University of Toronto attributed about a quarter of total school effects to direct and indirect effects of leadership.³ McREL researchers found that leadership factors could raise student performance by an average of 10% to 12%. In addition, classrooms look different today due to demographic changes within populations. Building capacity in leaders must be part of effective plans for school improvement.⁴ However, the measure of an effective principal has changed, and a new set of skills is required to create an environment where every child is successful. Preparation programs for administrators must be redesigned to produce candidates with the qualifications required for this work. Those who prepare new administrators and those who supervise principal practitioners must work together to redesign preparation programs and develop ongoing support systems for practitioners. Such collaboration will require

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problem solvers to think creatively and to try new models for delivering traditional services.⁵

A Model to Consider

One such model is the partnering between the Kansas State University (KSU) College of Education and local school districts to offer professional leadership academies as an alternative to the traditional program for preparing principals for state certification. These field-based, intense administrator degree training programs are promising examples of the success that can come from careful planning and collaboration in organizing human resources for best support of success for every child and for maximum return on financial resources invested. For several years, the Department of Educational Administration and Leadership at KSU had joined with school districts to provide professional growth activities for aspiring building leaders. However, for the most part, faculty in the department continued to deliver these services in a fashion not greatly different than before. In the fall of 1999, the pattern began to change.

The idea for the change grew out of informal conversations over time between the superintendents of three school districts and faculty in the department, who prepared educators for state certification as building principals and/or district level leaders. The three superintendents, all of whom had received their own training in the traditional program in this department at KSU, were becoming increasingly concerned about sustaining quality leadership in their districts over time. State leaders and other demographers were predicting large numbers of retirements in the near future, and these education leaders were already seeing a decline in the number of applicants in the pool for leadership positions, particularly for building principal openings. Each district had raised expectations for building leaders to be effective in leading school improvement and increasing student performance, even before the pressures of NCLB were introduced into the mix. NCLB increased the need for new principals to be effective beginning on the first day on the job, and more research was confirming the importance of leadership for the instructional program.⁶

University staff had become more and more concerned that the traditional preparation program for school administrators did not include enough direct connection to the world of the practitioner to produce the product schools were demanding of the preparation program offered at KSU. About that same time, the Kansas Commission on Teaching and America's Future was working on its report calling for redesign of preparation programs and professional development programs for principals to better prepare them to become instructional leaders.⁷ Superintendents were asking how the training program for new building and district leaders might be strengthened so that new position holders were ready for the challenges of school improvement and "adequate yearly progress" (AYP); and they were most interested in having a voice in what those changes in the program might be. Two of these districts were already partnering as professional development schools for the College of Education's teacher preparation program, and all three superintendents were genuinely impressed with the degree to which this model better prepared teachers they were hiring in their respective districts. They wanted to explore applying the same concepts to a field-based intense preparation program for principals and district level leaders. The department faculty members were just as interested in engaging in such conversations with superintendents.

Driven by these concerns and encouraged by the geographic proximity of the four locations, at the suggestion of the department

chair and with the blessing of the Dean of the College of Education, the superintendents met with the department chair and representative faculty members to explore the possibility of working collectively on such a project. The result was a very successful partnership between three mid-sized Kansas school districts and the Department of Educational Administration and Leadership at a major state university. This Professional Administrative Leadership Academy (PALA) is worthy of consideration as a model for schools across the nation interested in forming partnerships to deliver a quality preparation program for building and district administrators. The steps that follow outline the process.

Step One: Clarify the Purpose and Establish Expectations for the Project

The individuals who were to become the PALA Planning Committee met for the first discussion in May 1999 to address questions that would determine what, if anything, came next. The three superintendents invited key district staff members to be present, and the department chair brought representative professors who were teaching the courses required of prospective public school building and district leaders seeking a Masters degree in Educational Administration and state certification necessary for holding such positions. Shortly after the discussion began, it was evident that there was great interest in working together to develop an alternative to the traditional program of 39 hours of credit packaged in discrete course segments. Each person present committed to serving on a planning committee for a partnership that would address a common problem: Finding an acceptable strategy for increasing the number of well-prepared applicants for future leadership positions in these three districts that would have potential for replication elsewhere.

The group easily compiled a list of obstacles that would have to be resolved if such a partnership were to work. First to come to mind were those practical concerns such as how to bridge the distance gap, time equivalencies, budget costs, etc. However, the group felt that the more important and challenging issues involved clear definition of standards for the outcome they hoped to accomplish and agreement on evidence that would determine if those standards were met. Other questions included which group to target (practicing or future administrators or both), how participants would be selected, who would deliver the program, how responsibilities would be divided among the partnering entities, and what resources were available for such an undertaking. After several months of continuing discussions, the following expectations were established for the Professional Administrative Leadership Academy:

- The purpose of PALA would be to increase the pool of qualified candidates for future leadership openings in the participating districts. The cohort group would be limited to 24 participants, with eight slots available to each district.
- PALA would have a two-tiered structure. Participants completing the first year would need to apply to continue for a second year, for which membership would be limited to participants accepted from year one.
- If selected, participants would have to meet the requirements for entry to the Graduate School at Kansas State University. Individuals successfully completing PALA would meet requirements for a Kansas certificate for building leadership and a Masters degree in Educational Administration from the university.

- The course work would be rigorous and equivalent to the 39 hours required in the traditional program for building certification, but would be field-based with rich opportunities for application of theory and skills presented.
- The services of PALA would be the joint responsibility of the department faculty and the three participating districts. Coursework would comprise one-third of the focus of PALA, and the other two-thirds would be supervised application.
- The department would have the primary role in delivery of information. The districts would assume responsibility for field-based connections and would assign practicing principals as mentors to participants for the duration of their program.
- While the three districts would have autonomy in establishing opportunities and guidelines for field experiences for members from their respective districts, program standards and expectations of performance would be the same for all participants in PALA.
- The PALA program would include class work and individual and small group projects. Students would be expected to take the initiative required to be responsible for their own professional growth.

Step Two: Identify the Process for Selecting Participants

The planning committee developed eligibility requirements and the application/selection process for identifying 24 participants. Each district would form its own selection committee and identify up to eight participants from its respective staff that met the established criteria. To assist with the selection process, all applicants would be given the SRI Principal Perceiver. How that score was used would be at the discretion of the respective districts. As the last step in the selection process, the planning committee would review the recommended list of participants from each district and give final approval to the 24-member group.

The planning committee continued to meet over the next several months to finalize details of the partnership. A brochure, developed by the committee and published by the department, was created to introduce the opportunity, establish the eligibility requirements, and announce the application process that would be uniform in all three locations. The brochure and an application form were distributed to faculty in the three participating districts. A timeline was established for selection in early fall, and the first class session was set for the first week in February 2000.

Step Three: Identify Resources Available and Construct a Budget

Budgets were tight in each district; so it was important to estimate the budget impact of any new program. The planning committee members realized they would need to assure the three boards of education that adding this project within the budget year would not deprive other programs of necessary support. At the heart of budget planning was assigning responsibility for PALA services across the four partners. The department chair was willing to redirect some resources in his budget and had also been assured of some budget support from the College of Education Dean, who was encouraging the group to pursue this project. The superintendents were willing to provide human resources and to designate dollars in related areas of their budgets to the extent possible.

The partners looked at what resources were already there and

concluded that the department faculty would serve as instructors as appropriate and as supplemented by contributions from the three superintendents, who served as adjunct instructors for the department from time-to-time. No new budget resources would be required for this part of the partnership. The department chair offered special one-time only resources from his budget to provide stipends for mentors and other professional staff that would be needed to assist with the field-based connections. The superintendents committed district resources to provide materials, including textbooks and other incidental costs. An ongoing commitment to professional development of staff was a characteristic common to each of the four partners. The planners recognized that pertinent staff development resources were already scheduled across the three districts and the College of Education that could be opened to all 24 PALA participants with little if any additional resources required. The pooling of quality staff development programs already in place and directly related to the content standards established for PALA substantially reduced budget issues for the planners.

Although other options were discussed at length, it was agreed that tuition costs would be the responsibility of PALA members themselves. The total cost to each district was estimated at \$20,000 for each year although the actual expenses were well below that amount for each of the two years. The budget items established during planning were:

- Substitute days (eight days per year per participant) to accommodate PALA members observations and field assignments;
- Stipend for instructors and mentors;
- Text materials and supplies;
- Purchased services such as outside speakers and related expenses;
- Meals for evening class sessions;
- Travel for field-based experiences and site visits;
- SRI Principal Perceiver screener as part of the selection process;
- Summer stipends, if necessary.

Fiscal responsibility for most of the above belonged to the respective school districts. However, the KSU Department of Educational Administration was responsible for purchased services, such as outside speakers and related expenses. With regard to stipends for instructors, district experts supplemented university staff.

Step Four: Determine Program Content and Establish Program Standards

With the purpose clear and a general vision in place, the planning committee began the important task of articulating the curriculum and establishing content standards. This was the most challenging step in the planning process. The group looked at academy models for training prospective administrators from other states and at two earlier department efforts in Kansas—one that did not encompass a total preparation program and one that aimed at developing professional skills of staff who had already completed the program, but were still seeking their first administrative assignment. While these models did target development of leadership skills, they did not increase the number of candidates with state certificates, nor did they produce an alternative model for preparation of administrators. None were comprehensive preparation programs resulting in a Masters degree and state certification.

The traditional program of preparing building administrators at KSU consisted of a specified list of discrete courses, taught independent

of one another. Academy planners envisioned an integrated, spiraling curriculum, with rich opportunities for students to grow from both vicarious and mastery experiences. They were looking for a curriculum that would take selected staff members with demonstrated leadership potential through a two year period of study and application experiences and produce highly qualified candidates for leadership openings sure to occur in future years. They wanted a program with leadership for student achievement as the central theme. Materials would be selected from current writings connecting pertinent knowledge and emerging research to practice in their own districts. District staff would help instructors connect class sessions to meaningful authentic experiences, and practicing principals would mentor students as they applied information addressed in direct instruction to real situations. The planners envisioned experiences that would produce networks of professional support for the participants that would continue long after the experience ended.

The planning committee knew they needed a curriculum that satisfied university standards for accreditation by NCATE, met the requirements of the Kansas State Department of Education for building leadership certification, and honored the standards for leadership that were emerging from the profession. Early in the planning process, the committee reviewed the NCATE Curriculum Guidelines for Advanced Programs in Educational Leadership 1994;⁸ ISLLC Standards;⁹ the 21 competencies for principals identified by the National Policy Board for Educational Administration,¹⁰ and other current writings on assessing the performance of principals.¹¹

The planning committee reached agreement on a structure for program content that it believed would meet its criteria. The ISLLC Standards were selected as the general framework for the curriculum, with attention to knowledge, dispositions, and performance under each of the six standards. The National Policy Board's 21 competencies would spiral through all six standards and field experiences. To assist instructors in planning, the committee specified which leadership competencies from the list of 21 identified by the National Policy Board would be addressed under each of the six ISLLC standards in PALA over the two-year time frame. Several of the competencies appeared under more than one standard, assuring multiple opportunities for professional growth of participants. Although the group believed strongly that the standards and the competencies overlapped and could not be treated discretely, the members established further guidelines for what proportion of time would be devoted to each of the six standards. Because of the already established importance of instructional leadership for all partners, it was agreed that 35% of the available time for instruction would be devoted to Standard II, which would address nine of the 21 competencies. Standards I, III, and IV would each receive 15% of the academy time, and Standards V and VI were given 10% time allotments apiece. A matrix was constructed to show how the 21 competencies were spiraled across the standards to emphasize the connections between them.

To determine the specifics of what materials and activities would be used to deliver the concepts of each, the six standards were assigned among the respective partner school districts according to the particular district's demonstrated interest and expertise in an area. Department faculty who had taught the traditional courses would work with all three districts matching their own areas of expertise across the six standards. District responsibilities were assigned equitably with respect to established time proportions. Thus one district with recognized success in raising student results took Standard II (35% of the academy

time), and the remaining five standards were split between the other two districts. For each standard, the responsible district worked with appropriate department faculty to develop an outline of curriculum content and suggested activities. These proposed outlines were presented to the planning committee who reviewed the overall two-year program of study. Special care was taken to make sure appropriate opportunities for meaningful field experiences were included under each standard. When the group was satisfied that the standards were adequately addressed and that the PALA program matched the rigor of the traditional one with added enhancements of appropriate direct and guided applications in the field, the planning committee adopted the curriculum and formally established the performance outcome for the Professional Administrative Leadership Academy.

The brochure soliciting applicants stated: "Participants who successfully complete the academy will have demonstrated proficiency in certain learning expectations that are aligned with the standards set forth by the Interstate School Leaders Licensure Consortium (ISLLC), the Curriculum Guidelines for Advanced Programs in Educational Leadership from the National Council for Accreditation of Teacher Education (NCATE) and the 21 Competency areas formulated by the National Policy Board for Educational Administration." The careful attention to the development of the program of study before the academy began took considerable time but was a key factor in the success of this new model for administrative training.

Step Five: Assessing Student Progress at the End of Year One

The planning committee outlined evaluation measures for PALA, focusing on the performance criteria for the ISLLC standards and based on the established expectation that participants would accept responsibility for their own professional development and demonstrate the skills necessary to direct their future growth. Performance was expected to increase over the two years of participation. With that in mind, specific points of assessment were identified for the first year:

- *Progress on the required Masters portfolio.* The KSU College of Education's Department of Educational Administration and Leadership required a student portfolio in the traditional program, and the planning committee wanted that to be the culminating assessment for PALA participants also. It was agreed that the student portfolio would be organized to reflect the student's mastery of knowledge, dispositions, and successful performance under each of the six ISLLC standards. By the end of the first year, participants would demonstrate an understanding of organization of the portfolio and use artifacts to demonstrate proficiency on the standards. Most importantly, they would be able to articulate areas of need for their own professional growth during the final year and to select appropriate field experiences to address those needs.

- *Reflection on experiences, personal growth, and beliefs.* Academy assignments would be designed to develop the habit of reflection as a powerful tool for self-improvement. Instructors would provide frequent feedback to participants throughout PALA and participants would be required to periodically reflect on their educational philosophy and personal belief statements as educators. They would analyze their own writings, noting professional growth resulting from their experiences.

- *A log of mentoring activities.* Students would keep a brief summary record of all mentoring activities over the two years. Mentors would assist in providing feedback on professional growth to the planning committee and to the student. At the completion of the first year,

students would complete a self-assessment of the how mentored experiences contributed to the development of the 21 competencies.

- *Feedback from mentors.* Mentors and students would jointly complete a rubric assessing the competencies listed under each standard, reaching consensus on the assessment. Mentors would also complete another assessment of the student performance as developed by the superintendent.

- *Personal interview.* At the end of the first year, the members of the planning committee from the home district and a representative of the department faculty would interview each participant. Academy students would lead their own interview, which would consist of a review of the portfolio organization and contents and the personal reflections on performance on each of the standards. Students would be responsible for presenting evidence of knowledge, dispositions, and performance in the six standards and for identifying the areas where more experiences would be needed during the final year. The student's ability to lead the interview would be an important measure of professional growth.

- *Reapplication.* Students would formally apply for continued participation in Year Two of PALA.

Step Six: Assessing Student Performance at the End of Year Two

Assessment measures for the end of program were originally established tentatively, but remained substantially unchanged at the close of the two-year period. The assessments were outlined as follows:

1. The portfolio would be in final form, meeting all requirements for reflection, and including evidence of proficiency in the areas represented by the six standards. Students would select evidence from their class assignments, experiences with mentors, and from special projects. The contents of the portfolio would be evidence of student satisfactory completion of PALA requirements.

2. Each participant would select and complete a major service project during Year Two and create and deliver a presentation summarizing the work and its results. This presentation would be delivered in front of the class and their respective mentors. The planning committee would reach consensus on assessment of the presentations.

3. Mentors would complete an assessment of the students' demonstrated preparedness for leadership positions, noting strengths and areas for continuing growth.

4. End-of-Academy interviews would be conducted in similar fashion to those conducted at the end of the first year. Academy participants would be responsible for leading the conversation around their portfolio and the professional growth its contents represent. A rubric for assessing the interview was developed. The student's ability to plan for continuing professional growth beyond PALA would be an important part of the assessment.

The home district determined grades for the participants, with the planning committee's approval after reviewing all proposed assessments to maintain consistency of standards. Information included written assessments from the mentoring principal. The final rubric for PALA participation used four levels of performance— Awareness, Emerging, Proficient, and Distinguished— for each of six criteria: (1) Articulation of philosophy (changes noted); (2) commitment to administration; (3) understanding of the standards; (4) evidence of performance of the standards; (5) ability to project needs for future growth; and (6) vision for organization and use of the portfolio.

Step Seven: Determining the Overall Success of the Academy

During those early planning sessions, the committee believed that PALA would be a success if it produced an increase in the number of qualified candidates for future leadership positions. Twenty students completed PALA. Three of the original 23 students selected for PALA did not apply for participation in Year Two. One elected to return to the traditional program, and two who entered PALA with credits from the traditional program completed their degree and certification requirements in the first year. PALA had increased the number of candidates available for administrative openings in the three districts and for that reason alone might have been correctly labeled a success. However, the matter of quality of preparedness had also been established as a further criterion of success.

Although formal follow-up of the participants' later assignments has not yet been completed, across the three districts participants went on to positions of increased leadership responsibility in a variety of assignments. For example, in one of the districts, all eight are now in building or district office administrator assignments. Clearly this was the measure of success sought by the partners. However, a number of other noteworthy and enduring outcomes of this partnership have come to light. One of the district partners reported these benefits to the board of education following the conclusion of PALA:

- The number of qualified candidates for leadership positions was increased.
- District leaders participating on the planning committee grew professionally as they interacted with KSU faculty and were stimulated by the responses of PALA participants.
- Many of the special projects completed by the participants contributed directly to school improvement efforts at the building level and produced positive results for students.
- PALA participants shared their experiences often with other district teachers and administrators, extending the professional growth beyond the eight directly involved.
- Mentors cited their own growth as they worked with the PALA students in problem solving situations.
- KSU faculty introduced the staff to additional resources that are useful in professional growth of the district's practicing administrators.
- The close working relationship between the district and the university rose to yet another level. The direct involvement with district staff and programs gave university representatives a greater understanding of and respect for quality programs in the district.
- The district staff gained better understanding of the program standards the university programs must meet and greater appreciation for the expertise of the university staff.
- Opportunities increased for future collaboration between the university and districts.

Reflecting on the Success of the Professional Administrative Leadership Academy

Looking back on the process for establishing and conducting such a markedly different approach to preparing for the principalship, several things can be cited as contributing to its success.

- *Trust among the partners.* The partners shared a common concern and began problem solving with excellent relationships in place among all individuals involved. They acknowledged the project

created potential for disagreement over philosophy, past practices, and resources, but the trust in place made the chance of success far too great not to proceed. The same foundation of trust allowed the members to complete the division of resources and work responsibility smoothly and to find an acceptable balance between uniform standards and district autonomy. The support of the Dean of the College of Education and the chair of the department, and the respect of the superintendents for each other created an attitude of confidence that the resources needed would be available without unfairly burdening any of the partners.

- *Strong staff development programs already in place.* All of the districts and the university had a long-standing commitment to quality staff development programs. The partners had collaborated in the past and were comfortable with the common values and basic assumptions that were shared concerning professional growth and the philosophy of learning.

- *Willingness to take risks to get better and accept new models.* The participating entities were committed to continuous improvement and approached problem solving with a positive "can do" attitude. The staff members from the districts and the participating professors from the university were open to changing their own practices if it were in the best interest of students.

- *Direct involvement of decisionmakers in the planning process.* The leadership of the department chair, the encouragement from the Dean, and the participation of the chief administrative position holder from each district empowered the planning committee with the authority to move ideas to actions effectively.

- *Very thorough attention to planning.* This may have been the most important factor of all. Long before conducting the first session with participants, the planning committee had a strong, comprehensive plan in place. Although not many changes were necessary, the committee continued to meet frequently during the two years and to reflect constantly on its plan. Members were prepared to make adjustments as prudent.

Concluding Comments

The Professional Administrative Leadership Academy, developed through collaboration between Kansas State University and three school districts, provides a model worthy of consideration by those who believe leadership is an issue of adequacy. Five years after that first planning meeting in May 1999, the pool of eligible candidates for administrative positions in the three partnering districts is again becoming a topic of discussion. One of the three districts is at the mid-point of a second academy on its own, and another is planning a second endeavor with new partner for Spring 2005. The KSU Department of Educational Leadership (renamed in 2004) continues to expand application of the PALA model. The Spring 2005 academy will be the ninth for KSU, and its planners are using a model very similar to the one developed for PALA.

The Professional Administrative Leadership Academy model emerged from a holistic approach to addressing a problem and produced an alternative model for preparing principals that has great potential for replication elsewhere. The three districts and the university staff had much in common, but they each also brought individual issues and their own strengths and resources to the table. The program, as envisioned by the planners and delivered, is affirmed in recent research on principal preparation programs. In a report for the Southern Regional Education Board, Bottoms et al. listed six strategies, drawn

from research and direct experiences in schools, universities and state agencies, that state and local leaders can use to secure an ample supply of highly qualified principals.¹² Three of them closely paralleled the framework established for PALA:

- The participants were selected for PALA because they already demonstrated leadership skills in their respective districts. (Strategy 1: Single out high-performers.)

- The leadership preparation program was redesigned with emphasis on student achievement. (Strategy 2: Recalibrate preparation programs.)

- Field-based experiences were a central focus of the program. (Strategy 3: Emphasize real-world training.)

A fourth recommendation in the report is linking principal licensure to performance. That change became effective in Kansas on July 1, 2004.

Endnotes

¹ No Child Left Behind Act of 2001, Public Law 107-110.

² Susan Gates et. al., *Who is Leading Our Schools: An Overview of School Administrators and Their Careers* (Santa Monica, CA: RAND, 2003) cited in Christopher Mazzeo, "Improving Teaching and Learning by Improving School Leadership," *Issue Brief* (Washington, D.C.: National Governors Association Center for Best Practices, September 12, 2003), 1.

³ Kenneth Leithwood, Karen Seashore Louis, Stephen Anderson, and Kyla Wahlstrom, "Executive Summary: How Leadership Influences Student Learning," *Learning from Leadership Project* (Minneapolis, Minnesota, and Toronto, Ontario: University of Minnesota Center for Applied Research and Educational Improvement and University of Toronto, Ontario, Institute for Studies in Education, 2004).

⁴ Tim Waters, Robert J. Marzano and Brian McNulty, "Balanced Leadership: What 30 years of Research Tells Us About the Effect of Leadership on Student Achievement," a working paper (Aurora, Colorado: McREL, 2003.)

⁵ Gene Bottoms, Kathy O'Neill, Betty Fry, and David Hill, *Good Principals Are the Key to Successful Schools: Six Strategies to Prepare More Good Principals* (Atlanta, Georgia: Southern Regional Education Board, March 2003).

⁶ Northwest Regional Educational Laboratory, *Research You Can Use to Improve Results* (Alexandria, Virginia: ASCD, 1999), 37-39.

⁷ The Kansas Commission on Teaching and America's Future, *Put Students First: A Competent, Caring and Qualified Teacher in Every Classroom. An Action Plan for Kansas Public Education in the 21st Century* (Lawrence, Kansas: The University of Kansas School of Education, Institute for Educational Research and Public Service, May 2000).

⁸ National Council for Accreditation of Teacher Education, "NCATE Curriculum Guidelines," *Advanced Programs in Educational Leadership* (Washington, D.C.: 1994).

⁹ Council of Chief State School Officers, *Interstate School Leaders Licensure Consortium: Standards for School Leaders* (Washington, D.C.: State Education Assessment Center, 1996).

¹⁰ National Policy Board for Educational Administration, *Principals for Our Changing Schools: Knowledge and Skills Base* (Fairfax, Virginia: 1992).

¹¹ Linda Skria, David A. Erlandson, Eileen M. Reed, and Alfred P. Wilson, *The Emerging Principalship* (Larchmont, New York: Eye On Education, Inc., 2001).

¹² Bottoms et al., 3-10.

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SPRING 2001: a general issue of submitted manuscripts on education topics.

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