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Designing Finance Structures to Satisfy Equity and Adequacy Goals

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Abstract
In addition to setting high standards for student performance, educational policies must consider what resources are essential to provide an adequate educational program to meet all students' learning needs. Policy makers also want to ensure that educators make efficient use of available resources. In this exploration of school finance policy, we advance a conception of adequacy as the ideal state of vertical equity, examine the evolution of this concept through judicial reviews, and discuss methods for determining the level of funding required to achieve adequacy. We then discuss economic and political problems inherent in institutional inefficiencies that are likely to derail efforts to raise achievement in poorly performing schools even after granting them an adequate level of resources. The paper concludes with a description of how a state funding formula might provide a foundation for adequacy in all districts.

Defining, funding, and implementing an adequate educational program are critical issues facing policy makers and educators in the coming decade. Lofty ideals are expressed by a conception of adequacy as "the ideal state of vertical equity" (King, Swanson, & Sweetland, 2003, p. 307) and by the No Child Left Behind Act's (2001) promise of "ensuring that all children have a fair, equal, and significant opportunity to obtain a high-quality education." Attaining these goals necessitates resources and school programs that are commensurate with the individual needs of learners. However, the provision of sufficient resources to enable all students to acquire appropriate specified levels of knowledge and skills (Guthrie & Rothstein, 2001) does not itself bring equity of outcomes. We argue in this paper that policy makers and educators must also examine inefficiencies. They must remove impediments that keep schools from employing those resources in ways that enable all students to achieve high standards.

We define adequacy within the larger goal of achieving equity in education, examine the evolution of this concept through judicial reviews, and discuss the level of funding required to achieve adequacy. We then turn to the economic and political problems inherent in institutional inefficiencies that may derail efforts to raise achievement in poorly performing schools even after granting them an adequate level of resources. We conclude with a description of how a funding formula might provide a foundation for adequacy in all districts.

Defining Adequacy in the Context of Achieving Equity

Equality is an ethical value that influences school finance policy. Equality is defined as the state, ideal or quality of being equal as in enjoying equal social, political and economic rights. However, the operational definition of equality within the socio-political context also includes factors of condition, placing emphasis on the appropriateness of treatment. As such, equality has taken on the broader connotations of *equity*, defined in Morris (1969) as, "the state, ideal, or quality of being just, impartial and fair" (p. 443). In this discussion of adequacy, the term "equity" is used instead of "equality" as more accurately reflecting modern usage in reference to public policy.

Since the publication of *A Nation at Risk* in 1983 (National Commission on Excellence in Education, 1983), there has been a growing recognition by policy analysts, policy makers, and the courts that an equal distribution of resources will not close the achievement (or outcomes) gaps among ethnic and socio-economic groups. This is particularly true if the amount of resources distributed equitably is not sufficient to provide the instructional resources required to eliminate those gaps. Thus, consideration of equity issues increasingly has been approached from the perspective of adequacy. Adequacy might be defined simply as the state of being *sufficient* for a particular purpose. Guthrie and Rothstein (2001) elaborated by blending sufficiency with desired outcomes in defining adequate financing as follows: *"Sufficient resources to ensure students an effective opportunity to acquire appropriately specified levels of knowledge and skills"* (p. 103; emphasis in original).

Berne and Stiefel (1984) proposed three principles that can be used to determine whether a particular distribution of resources is equitable: horizontal equity, vertical equity, and equal opportunity. *Horizontal equity* refers to the equal treatment of equals–the traditional meaning of "equality." *Vertical equity* recognizes that equal treatment is not always "fair and just" for pupils experiencing extraordinary conditions such as poverty or physical, psychological and mental disabilities. Thus vertical equity allows for justifiable unequal

treatment of unequals. Berne and Stiefel (1984) defined equal opportunity in negative terms as the condition in which there are no differences in treatment according to characteristics such as race, gender, national origin or others that are considered illegitimate. Other analysts treat equal opportunity as a condition of horizontal equity, the position we favor. Until recently, virtually all studies of school finance equity have dealt only with the horizontal and equal opportunity dimensions. Vertical equity has become a critical concept within the adequacy context.

Underwood (1995) stated that adequacy is a form of vertical equity, nicely linking the two concepts. We also take this position in interpreting adequacy as *the ideal state of vertical equity*. In the context of NCLB, the criteria for meeting adequacy goals might be stated as follows: *sufficient resources are available in all districts/schools to enable school personnel to create the learning conditions within which each student can reach a proficient or higher level of performance on assessments that are aligned with state standards.*

Judicial reviews of state school finance statutes followed a similar path to that taken by policy analysts. The courts initially centered on inputs and their distribution in relation to horizontal equity and equal opportunity. Attention shifted from this focus on resource inputs to a concern for resource adequacy.

Judicial Perspectives on Adequacy

Whereas early litigation examining school finance structures relied upon state or federal constitutional provisions requiring “equal protection” under the laws, later analyses applied criteria[1] drawn from education articles within state constitutions. In addition to assigning the responsibility for establishing and maintaining public education to state legislatures, these articles typically specify that this educational provision must be "uniform," "adequate," "thorough" and/or "efficient."

Challenges to the legality of states' school finance plans contend that all students must have access to equal, efficient and adequate educational opportunities. States respond that education articles require only that state resources ensure a basic, or minimum, education in all districts. Defendants might argue, for example, that the education article is satisfied even though policies permit local voters to spend more in some districts for programs, technologies, or facilities than is available in other districts in which voters do not expand resources beyond the base level under the funding formula. Very often a conflict over state statutes centers on the amount of discrepancy tolerated, particularly when the lowest spending districts have inadequate resources to deliver educational programs to meet what the states demand in their curricular standards. As we discussed previously, an adequacy criterion considers whether there are sufficient funds in all districts to effectively meet pupils' educational needs and enable them to attain desired results.

A series of New Jersey decisions illustrate the evolution of this adequacy criterion. In the early 1970’s, the state Supreme Court concluded that the finance policy did not provide a "thorough and efficient" education (*Robinson* v. *Cahill*, 1973). After a lengthy period of alternating legislative actions and judicial reviews, the court found the finance system to be unconstitutional as it affected selected poor urban districts (*Abbott* v. *Burke*, 1990). Education in these settings was "tragically inadequate" in virtually all areas of curricula, personnel, and facilities. The court ordered the state to fund schools in poorer cities at the level of property-rich districts and to ensure adequate funding "to provide for the special educational needs of these poorer urban districts in order to redress their extreme disadvantages" (at 363).

Compensatory aid that raised spending above that of richer districts would satisfy the constitutional requirement of "a certain level of education, that which equates with thorough and efficient; it is that level that *all* must attain; that is the *only* equality required by the Constitution" (*Abbott* v. *Burke*, 1990, at 369). The legislature responded with a comprehensive plan to link resources to the cost of programs to meet content and workplace readiness standards. However, plaintiffs prevailed once again since inadequate funds and facilities continued to impede the efforts of 28 poor urban districts to conform to the model necessary for students to achieve the standards (*Abbott* v. *Burke*, 1998). Goertz and Edwards (1999) noted that the measure of a thorough and efficient education had become the provision of programs and facilities necessary to meet the content standards at the level present in the wealthiest districts.

The concept of adequacy gained visibility in the Kentucky Supreme Court's holding that the "*entire system* of common schools is unconstitutional" (*Rose* v. *Council*, 1989). The court placed an absolute duty on the legislature to "re-create, re-establish" the public education system:

> This decision applies to the statutes creating, implementing and financing the *system* and to all regulations, etc. pertaining thereto. This decision covers the creation of local school districts, school boards, and the Kentucky Department of Education to the Minimum Foundation Program and Power Equalization Program. It covers school construction and maintenance, teacher certification – the whole gamut of the common school system in Kentucky. (at 215)

The concern for adequacy was apparent in the court's specification of seven competency areas, including academic content and vocational skills, that would enable students to compete in academics or the labor market.

An adequacy criterion also underscored holdings in Tennessee and Massachusetts. The Tennessee Supreme Court noted that reliance on local funds inhibited poor districts' abilities to meet program standards of the 1990 state Master Plan. It found "a direct correlation between dollars expended and the quality of education a student receives" (*Tennessee Small School Systems* v. *McWherter*, 1993, at 144). Determining that the issues were "quality and equality of education" rather than equality of funding, the court concluded that the finance system was unconstitutional. Responding to a contention that substantially equal funding would "squelch innovation," the court noted: "Given the very nature of education, an adequate system, by all reasonable standards, would include innovative and progressive features and programs" (at 156).

The Massachusetts Supreme Judicial Court, the state's highest court, similarly ruled the finance system to be inadequate and unconstitutional (*McDuffy* v. *Secretary*, 1993). Such deficiencies as inadequate teaching of the basics, neglected libraries, poor quality teachers, lack of curriculum development, lack of predictable funding, administrative reduction, and inadequate guidance counseling contributed to the holding. In commenting on these inadequacies among districts, Underwood (1994) noted that plaintiffs can prevail under a "deprivation theory" (p. 147). This argument can be successful if there is evidence that students do not receive a minimum level of education necessary to prepare them for responsibilities of citizenship.

An aspect of resource adequacy taken into consideration by several courts is the provision of school facilities. Because few state funding formulas provide equalization of local wealth in support of capital outlay, buildings in poorer districts in nearly all states are in need of extensive repairs (Education Writers Association, 1989; U. S. General Accounting Office, 1995). Judicial reviews in Arizona and Ohio focused particular attention on the condition of

facilities as an indicator of adequacy. The Arizona Supreme Court concluded that the financing of capital outlay did not satisfy the mandate to provide a "general and uniform" school system (*Roosevelt* v. *Bishop*, 1994). In particular, the court noted disparities in the condition and age of buildings and the quality of classrooms and instructional equipment. Disparities in facility quality resulted from "a combination of heavy reliance on local property taxation, arbitrary boundaries, and only partial attempts at equalization" (at 815). The Supreme Court subsequently ruled that several legislative acts failed to meet "an adequate capital facilities standard" (*Hull* v. *Albrecht*, 1997, at 1146).

Similarly, the condition of facilities was a key consideration in a review of Ohio school finance. An earlier decision by the state Supreme Court upheld the finance system as being rationally related to local control interests (*Board of Education* v. *Walter*, 1979). The 1997 reversal of this logic rested upon an adequacy criterion. The Ohio court declared the statewide education system to be unconstitutional in its failure to meet the thorough and efficient mandate. The court ruled that a thorough system is not starved for funds and an efficient system does not lack teachers, buildings and equipment (*DeRolph* v. *State*, 1997). The court reiterated this holding in 2000 and 2002 when plaintiffs complained that the state failed to provide funds to meet students' needs**.**

In contrast to these decisions favoring plaintiffs are a number of judicial reviews that upheld states when applying efficiency and adequacy requirements of education articles. The Georgia Supreme Court held that the term "adequate education" in the constitution did not "impose an obligation on the legislature to equalize educational opportunities." Nor did it prevent local districts from raising funds to improve education (*McDaniel* v. *Thomas*, 1981). The Minnesota Supreme Court applied the stringent strict scrutiny test (see Underwood, 1989) when holding that education was a fundamental right (*Skeen* v. *State*, 1993). The finance system, including voter approved tax supplements and debt service levies, satisfied this constitutional test. The disparities in overall funding were not objectionable, as long as the equalized base funding level provided an adequate education. The court noted that adequacy "... refers not to some minimal floor but to the measure of need that must be met" (at 318).

The Virginia Supreme Court accepted state minimum standards as the definition of adequacy in its decision that declared education to be a fundamental right and upheld the finance plan (*Reid Scott* v. *Commonwealth*, 1994). The constitution did not mandate "substantial equality of payments or programs," but guaranteed only that the State Board of Education's Standards of Quality be satisfied. The Rhode Island Supreme Court noted that money alone does not determine whether students receive "an equal, adequate and meaningful" education (*Pawtucket* v. *Sundlun*, 1995). The Florida Supreme Court interpreted the state constitution as requiring only a system of schools that provide students an equal chance to achieve basic educational goals (*Coalition for Adequacy and Fairness* v. *Chiles*, 1996).

Adequacy of resources in relation to curricular standards became an issue in the 2000 Wisconsin Supreme Court decision. The court held that as long as the legislature provided sufficient resources to enable an equal opportunity for a sound basic education, the school finance system would pass constitutional muster (*Vincent* v. *Voight*, 2000). The court defined a sound basic education as the opportunity for proficiency in mathematics, science, reading, writing, geography and history and for exposure to the arts, social studies, physical education, health, foreign language, and vocational training.

In summary, state courts have mixed views of the requirements for funding plans to satisfy constitutional language. One set of courts, ruling in favor of plaintiffs, held state legislatures to the provision of adequate operating revenue, and in some cases even to the provision of adequate facilities, to enable high minimum levels of education in all districts.

The other set of decisions upholding state plans illustrate judicial tolerance for spending disparities, particularly when they reflect voters' preferences and when a base funding level enables districts to provide a basic educational program. Moran (1999) concluded that states prevail if they have "well developed content and performance standards, assessment systems, and rationally related funding formulas for ensuring that students meet proficient levels of performance" (p. 40).

The national No Child Left Behind Act (2001) requires that all children have access to programs enabling them to meet challenging state academic content and performance standards. If federal and state curricular expectations are to be realized in all districts, then courts and legislators will more closely scrutinize resource adequacy in relation to student achievement. Enabling poor and at-risk students to achieve proficiency on assessments related to state standards requires adequate levels of resources in all school districts. Minorini and Sugarman (1999) noted that adequacy is an important criterion for judging school finance policy in relation to constitutional provisions of equality and efficiency, particularly in the context of high performance expectations:

> What is most distinctive about the adequacy approach is that, unlike the traditional school finance cases, it does not rest on a norm of equal treatment. Indeed, the adequacy cases aren't about equality at all, except in the sense that all pupils are entitled to at least a high-minimum. In other words, adequacy is not a matter of comparing spending on the complaining group with spending on others. It is rather about *spending what is needed* (and its focus is in some respects more on the school or the pupil than on the district). (p. 188; emphasis added)

Koski and Levin (2000) observed that judicial holdings embracing this criterion would assist legislative policy development: "This newer strategy has the advantage of assuring that equity is not achieved at a mediocre level of funding equality, and it eliminates a political source of opposition to educational funding reform by not threatening districts that are spending above this high minimum level" (p. 490). As states adopt rigorous standards and high expectations for academic results, the judiciary may decide that there is a *legislative duty* to provide commensurately high levels of resources in all school districts. Koski and Levin (2000) commented on courts' adoption of adequacy as a criterion: "Thus regardless of the difficulties in operationalizing the adequacy theory, advocates and courts armed with new state standards may nonetheless establish definitions and measures for adequacy that will be legal standards and, perhaps, legal rights" (p. 495).

To the degree that judicial holdings reinforce a legislative duty, school finance structures must strive to fund schools equitably and adequately in relation to performance expectations. In this context, policy analysts concern themselves with understanding the level of funding necessary to reach adequacy goals.

State and Local Resources to Fund Schools at an Adequate Level

Setting the national educational goal at educating *all* children to high levels of proficiency on state standards has transformed the orientation of school finance policy. The challenge directly links finance to the purposes of education (National Research Council, 1999). Thus, while equity remains a primary goal of public policy, the object in analyzing equity has shifted from inputs to schooling outputs. Since public policy cannot affect student achievement and other outcomes directly, but only indirectly through the amount of resources

provided and the practices of schools and related institutions, the *adequacy* of equitably distributed inputs has moved to the forefront of policy debates.

Although the assumption that there are positive relationships between resource inputs and schooling outcomes makes intuitive sense, the empirical evidence is weak making the problem of achieving equity of outputs exceedingly difficult. While the evidence of positive relationships is growing, there is stronger evidence that an equal application of resources under similar conditions yields widely disparate results. Some schools are more adept (dare we say more efficient?) in transforming applied resources into the realization of desired educational objectives than are others. We discuss efficiency in the use of resources in a subsequent section.

In the absence of full understanding of these relationships, the best that we can do at the moment from a policy standpoint is to identify resource levels that *can* produce the results we want to achieve with children of differing characteristics with a reasonable degree of probability. Guthrie and Rothstein (2001) state that the determination of adequate funding levels rests upon a twofold policy judgment about the following:

- Learning or performance levels to be attained (the outcomes).
- Resource levels likely to permit schools to accomplish these learning levels with students (the educational technology).

Strategies used by policy analysts to determine the adequacy of resources include: (1) econometric approach – conducting statistical analysis of statewide databases that include schooling input measures, student achievement and other measures of output, and demographic information; (2) successful schools approach – analyzing expenditures within districts (or schools) that achieve stated state standards; (3) professional judgment approach – determining costs of resources needed once a panel of experts construct***s*** an ideal delivery system to meet curricular standards within a given state; and, (4) whole-school reform approach – costing out one or more models for whole-school reform intended for adoption in their entirety by schools (National Research Council, 1999; Guthrie & Rothstein, 1999).

Econometric Approach

In essence, *adequacy* is 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 the districts themselves; but the results should be the same regardless of these considerations. The costs of adequacy under varying circumstances (vertical equity) can be estimated statistically when a sufficiently large database is available by estimating cost functions.

This econometric approach uses a variation of multiple regression such as two-stage least square regression. A measure of the instructional cost per unit (pupil or classroom) serves as the dependent variable. The independent variables include measures of pupil performance, pupil characteristics, and district characteristics. Built on the set of basic relationships among variables in the sample, this treatment produces a regression equation that yields a unique cost for each district for producing the desired level of achievement given the district's characteristics and those of its pupils. Recent research following this method include Duncombe and Yinger (1999, 1997; also, Duncombe, Ruggerio, & Yinger, 1996) who analyzed

school districts in New York State and Reschovsky and Imazeki (2001) who studied Texas and Wisconsin.

This approach carries with it the advantages that it bypasses the necessity to specify an instructional delivery system and eliminates the need to determine costs of instructional components. In discussing this approach, the National Research Council (1999) observed that there is a greater level of precision possible than with other approaches. They also commented on its limitations in not being able to quantify desirable outcomes and weaknesses in the production theory on which cost models are designed.

Successful Schools Approach

This empirical approach identifies schools that have successfully achieved a defined level of acceptable student performance in relation to state curricular standards. These so-called successful schools are studied as to pedagogy and resource application under the assumption that replicating these practices *can* yield the results desired.

In essence, this is the implicit theory supporting the previously discussed New Jersey Supreme Court's decisions (*Abbott v. Burke*, 1990, 1997, 1998). In the 1990 decision, the court acknowledged that the state had established general standards that could be used to test for conformity with the constitutional requirement of a thorough and efficient system. However, the court found that in practice this had not happened. Because of the absence of clear measures of substantive educational opportunity, the court subsequently adopted a default remedy – practices in the state's wealthiest districts. "Average spending on the regular education program in the state's 108 wealthiest suburban districts thus became the presumptive standard of thorough and efficient for the state's 28 poorest urban communities" (Goertz & Edwards, 1999, p. 16). The court ordered parity in regular education funding, then directed attention to the scope and cost of supplemental programs for the poorest districts:

> Spending on regular education programs in the state's 28 poorest urban districts, which educate 22 percent of the state's students and about 75 percent of its students of color, is on par with the average expenditures of the state's wealthiest communities. In addition, students in poor urban communities are guaranteed access to pre-school programs, health and social services, and better educational facilities. All urban elementary schools must undertake some form of "whole school reform" as a way of delivering more effective educational services. (Goertz & Edwards, 1999, pp. 5-6)

This successful schools approach to defining adequacy guided studies in Ohio (Augenblick, Alexander, & Guthrie, 1995; Augenblick, 1997). Variations of this method have also been followed in analyses of school finance structures in Colorado, Maryland, Mississippi, and New Hampshire. The National Research Council (1999) noted the advantage of this approach in providing transparency. Compared with the econometric approach, its assumptions are clearer and the analysis is easier for policy makers and the public to understand. However, this approach is also limited by its failure to take socio-economic differences among students into account. Furthermore, like the econometric approach, this strategy relies on limited measures of school outcomes; that is, "…the minimum proficiency tests measure only certain cognitive outcomes, not the full range of cognitive, value, and behavioral outcomes that courts and legislatures have used to identify an adequate education" (p. 120).

Professional Judgment Approach

This approach relies upon educators and other experts to identify what resources are essential in an elementary, middle or high school to enable pupils to meet state standards and performance expectations. In building a model school that conforms to the state's specific conditions, designers can draw from the knowledge base of existing research, from the experiences of schools around the country in implementing reform models (see the next approach), and from the wisdom and experience of the state's own practitioners. Once an eclectic model is formulated, its components can be costed out and totaled for a measure of financial adequacy. This approach assumes that students' success on state proficiency assessments is the result of having an "ideal-type delivery system without either statistical or empirical inference from actual measured outcomes" (National Research Council, 1999, p. 120). Furthermore, it is assumed that the level of resources obtained from the costing out process can enable schools (or districts) to provide such a system.

The professional judgment approach is grounded in the Resource Cost Model developed by Chambers and Parrish (1994). In analyzing resources needed to deliver an "appropriate" education in Illinois and Alaska, they convened committees of teachers, administrators and public officials. A later refinement of the process was employed in Wyoming following the state Supreme Court's holding that the legislature had a duty to fund an adequate education (*Campbell County School District* v. *State*, 1995). This duty entailed determining what should be included in a "proper" education, analyzing the cost of its delivery in different districts, and adopting a finance plan to provide these resources. Guthrie et al. (1997; summarized in Guthrie & Rothstein, 1999) relied upon expert educators in the state and nationally to identify the resources needed for prototype elementary, middle and high schools to meet respective state standards. Essential resources constituted a "basket" of educational goods and services in Wyoming. This level of adequacy became the basis for the legislature to restructure the state finance plan.

Unlike the statistical analysis approaches that rely upon poorly specified outcome measures, this approach asks expert panels to consider state expectations for student performance. Another advantage is in having panels "explicitly weighing the best available knowledge about instructional components and their connection to desired educational outcomes" (National Research Council, 1999, p. 123). However, this approach suffers due to a lack of reliability; that is, panels may arrive at very different conclusions while using similar information. In addition, policy makers may be reluctant to accept the recommendations of panels that are made up largely of educators. Their urging higher levels of funding may be seen as a conflict of interest.

Whole-School Reform Approach

A number of organizational strategies intended to make schools more effective have been developed over the past two decades. Seven blueprints advocated by the New America Schools (2000) for comprehensive school reform and other models for whole-school reform have been designed by practicing educators, or at least in consultation with them, and in tune with national research. None of the models has been firmly established by research as being better than the rest (National Research Council, 1999), but several have been carefully evaluated with promising results. It could be argued that determining the resources needed for

at least those designs that have a documented record of success can serve as a benchmark of adequacy.

Costing out the implementation of such models (King, 1994) would provide a financial measure of adequacy. Odden and Picus (2000) have shown that by reallocating resources already committed, "the average elementary, middle and high school in America has sufficient resources to finance all these school designs, even after providing planning and preparation time" (p. 336). In New Jersey, while the court used the empirical approach to establish a level of adequacy for non-classified students, it took the whole-school reform model approach in establishing an adequacy level for children at risk. Indeed, with the resources provided to the Abbott schools, the most expensive of the whole-school reform models (Success for All/Roots and Wings) could be implemented with a substantial amount of discretionary money remaining (Odden & Picus, 2000, p. 350).

These approaches assist the task of measuring the cost for schools to provide an adequate educational program in line with state standards. We next examine concerns about inefficiencies inherent in schools that work against the goal of having all students achieve at proficient levels.

Economic, Political and Organizational Issues That Affect Operational Efficiency

Most nations have organized their school systems at the national level. The United States chose, instead, to place the responsibility for educating its citizens with the states and all except Hawaii chose to assume only a limited supervisory role and created school districts (some 12,000) to run and to partially finance public schools. In a critical analysis of public education in the United States, Morrison (1943) disdainfully described this structure as "late New England colonial" (p. 258) and described the school district as "a little republic at every crossroads" (p. 75). Morrison was focusing on this unique characteristic of American public education, its extreme decentralization. Herein lies both its strengths and weaknesses.

Decentralized educational systems seem to be more adept than highly centralized and bureaucratic ones at mobilizing the energies of their constituents and adapting curricula and instructional systems to the diversity of those constituents. Yet decentralized systems have a tendency to become inequitable, providing uneven quality of services. The good schools in a decentralized system tend to be very, very good; but such a system also generates—and tolerates—very poor schools. To bring about a greater degree of equity and to set minimally acceptable social standards requires intervention by higher levels of government, i.e., state and/or federal. This has been happening with increasing frequency over the sixty years since Morrison made his observation.

Not all public schools are failing; indeed, most are not and the level of support of schools that are succeeding is not, on average, too different from those that are failing. Many of the failing schools actually have access to higher than average resources. The goal of achieving horizontal equity in the distribution of resources to the schooling process has been largely achieved; but this has not resulted in the realization of our ultimate goal, horizontal equity in student outcomes. As noted in previous sections, one explanation for variations in outcomes given similarities in inputs is that the resource needs of some schools, presumably those serving primarily at-risk student populations, are greater than for other schools, a matter of vertical equity. An alternative explanation of variations in student outcomes is that some schools, again, presumably those serving primarily at-risk student populations, are not using

the resources allocated to them as effectively as are other schools, a matter of efficiency. There is merit in both possible explanations.

In this section, we look at the evidence supporting the latter explanation. Given that adequacy and resource allocation issues are determined largely through a political process in the public sector, we take into account the influence of the political decision making process in shaping public policy about these economic issues.

Internal Efficiency Considerations that Influence the Determination of Fiscal Adequacy

An important aspect of economic efficiency that must be considered in determining what is adequate financial support of schools relates to the means by which educational services are produced. *Internal efficiency* examines the allocation of resources *within* educational enterprises in order to maximize output from the resources committed (for example, academic achievement, skill development, behavior and attitudes of students). Studying internal efficiency is directed toward gaining the maximum benefit from the resources committed to an institution or operation such as a school or classroom.

Traditionally, equity of educational opportunity in the United States was measured in terms of the distribution of inputs, especially expenditures per pupil, under the assumption that resources would be used at a common level of productivity. This assumption has been strongly challenged by Hanushek (1986, 1991, 1996a), who claims that research has shown no consistent relationship between schooling inputs and student achievement, and defended by Hedges, Laine, & Greenwald (1994a & 1994b) and Greenwald, Hedges, & Laine (1994) who claim the opposite. But even the most passionate defenders have acknowledged that relationships between inputs and student achievement are not robust across the board. Grissmer (2001) noted that, with respect to recent non-experimental studies, analytical models thought to have superior specifications provided no more consistent results than those previously reviewed. Some studies using better and more current data, did show positive effects from resources (Ferguson, 1991; Ferguson & Ladd, 1996); but, on balance, results are still inconsistent (Hanushek, 1996a; Ladd, 1996; Burtless, 1996). Grissmer concluded, that "evidence...appears to be converging on the hypothesis that certain kinds of targeted expenditures can raise achievement, particularly for disadvantaged students, but additional resources above current levels may not matter much for more advantaged students" (p. 139).

Levin (1994) has included as necessary conditions for equity, access by all children to a full range of appropriate educational programs and to the funding and other resources that will enable them to benefit fully from those programs. In citing several studies that have shown large variations in outcomes of schools with apparently similar resource and student characteristics, Levin placed as a sufficient condition that schools be maximally effective with all children so that resources are used optimally to meet their students' educational needs. In coming to these conclusions he noted that inefficiencies seem to be greatest among schools serving populations that are at greatest risk educationally.

The focus on higher achievement standards has not universally been accompanied with a call for substantially more financial resources. There is a prevailing assumption among many policy analysts (but not among educational practitioners) that current allocations for education are sufficient, or nearly sufficient, for reaching higher standards if existing resources are distributed more wisely and used more effectively. For example, the plan of the Consortium on Renewing Education (1998) to double the nation's academic achievement scores by the

year 2020 calls for no additional resources to those currently provided beyond that which would be allocated for pre-collegiate education if the trend of previous financial increases continues. "Incremental dollars for increased student enrollments and cost of living increases should be sufficient to meet this goal, if the nation's systems of schools were concentrating intensively on academic achievement" (Consortium, 1998, p. 12). In a similar vein, as noted in a previous section, when Odden and Picus (2000) costed out a number of whole school reform strategies developed over the past two decades to make schools more effective, they concluded that by reallocating resources already committed, "the average elementary, middle and high school in America has sufficient resources to finance all these school designs, even after providing planning and preparation time" (p. 336).

These studies suggest that, if equity of outcomes is to be realized, the issues of productivity, effectiveness and internal efficiency must also be satisfied. Summarizing the deliberations of the Panel on the Economics of Education Reform (PEER), Hanushek (1996b), the panel's chair, wrote:

> Reform–in education as in other areas–is often thought of as the process of securing more resources. Here our panel breaks with tradition. Analysis of the history of schools in the twentieth century does not suggest that American society has been stingy in its support of schools. Quite the contrary, funding for schools has grown more or less continuously for 100 years. The fundamental problem is not a lack of resources but poor application of available resources. Indeed, there is a good case for holding overall spending constant in school reform. Not only is there considerable inefficiency in schools that, if eliminated, would release substantial funds for genuine improvements in the operation of schools, but there also is a case for holding down funding increases to force schools to adopt a more disciplined approach to decision making. *Schools must evaluate their programs and make decisions with student performance in mind and with an awareness that trade-offs among different uses of resources are important.* (p. 30; emphasis added)

Internal efficiency studies (including those by Duncombe & Yinger (1999, 1997), Duncombe, Ruggerio, & Yinger (1996), and Reschovsky & Imazeki (2001) as well as those noted in this section) suggest that we have serious allocation problems. That is, schools serving the most disadvantaged students are seriously underfunded while, by implication, schools serving socially advantaged students are overfunded. Beyond this, allocation inefficiencies extend to the way resources are appropriated within the schooling enterprise. This internal efficiency problem can be dealt with to a large extent institutionally by reorganizing the schools according to best practice and by renegotiating labor contracts.

Strategies for Improving Internal Efficiency

Among the sources of internal inefficiencies in schools are the traditional mode of compensation, the assignment of teaching duties, and the growing number of noninstructional specialists and support staff. In this section we explore several examples of organizational changes that can improve the efficiency of public schools.

Teachers, with few exceptions, are paid according to a single salary schedule that has two dimensions: length of service and amount of formal education beyond the bachelor's degree. Thus, a teacher with twenty years of experience and thirty graduate credit hours beyond a master's degree is likely to earn about twice as much as a beginning teacher with a bachelor's degree. Yet, research has shown that there is little evidence of any relationship between the number of graduate hours a teacher has accumulated and student achievement.

Further, length of teaching service has been found to be generally unrelated to the academic achievement of most students after the first three to five years; yet, it is common practice for school districts to provide salary increments for length of service up to fifteen years–and sometimes more. There is some evidence, however, that experienced teachers are more effective in working with educationally at-risk children, but not with advantaged children. (See, for example: Ferguson, 1991; Ferguson & Ladd, 1996; Hanushek, Kain & Rivkin, 1998; and Odden & Kelley, 2001.)

In assigning teaching duties, school districts recognize *de facto* the lack of relationships between student performance and teacher education level and longevity when beginning teachers with a bachelor's degree have nearly identical responsibilities as those assumed by teachers with long tenure and much graduate education. Thus, one first grade teacher earning $30,000 per year has similar responsibilities to the first grade teacher in the adjoining classroom earning $60,000. To make matters even more bizarre, especially in large city systems, it is not unusual for teachers to have gained the right through collective bargaining to transfer to open teaching positions on the basis of their seniority in service. This frequently results in the schools with the best working conditions (that is, schools enrolling high achieving and well disciplined children) having the most senior and expensive staffs while the schools with large portions of children "at-risk" educationally have the least experienced and least expensive teachers. In effect, because of the higher salaries paid to teachers in the more attractive schools, proportionally more economic resources are placed in those schools than in schools with greater need, although physical resources (that is, the numbers of teachers) in each school may be the same (Guthrie, 1997).

Another inefficient practice is the growing use of specialists and support staff. While some research has indicated the importance of small class size and the continuity of relationship between teacher and student, school districts have added relatively fewer regular classroom teachers than they have professional specialists who supervise and consult with classroom teachers and operate "pull-out" programs. This practice has been shown to weaken pupil-teacher relationships and impact of classroom teachers on their students while adding greatly to the cost of public schooling and doing little to enhance student achievement.

From 1960 to 1998, the number of pupils per teacher (classroom and special teachers in grades K-12) dropped from 25.8 to 17.2 (down 33 percent) while average class size at the elementary level dropped from 29 to 24 (down 17 percent). At the secondary level, average class size actually increased from 28 to 31 (up 11 percent), although the mean number of students taught per day dropped from 138 to 97 (down 30 percent) (NCES, 1999). The number of pupils per staff member (including classroom and special teachers, administrators, and support staff) declined from 16.8 to 8.9 (down 47 percent), indicating that support staff have been added at a faster rate than professional teaching staff.

Looking at the trends from a different perspective, the National Commission on Teaching and America's Future (NCTAF) (1996) reported that the proportion of professional staff classified as teachers declined from more than seventy percent in 1950 to fifty-two percent in 1993 of which more than ten percent were specialists not engaged in classroom teaching. For every four classroom teachers, there are nearly six other school employees. By contrast NCTAF reports that in other developed countries, teaching staffs represent from sixty percent to eighty percent of public education employees. In defense of school districts, in adding specialists and support staff to their rosters, they have been responding to state and federal categorical aid programs and mandates that are only now beginning to allow greater discretion at the local level.

Miles (1995) identified four managerial and educational practices behind these staffing

trends:

- Large numbers of specialized teachers working outside regular classrooms with specifically defined classifications of students.
- The practice of providing teachers with planning time in short, fragmented periods during the school day and using other classroom teachers to cover instruction at these times.
- A formula-driven approach to grouping students for instruction that is guided by formal student classification and contract guidelines rather than school-level decisions.
- The fragmented daily schedule at the secondary school level in which teachers instruct five completely different groups of students for less than an hour each day. (pp. 477-478)

NCTAF has soundly criticized the resulting bureaucracy:

> Far too many people sit in offices at the sidelines of the core work, managing routines rather than promoting innovation aimed at improving quality. A bureaucratic school spends substantial resources on controlling its staff; a thoughtful school invests in knowledge and supports that liberate staff members to do their jobs well. A traditional school administers rules and procedures; a learning organization develops shared goals and talents. Our inherited school anticipates the worst from students and teachers; the school of the future expects and enables the best. (p. 101)

NCTAF has expressed well the case for "whole-school" and, indeed, "systemic" reform.

Rethinking the Assignment and Compensation of Teacher Resources

This situation has led a number of analysts to call for a reallocation of teaching resources. Miles and Darling-Hammond (1998) have observed six strategies of resource reallocation used by high-performing schools to improve achievement within general constraints of existing resources. These include: reduction of specialized programs; more flexible student grouping by school-level professionals; structures that create more personalized environments; longer and varied blocks of instructional time; more common planning time for staff; and creative definition of staff roles and work schedules.

Embracing several of the strategies identified by Miles and Darling-Hammond, the NCTAF (1996) has developed a five pronged strategy for ensuring that all communities have teachers with the knowledge and skills they need so that all children can learn and that all school systems are organized to support teachers in this work. Two are particularly relevant to the concerns of this section: encourage and reward teacher knowledge and skill, and create schools that are organized for student and teacher success.

NCTAF illustrated how a typical elementary school of 600 pupils can be reorganized following these guidelines. The plan reduces average class sizes from twenty-five students to sixteen or seventeen and increases teachers' planning time from less than four hours per week to at least ten hours. *All of this is accomplished using only the personnel normally assigned to such a school.* They do this by creating teams of teachers who share students. Almost all adults in these teaching teams are engaged in a way where they can share expertise directly with one another, and reduce student pullouts and non-teaching jobs. "The school's resources are pushed into the core classroom structure where they can be used in the context of extended relationships with students rather than sitting around the periphery of the school to be applied in brief encounters with students or in coordinative rather than teaching roles" (p. 105).

Under this plan, the school is divided into two divisions, one for primary grades and one for intermediate grades. Each division has three instructional teams consisting of seven teachers including one with counseling expertise, one with special education expertise and one with arts expertise. Each team serves 100 students representative of all ages within a given division, permitting the team and students to remain together for at least a three year period (Veenman, 1995; Osin & Lesgold, 1996). The teams in each division share a media/computer specialist and a lead teacher who is released from teaching half time to facilitate planning and to cover classes while other teachers visit and observe one another. Support staff for the school consists of a principal, secretary/bookkeeper, and a social worker. NCTAF also urges that the investment in teachers be accompanied with investments in technology that extends the capacity of every teacher and child to connect with an infinite variety of resources and tools for learning. NCTAF propose***s*** that principals come from the ranks of highly skilled teachers and that they should continue to have some teaching responsibilities.

Odden (1996) notes that compensation theory counsels policy makers on the importance of matching pay practices to the strategic needs of organizations. NCTAF does this through linking teacher salaries to a progressive demonstration of growing knowledge and skills that mark a career continuum. They start with the presumption that teachers will be hired only after completing a high-quality, NCATE (National Council for Accreditation of Teacher Education) accredited preparation program and passing tests of subject matter knowledge and teaching knowledge to receive an initial license. NCATE established new standards in 1995 reflecting the evolution of a much stronger knowledge base for teaching and requiring schools of education to demonstrate how they are incorporating these higher expectations into their preparation programs. NCTAF recommends that licensing examinations be based on the standards set by the Interstate New Teacher Assessment and Support Consortium (INTASC), a consortium of more than thirty states that has tackled the question of what beginning teachers must know and be able to do to teach in the ways new student standards demand. INTASC standards are aligned with NCATE standards. Once hired, it is proposed that a new teacher go through a one or two year induction period during which the teacher receives mentoring and will be closely evaluated. After passing an assessment of teaching skills, recognition of *professional teacher* status is granted along with a substantial salary increment.

NCTAF recommends that teachers should be encouraged through additional salary increments to become certified in more than one subject area. This would acknowledge the value to the school of being able to teach expertly in two or more subject areas or of bringing counseling or special education expertise to a teaching team. Having teachers certified in more than one area provides schools greater flexibility in organizing instructional teams.

For experienced teachers to gain the highest level of recognition, advanced certification from the National Board for Professional Teaching Standards would be recognized through additional salary increments. The National Board's standards are aligned with those of NCATE and INTASC. National Board certification would also be a prerequisite for qualification as lead teacher and principal.

The NCTAF model represents one approach to reallocating existing resources to schools by reforming the two principal sources of inefficiencies of current practice: the single salary schedule based on longevity and academic credit, and excessive use of support personnel. The NCTAF reforms enable the implementation of successful whole school reform models and dramatic class size reduction with resources already available to most schools in the United States, although additional resources would need to be provided to schools currently receiving financial support well below the national average.

There are numerous barriers to implementing reallocation of resources as proposed by NCTAF and others. Most teacher-district labor agreements would have to be changed with respect to definitions of teacher workday and seniority transfers. Some state and federal policies might need to be relaxed to enable breaking down barriers between programs, subjects, and age groupings. Teacher, parent and student attitudes and expectations might also have to change (Miles, 1995; Miles and Darling-Hammond, 1998). Tradition dies hard, and it has many allies.

Conclusions about School Efficiency

We have looked at evidence concerning the efficiency of elementary and secondary schools. Most nations finance and administer educational systems at the national level and the resources committed are more evenly distributed throughout the school population than in the United States where fifty states and thousands of school districts are involved. Strong evidence shows that the distribution of these resources to school districts and within schools is seriously flawed. Horizontal equity in the distribution of resources has improved over the years; however, the issue of vertical equity has been addressed only minimally by public policy.

Cost function studies show that we have grossly under-estimated the amount of resources required to eliminate achievement gaps between ethnic and socio-economic groups (vertical equity). Federal policy since 1965 has focused on vertical equity; but the amount of resources allocated has been relatively small and has carried constraints that impair the ability of local officials to use the resources in cost-effective ways. Thus, we have an efficiency problem in the internal allocation of the total resources committed by the nation collectively to education.

The evidence provides little confidence that, given additional resources, schools and districts serving primarily at-risk children would use them in a manner that would improve student achievement. Studies of the use of resources by public schools and school districts indicate with great consistency that many – probably most – are not using their resources to full advantage. If there are to be improvements in educational outcomes, those improvements will depend not only on additional resources for the educationally at-risk population, but also on significant improvements in internal efficiency of schools and districts (Consortium on Renewing Education, 1998).

Elmore (1994) argued that educators and those who influence them must think differently about resources and how they are applied to student learning:

> So at the core of the problem of adequacy, I would argue, is a problem of productivity and incentives. And behind the problem of productivity and incentives is a problem of knowledge and practice. There is virtually nothing in the background and preparation of educators that prepares them to confront the difficult and messy problems involved with using existing resources, or new resources, to cause dramatic shifts in student performance. Furthermore, there are many factors in the environment of schools that encourage educators not to think systematically about resources: categorical policies that "solve" the resource allocation problem for schools by mandating staffing patterns and ratios; collective bargaining contracts that set limits on the ability of schools to use resources flexibly; line-item budgeting practices; and the like. Most of the factors that limit the capacity of educators to pay attention to resource and output problems are either deeply ingrained in their background and prior experience or hard-wired in the organizational and policy context in which they work. (p. 457)

Some production function studies, evaluation and scale studies, whole school reform networks, and effective schools research have identified instructional and organizational interventions that do affect student achievement in cost-effective ways. Most, if not all, of these interventions require few new resources, but rather a redirection of existing resources. We presented in some detail the recommendations of the National Commission on Teaching and America's Future for restructuring the use of personnel in schools and their compensation as an example of the radical changes required to make schooling more effective ***and*** more efficient.

Designing Finance Structures to Satisfy Equity and Adequacy Goals

At long last, fiscal planning and policy are, and need to be, linked to curricular objectives and performance outcomes. Thus, fiscal policy becomes coupled systemically with the educational missions of schools and, along with ensuring adequacy of resources, must come actions to ensure that those monetary resources are used efficiently and effectively to realize the educational objectives for which they were appropriated.

Accepting the definition of adequacy as the ideal state of vertical equity, and desiring to direct resources to localities in ways that enable all students to meet state standards and close the achievement gap between high and low performing schools, we suggest the following guides for structuring a state school finance program:

1. The state has the overall *constitutional responsibility* for establishing and maintaining a system of schools within which all of the children and youth of the state may be educated.
2. The state determines *standards* for expected student and school performance and a commensurate *level of funding* necessary to build the capacity of school personnel to enable *all* children to meet those standards.
3. The state may establish a range of per pupil expenditures that defines *minimum* (linked with performance expectations) and *maximum* district/school spending in the light of state resources; however, it should not set an absolute level of expenditure for all jurisdictions or unnecessarily restrict the use of those resources. There are several aspects of this guideline:
    - Given societal interest in equality of educational opportunities, and in having all children attain proficiency on assessments aligned with academic standards, wide variation in educational expenditures based on local property wealth cannot be justified.
    - Economic, social, and environmental variations within most states preclude the establishment of a single expenditure level for the entire state. Local authorities are in the best position to fine-tune expenditure levels and they need some degree of leeway to do so along with financial assistance to attain their program and student outcome goals.
    - Since there is no absolute standard of an adequate educational program, limited local discretion provides state authorities with data critical to the establishment of a realistic range of expenditure levels.
    - A discretionary range also allows districts to address unique local conditions and aspirations and provides localities with limited independence from state fiscal policy.

4. Within established constraints, the *financial capacity* of each local authority should be the *same* throughout the state. For example, a given tax rate in any jurisdiction should produce as much, but no more, revenue per pupil as the same tax rate levied against all the state's property. State revenue should guarantee a defined level of adequacy in each district by supplying the difference between the defined level of adequate spending associated with performance expectations and what can be raised locally with a specified level of effort. The state should recapture amounts raised above this level.
5. State governments should gradually *increase the percentage* of educational costs they provide to about 60 percent of all spending levels combined.
6. Any aid formula should *automatically adjust* to changes in costs of delivering education taking into account variations in pupils' educational needs and local financial capacity.
7. Categorical aid for meeting *extraordinary* pupil needs should be separate from general state aid. The cost of meeting extraordinary pupil needs in relation to expected outcomes should be financed solely from state and federal funds. Vertical equity requires greater differentiation in funding to meet the definition of adequacy presented in this article. States should develop more sensitive weighted-pupil formulas (within an equalization formula giving local control to design appropriate programs) or provide additional cost reimbursement for categorical programs (either equalized or outside the formulas).

The guides presented above could be made operational with a state finance program that blends concepts from the foundation program and tax base equalization. This state-local partnership satisfies goals of *equity*, *adequacy* and *liberty*. Furthermore, the funding available in any district enables the resources essential to help all students to achieve high standards providing they are used *efficiently*. The finance plan includes the following features for state allocations:

- *A first-tier foundation for adequacy program that guarantees an adequate revenue base at a high-minimum level.* The state determines the cost of this adequate base using one or more of the approaches outlined previously. In addition, the various guaranteed levels of funding in all districts, charter schools, or intermediate units must vary in relationship with characteristics of students (e.g., educational needs) and communities (e.g., cost of delivering education). This first-tier foundation satisfies the criteria stated previously for adequacy: *sufficient resources are available in all districts/schools to enable school personnel to create the learning conditions within which each student can reach a proficient or higher level of performance on assessments that are aligned with state standards.*
- Additional performance-based *transitional aid* (with a gradual phase-out over a period of five years) that varies in relationship with the size of the gap between desired and actual school performance as measured by state assessments. This aid for low-performing schools enables whole-school reform and essential capacity building (e.g., technical assistance, technologies, professional development) by providing the start-up costs to move from an ineffective school to one that is effective and efficient. This transitional aid is coupled with the state accountability system (see below).
- *Full state funding of this first-tier and transition aid.* No local authority (for example, charter school, school district or intermediate unit) may spend below the respective foundation for adequacy. In order to fund this high-minimum foundation and transitional aid, a state-levied property tax contributes revenue to the state's general fund.

- *A second-tier that consists of a fully equalized discretionary range of expenditure* (not to exceed 20% of the first-tier foundation program). State and local funds support this variable level of spending according to one of the alternative methods for implementing a tax-base equalizing concept. This second-tier includes a recapture provision.
- *Special financial assistance for meeting extraordinary educational needs.* These categorical programs for students with needs that are not adequately funded through the first-tier formula are fully financed by state and federal governments.

The objective of the foundation for adequacy program is to make available to every child in a state the educational services that are appropriate to his or her educational needs and that are necessary to meet high academic expectations. This commitment of state funding is meant to provide an adequate base, but local communities may choose to increase spending above this foundation level. The objective of the second tier of funding is to permit local choice of total spending to reach educational goals beyond those financed by the foundation for adequacy. State revenue equalizes the district property tax ability at chosen levels of effort, thereby eliminating variation among districts in taxing power. The objective of the special categorical aids is to provide adequate educational services for children with extraordinary needs without burdening the resource base provided via the foundation program.

In order to promote efficiency goals for the use of resources provided by the foundation for adequacy, transitional aid, and discretionary programs, the finance plan includes the following features for allocations from the state *directly* to schools or *through* school districts and intermediate units to schools:

- Allocations that reflect characteristics of students and schools as indicated above.
- Allocations for personnel that condition salary increases on the acquisition and application of knowledge and skills related to performance expectations.
- Allocations that stimulate educators and parents to design whole-school reform of instructional delivery and that encourage parents to choose among alternatives, i.e., the money follows the child.
- Allocations that support pre-schools, extended day programs, and summer schools for students at risk of not meeting established educational standards.
- Accountability for improved performance, including non-monetary recognition for high performance and sanctions and interventions for continued low performance.

The objective of these allocations to schools is to help them become effective in meeting performance expectations and efficient in maximizing school outcomes from the funds invested. Students' educational needs, including the nature of disabilities and predictors of educational failure, drive the allocations from the foundation for adequacy described previously. Annual allocations for principals and teachers depend solely on their acquisition and application of knowledge and skills that contribute to improvements in school performance, including but not limited to student achievement.

These features also recognize the importance of school-based decision making. Decisions about the appropriate design and delivery of instructional programs to meet students' educational needs are best made at the school level. A critical aspect of gaining the commitment of policy makers to fund a high-minimum foundation for adequacy program as outlined above is the commitment of educators to improve the effectiveness and efficiency of educational delivery systems. There should be a high degree of latitude for principals and

teachers to work with parents to improve school performance; however, school personnel should be accountable for results in terms of improvements in school performance.

This school finance model casts intermediate units and school districts into new roles. They now become conduits of funds and providers of services rather than direct procurers of human and material resources. In keeping with these new roles, school districts will have to develop formulas for the equitable distribution of adequate resources to schools. They will have to develop data-driven accountability systems appropriate for the new governance and standards-based decision making environment. They will have to develop technical assistance, rewards, and sanctions to encourage and enable all schools to meet performance expectations.

By blending the concepts of equity, adequacy, efficiency, and accountability, we believe that state finance structures can enable local school officials to create the conditions necessary for all students to achieve at proficient or higher levels. Access to adequate resources is a necessary, but not sufficient, condition for school personnel to reach this goal.

Note

1 We employ the term "criteria" to describe what is often referred to as judicial "standards." In this way, we distinguish the criteria derived from constitutional provisions in reviews by the courts from the more prevalent use of the term "standards" in describing student performance expectations.

References

Abbott v. *Burke*, 477 A.2d 1278 (1984); 495 A.2d 376 (1985); 575 A.2d 359 (N.J. 1990); 643 A.2d 575 (N.J. 1994); 693 A.2d 417 (1997); 710 A.2d 450 (N.J. 1998).

Augenblick, J. (1997). *Recommendations for a base figure and pupil-weighted adjustments to the base figure for use in a new school finance system in Ohio*. Columbus, OH: School Funding Task Force, Ohio Department of Education.

Augenblick, J., Alexander, K., & Guthrie, J. W. (1995). *Report of the panel of experts: Proposals for the elimination of wealth based disparities in education*. Columbus, OH: Ohio State Education Department.

Berne, R., & Stiefel, L. (1984). *The measurement of equity in school finance: Conceptual, methodological, and empirical dimensions.* Baltimore, MD: The Johns Hopkins University Press.

Board of Education v. *Walter*, 390 N.E.2d 813 (Ohio 1979); cert. denied, 444 U.S. 1015 (1980).

Burtless, G. (1996). *Does money matter? The effect of school resources on student achievement and adult success.* Washington, DC: The Brookings Institution.

Campbell County School District v. *State*, 907 P.2d 1238 (Wyo. 1995).

Chambers, J. G., & Parrish, T. (1994). State level education finance. In H.J. Walberg and W. S. Barnett (Eds.), *Cost analysis for education decisions: Methods and examples. Advances in educational productivity, Volume 4.* Greenwich, CT: JAI Press.

Coalition for Adequacy and Fairness in School Funding v. *Chiles*, 680 So.2d 400 (Fla. 1996).

Consortium on Renewing Education. (1998). *20/20 vision: A strategy for doubling America's academic achievement by the year 2020.* Nashville, TN: Peabody Center for Education Policy, Vanderbilt University.

DeRolph v. *State*, 677 N.E. 733 (Ohio 1997); 728 N.E.2d 993 (Ohio 2000).

Duncombe, W., Ruggerio, J., & Yinger, J. (1996). Alternative approaches to measuring the cost of education. In H. F. Ladd, Ed., *Holding schools accountable: Performance-based reform in education*. Washington, DC: Brookings.

Duncombe, W. D., & Yinger, J. M. (1999). Performance standards and educational cost indexes: You can't have one without the other. In H. F. Ladd, R. Chalk, & J. S. Hansen (Eds.), *Equity and adequacy in education finance: Issues and perspectives* (pp. 260-297). Washington, DC: National Academy Press.

Duncombe, W. D., & Yinger, J. M. (1997). Why is it so hard to help central city schools? *Journal of Policy Analysis and Management, 16, 1,* 85-113.

Education Writers Association. (1989). *Wolves at the schoolhouse door: An investigation of the condition of public school buildings.* Washington, DC: Author.

Elmore, R. F. (1994). Thoughts on program equity: Productivity and Incentives for performance in education. *Educational Policy, 8*, 453-459.

Ferguson, R. F. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation*, *28*, 465-498.

Ferguson, R. F. & Ladd, H. F. (1996). How and why money matters: An analysis of Alabama schools. In H. F. Ladd (Ed.), *Holding schools accountable: Performance-based reform in education* (pp. 265-298). Washington, DC: The Brookings Institution.

Goertz, M., & Edwards, M. (1999). The search for excellence for all: the courts and New Jersey school finance reform. *Journal of Education Finance, 25*, 5-31.

Greenwald, R., Hedges, L. V., & Laine, R. D. (1994). When reinventing the wheel is not necessary: A case study in the use of meta-analysis in education finance. *Journal of Education Finance, 20*, 1-20.

Grissmer, D. (2001). Research directions for understanding the relationship of educational resources to educational outcomes. In S. Chaikind & W. J. Fowler, Jr. (Eds.), *Education finance in the new millennium: AEFA 2001 Yearbook*. Larchmont, NY: Eye on Education, pp.139-155.

Guthrie, J. W. (1997). School finance: Fifty years of expansion. *The Future of Children*, *7*, 24-38.

Guthrie, J. W., Hayward, G. C., Smith, J. R., Rothstein, R., Bennett, R. W., Koppich, J. E., Bowman, E., DeLapp, L., Brandes, B., & Clark, S. (1997). *A proposed cost-based block grant model for Wyoming school finance.* Sacramento, CA: Management Analyst & Planning Associates, L.L.C.

Guthrie, J. W., & Rothstein, R. (2001). A new millennium and a likely new era of education finance. In S. Chaikind & W. J. Fowler, Jr. (Eds.). *Education finance in the new millennium* (pp. 99-119). Larchmont, NY: Eye on Education.

Guthrie, J. W., & Rothstein, R. (1999). Enabling "adequacy" to achieve reality: Translating adequacy into state school finance distribution arrangements. In H. F. Ladd, R. Chalk, & J. S. Hansen (Eds.). *Equity and adequacy in education finance: Issues and perspectives* (pp. 209-259). Commission on Behavioral and Social Sciences and Education, National Research Council. Washington, DC: National Academy Press.

Hanushek, E. A. (1986). The economics of schooling: Production and efficiency in public schools. *Journal of Economic Literature, 24*, 1141-1177.

Hanushek, E. A. (1991). When school finance "reform" may not be good policy. *Harvard Journal on Education*, *28*, 423-456.

Hanushek, E. A. (1996a). School resources and student performance. In G. Burtless (Ed.), *Does money matter? The effect of school resources on student achievement and adult success*. Washington, DC: The Brookings Institution.

Hanushek, E. A. (1996b). Outcomes, costs, and incentives in schools. In E. A. Hanushek & D. W. Jorgenson (Eds.), *Improving America's Schools: The role of incentives* (pp. 29-52). Washington, DC: National Academy Press.

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (1998). *Teachers, Schools, and Academic Achievement* (Working Paper 6691). Cambridge, MA: National Bureau of Economic Research.

Hedges, L. V., Laine, R. D., & Greenwald, R. (1994a). Does money matter? A meta-analysis of studies of the effects of differential school inputs on student outcomes. *Educational Researcher, 23,* 5-14.

Hedges, L. V., Laine, R. D., & Greenwald, R. (1994b). Money does matter somewhere: A reply to Hanushek. *Educational Researcher, 23,* 9-10.

Hull v. *Albrecht,* 950 P.2d 1141 (Ariz. 1997); 960 P.2d 634 (Ariz. 1998).

King, J. A. (1994). Meeting the educational needs of at-risk students: A cost analysis of three models. *Educational Evaluation and Policy Analysis, 16,* 1-19.

King, R. A., Swanson, A. D., & Sweetland, S. R. (2003). *School finance: Achieving high standards with equity and efficiency* (3rd edition). Boston: Allyn & Bacon.

Koski, W. S., & Levin, H. M. (2000). Twenty-five years after *Rodriguez*: What have we learned? *Teachers College Record, 102,* 480-513.

Ladd, H. F. (Ed.). (1996). *Holding schools accountable: Performance-based reform in education.* Washington, DC: The Brookings Institution.

Levin, H. M. (1994). The necessary and sufficient conditions for achieving educational equity. In R. Berne & L. O. Picus (Eds.), *Outcome equity in education*. Thousand Oaks, CA: Corwin Press.

Miles, K. H. (1995). Freeing resources for improving schools: A case study of teacher allocation in Boston Public Schools. *Educational Evaluation and Policy Analysis, 17,* 476-493.

Miles, K. H., & Darling-Hammond, L. (1998). Rethinking the allocation of teaching resources: Some lessons from high performing schools. In W. J. Fowler, Jr. (Ed.), *Developments in school finance, 1997*. Washington, DC: U. S. Department of Education, National Center for Education Statistics.

Minorini, P. A., & Sugarman, S. D. (1999). Educational adequacy and the courts: The promise and problems of moving to a new paradigm. In H. F. Ladd, R. Chalk, and J. S.

Hansen (Eds.), *Equity and adequacy in education finance: Issues and perspectives* (pp. 175-208). Washington, DC: National Academy Press.

McDaniel v. *Thomas*, 285 S.E.2d 156 (Ga. 1981).

McDuffy v. *Secretary of the Executive Office of Education*, 615 N.E.2d 516 (Mass. 1993).

Moran, M. (1999). Standards and assessments: The new measure of adequacy in school finance litigation. *Journal of Education Finance, 25*, 33-80.

Morris, W. (Ed.). (1969). *The American heritage dictionary of the English language*. Boston,MA: Houghton Mifflin.

Morrison, H. C. (1943). *American schools: A critical study of our school system*. Chicago: University of Chicago Press.

National Center for Education Statistics (NCES, 1999). *Digest of education statistics.* Washington, DC: U. S. Government Printing Office.

National Commission on Teaching and America's Future. (1996). *What matters most: Teaching for America's future.* New York: Author.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform.* Washington, DC: U. S. Government Printing Office.

National Research Council. (1999). *Making money matter: Financing America's schools*. Committee on Education Finance, H. F. Ladd and J. S. Hansen, editors. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

New American Schools. (2000). *Tool kit for engaging a design-based assistance provider: Guidelines for ensuring the quality of national design-based assistance providers.* Arlington, VA: Author.

No Child Left Behind Act (NCLB). (2001). 20 USC 6301.

Odden, A. (1996). Incentives, school organization, and teacher compensation. In S. H. Fuhrman & J. A. O'Day (Eds.), *Rewards and reform: Creating educational incentives that work* (pp. 226-256). San Francisco: Jossey-Bass.

Odden, A., & Kelley, C. (2001). *Paying teachers for what they know and do: New and smarter compensation strategies to improve schools* (2nd edition). Thousand Oaks, CA: Corwin.

Odden A. R., & Picus, L. O. (2000). *School finance: A policy perspective* (2nd edition). New York: McGraw-Hill.

Osin, L., & Lesgold, A. (1996). A proposal for re-engineering of the educational system. *Review of Educational Research, 66*, 621-656.

Pawtucket v. *Sundlun*, 662 A.2d 40 (R.I. 1995).

Reid Scott v. *Commonwealth*, 443 S.E.2d 138 (Va. 1994).

Reschovsky, A., & Imazeki, J. (2001). Achieving educational adequacy through school finance reform. *Journal of Education Finance, 26*, 373-396.

Robinson v. *Cahill*, 303 A.2d 273 (N.J. 1973).

Roosevelt Elementary School District v. *Bishop*, 877 P.2d 806 (Ariz. 1994).

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

Skeen v. *State*, 505 N.W.2d 299 (Minn. 1993).

Tennessee Small School Systems v. *McWherter*, 851 S.W.2d 139 (Tenn. 1993); 894 S.W.2d 734 (Tenn. 1995).

Underwood, J. K. (1989, Winter). Changing equal protection analyses in finance equity litigation. *Journal of Education Finance*, 14, 413-425.

Underwood, J. K. (1994, Fall). School finance litigation: Legal theories, judicial activism, and social neglect. *Journal of Education Finance, 20*, 143-162.

Underwood, J. (1995). School finance adequacy as vertical equity. *University of Michigan Journal of Law Reform, 28*, 493-519.

U. S. General Accounting Office. (1995). *School facilities: America's schools not designed or equipped for 21st century*. GAO/HEHS-95-95. Washington, DC: Author.

Veenman, S. (1995). Cognitive and noncognitive effects of multigrade and multi-age classes: A best-evidence synthesis. *Review of Educational Research, 65*, 319-381.

Vincent v. *Voight*, 614 N.W.2d 388 (Wis. 2000).

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