policy perspectives

WHAT RESEARCH SAYS ABOUT

UNEQUAL FUNDING for Schools in America

by Bruce J. Biddle & David C. Berliner

Interest in the topic of unequal funding for public schools is widespread in America. Although they may not know about the extent and specific effects of funding inequities in our country, most Americans believe that students do better in well-funded schools and that public education should provide a "level playing field" for all children. However, nearly half of funding for public schools is provided through local taxes in our country, and this means that large *differences in funding have long persisted between wealthy and impoverished American communities. Efforts to reduce these disparities have surfaced at both the federal and state levels, but these efforts have provoked controversy and have been resisted by many.*

Much empirical research has also appeared concerned with the effects of unequal school funding, but controversies have arisen about this research and its findings. Some authors have claimed that the research shows that differences in school funding have very little impact. To illustrate, in 1989, economist Eric Hanushek wrote:

> *Detailed research spanning two decades and observing performance in many different educational settings provides strong and consistent evidence that expenditures are not systematically related to student achievement. (Hanushek, 1989, p. 49)*

This claim has been embraced by those who oppose demands for more equitable school funding, but it has also been contradicted by other well-known reviewers. For example, in 1996, Rob Greenwald, Larry Hedges, and Richard Laine wrote:

> *[Our analysis shows] that school resources are systematically related to student achievement and that those relations are large [and] educationally important. (Greenwald et al., 1996, p. 384)*

Given such disputes, what should we now believe about school funding and its impact? How large are funding inequities in America, why have those inequities appeared, and how do Americans justify them? What kinds of research have appeared on the effects of funding, what should we now conclude from that research, and what is

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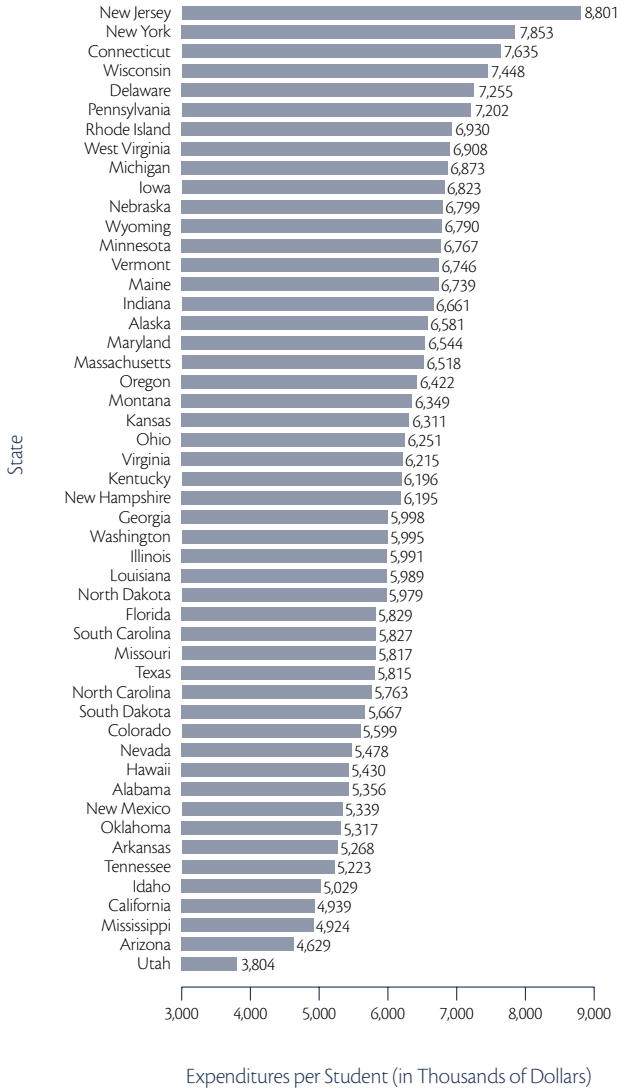
Figure 1: Average Annual Expenditures Per Student Within Each State in 1998, Adjusted for Cost-of-Living



implied by those conclusions? And given what we know today, what should and can be done about inequities in funding for education in our country?

Differences in School Funding

Funding in America

Public school funding in America comes from federal, state, and local sources, but because nearly half of those funds are generated by local property taxes,[1] the American system generates large funding differences between wealthy and impoverished communities. Some of these differences are associated with the state in which one lives. In 1998, for instance, the state with the highest average level of public school funding (adjusted for differences in cost of living) was New Jersey, with an annual funding rate of $8,801 per student, whereas the state with the worst record was Utah with a yearly rate of $3,804 per student (see Figure 1).[2] This means that in 1998, the typical student then attending a public school in New Jersey was provided more than twice the level of educational resources that were then allocated to his or her counterpart in Utah.

Large funding differences also appear among school districts within many states. A state-by-state display of these differences for 1998 appears in Figure 2 where the length of a horizontal bar portrays the disparity between well-funded and poorly funded districts for each state.[3] To illustrate, the longest line in the figure belongs to Alaska where public schools within districts ranked at the 95th percentile for funding received an average of $16,546 per student for the year, whereas schools ranked at the 5th percentile received only $7,379 on average. Other "winners" in the inequality derby included Vermont (where school districts at the 95th and 5th percentiles received an average of $15,186 and $6,442, respectively), Illinois (where the figures were $11,507 and $5,260), New Jersey (where they were $13,709 and $8,401), New York (with $13,749 and $8,518), and Montana (with $9,839 and $4,774). On

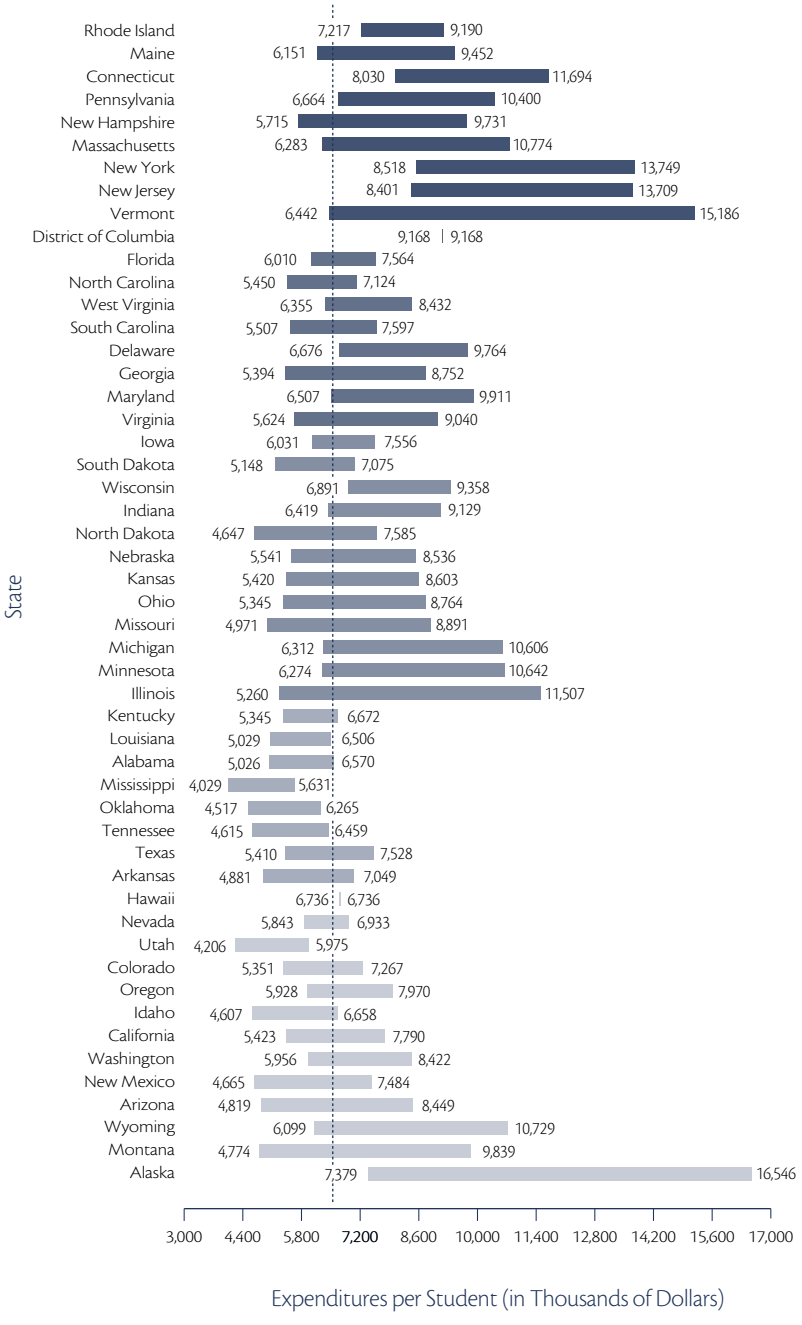
the other hand, within the District of Columbia and Hawaii no difference at all appeared between school districts receiving higher and lower levels of funding (because each of these entities has only one school district!), and differences in funding were quite small in such states as Nevada (where better-funded and not-so-well-funded districts received an average of $6,933 and $5,843, respectively, for each student for the year).

What Figure 2 suggests is that disparities in funding differ sharply among the states but are greater within some states than among the states as a group. As will be noted shortly, a few states have recently taken modest steps to reduce the size of such disparities, but no states (other than Hawaii) have yet eliminated district-level inequities in funding for education.[4]

Putting these two types of data together, we learn that some American students, who live in wealthy communities or neighborhoods within states that have high levels of funding for public schools, are now attending public schools where funding is set at $15,000 or more per student per year, whereas other American students, who live in poor communities or neighborhoods within states that have low levels of funding, must make do with less than $4,000 in per-student funding in their schools for the year.

How many students attend well-funded and poorly funded American schools? One way to answer this question might be to list the numbers of school districts that receive each level of funding, but this would give too much weight to small school districts. (The American public education system still features many truly small school districts serving isolated towns, but the vast bulk of students in our country live within larger districts.) Thus, a better way to answer the question is to list the numbers of substantial school districts that report various levels of per-student funding, and Figure 3 provides this information for the 7,206 districts that enrolled 1,000 or more students in 1995.[5] As this figure indicates, far more students attend poorly funded than well-funded schools in America. Of the districts appearing in Figure 3, 1,423 (or 20%) received less than

Figure 2: Variation Among Districts in Total Revenues Per Student by State in1998



Notes: Each bar displays the range among districts within the state between the 5th and 95th percentiles for total per-student funding (in dollars).

The dashed line in the figure represents the median district-level per-student funding for the nation: $6,632.

$5,000 in 1995 and another 2,167 (or 30%) received between $5,000 and $6,000 per student for that year. Whether such levels of funding are adequate is open to debate, but 451 (or 6%) of the districts clearly believe they are insufficient since these districts provide $10,000 or more per student per year for their own children.[6]

It should be stressed that the data in Figure 3 represent *total* per-student funds for school districts, thus including dollars provided from federal and state, as well as local, sources. Most federal and state funding for schools is associated with Title I programs and other forms of categorical grants that are designed to provide services for students with special needs. Categorical grants more often go to school districts with less access to local funds, and this tends to reduce (but does not eliminate) inequities in total funding.

So, which school districts receive higher, and which receive lower, levels of total school funding? A good way to answer this question is to examine the association between funding and student poverty rates within school districts, and this relation is displayed in Figure 4 for substantial school districts.[7] As can be seen in that figure, districts reporting higher levels of funding are more likely to come from communities where student poverty is minimal, whereas those reporting lower levels of funding more often come from communities where student poverty is sizable. To understand the magnitude of this problem, it needs to be noted that America has by far the highest rate of poverty among children of any advanced, industrialized nation.[8]

Figure 3: Total Per-Student Expenditures for Substantial American School Districts for Fiscal Year 1995

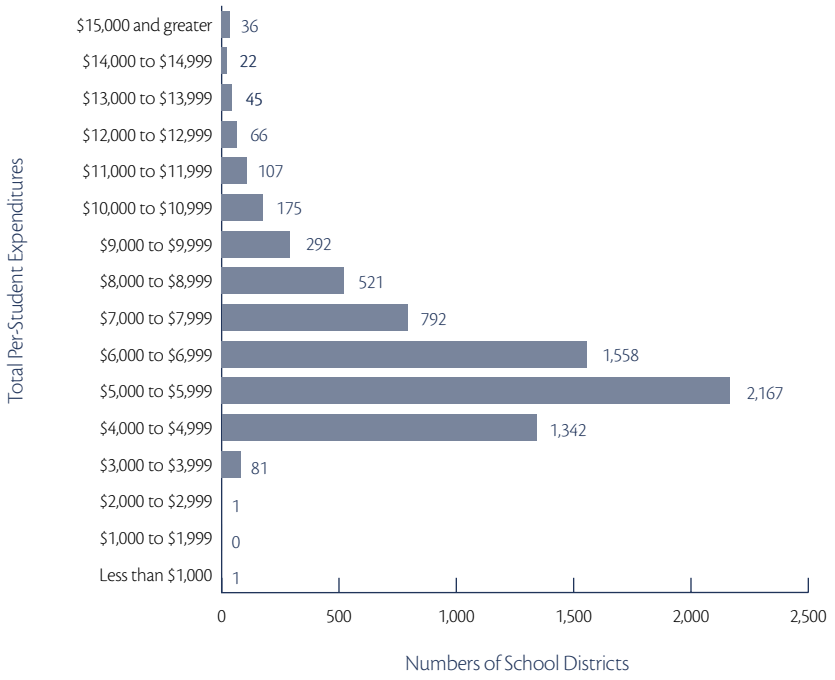
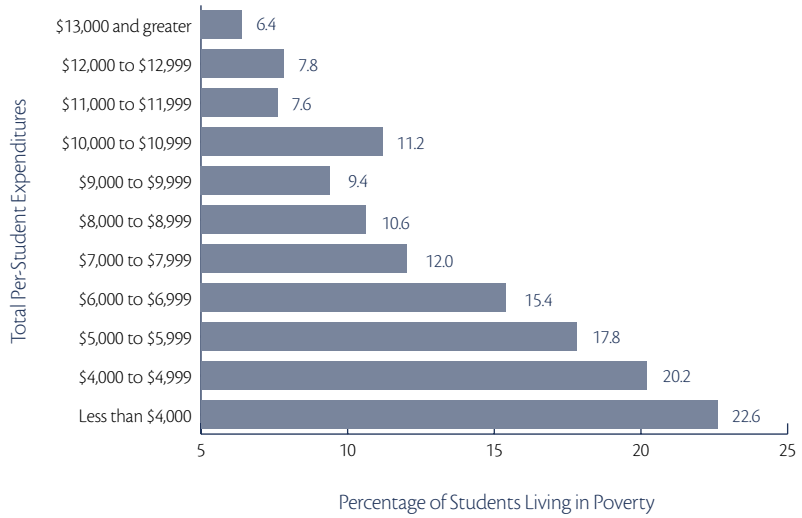


Figure 4: Total Per-Student Expenditures Versus Student Poverty Rates for Substantial American School Districts



Funding in Other Countries

American funding differences generate huge disparities in the quality of school buildings, facilities, curricula, equipment for instruction, teacher experience and qualifications, class sizes, presence of auxiliary professionals, and other resources for conducting education. Disparities such as these are simply not tolerated in other developed countries where public schools are normally funded equally from state taxes, in rich and poor communities alike, depending on the number of students they enroll. To quote Robert Slavin:

> *To my knowledge, the U.S. is the only nation to fund elementary and secondary education based on local wealth. Other developed countries either equalize funding [across the state] or provide extra funding for individuals or groups felt to need it. In the Netherlands, for example, national funding is provided to all schools based on the number of pupils enrolled, but for every guilder allocated to a middle-class Dutch child, 1.25 guilders are allocated for a lower-class child and 1.9 guilders for a minority child, exactly the opposite of the situation in the U.S. where lower-class and minority children typically receive less than middle-class white children. (Slavin, 1999, p. 520)*

Poor and minority children always face problems that are not experienced by other youngsters, and in all advanced nations they tend to have more difficulties within education (and life). But in the United States those children face additional handicaps because they are often forced to attend poorly funded schools. However, most Americans are not aware that funding for public education is uniquely inequitable in their country.

Reasons for Unequal Funding

As a rule, Americans say they are committed to the welfare of children, the ideal of equal opportunity, and the notion that public education can and should provide a "level playing field" for all students. Given these stated values, why are many willing to tolerate and/or accept unequal funding for public schools?

Most Americans are not aware that funding for public education is uniquely inequitable in their country.

Perhaps the simplest answer to this question is that some Americans are unaware of the problem or think, perhaps, that inequities in school funding are small and "don't matter." In short, they assume that American public education already provides a "level playing field." This sounds like a simple-minded idea, and yet some prominent people have bought into it over the years. Further, some Americans are often able to hire lawyers (or politicians) to serve as their advocates in debates about educational funding, and in doing so they may be able to avoid thinking about funding inequities and their own complicity in maintaining them. Sadly, however, many Americans are aware that public schools are not equally supported but are willing to tolerate and/or accept this form of inequity. Three types of reasons may lie behind this stance.

1. Historical and Structural Experiences

From their beginnings in the Common School Movement, American public schools have been thought of as institutions that served — not the nation or the state — but rather their local communities. In earlier decades those schools were often financed by voluntary contributions, but by the end of the nineteenth century a tradition of funding them through local property taxes was widespread in the nation. In former years this tradition had real advantages, for early on many American families were living in small, relatively isolated communities with similar standards of living.

But as time wore on, fewer Americans were to live in such communities. Instead, more persons crowded into America's major cities, and then — if they achieved "success" — moved into the suburbs, which came to surround those urban centers. In moving to the suburbs those persons gained a lifestyle that was associated with green lawns, clean air, and larger homes, but many were also motivated by desires to escape further contact with "less successful" minority groups (particularly African Americans and the poorest of recent immigrants) who were left behind in city ghettos.

In addition, as the suburbs were formed, Americans retained the tradition of funding public schools through local property taxes, but now this system was flawed. Parents who moved to affluent suburbs were generally willing to fund well-equipped, well-staffed public schools for their own children, but — familiar only with the tradition that public schools should be funded locally — they saw little reason to pay additional taxes to fund equivalent schools for the impoverished, "less-deserving" students left behind in city centers or rural towns. Thus, traditional customs for funding education provided the rational for perpetuating their own interests in keeping taxes low.

2. Beliefs About the Causes of Poverty

Resistance to equitable funding for schools has also been supported by several belief systems about the causes of poverty. One of these, the ideology of *individualism*, holds that success and failure result mainly from individual effort (and not social circumstance). Americans are known around the world for their strong beliefs in the power of personal effort and their resulting private property laws, preferences for single-family home ownership, supports for entrepreneurial activities, workaholic conduct, and the like, but this leads to associated beliefs that

blame poor persons for their lack of success in life. In their massive survey on the topic, James Kluegel and Eliot Smith (1986) found that *more than half* of all American adults said that poverty appears primarily because poor persons, themselves, lack appropriate skills, effort, and ability.[9]

For another, beliefs in *essentialism*, which have it that less-privileged groups (such as African Americans, Hispanics, Native Americans, or women) inherit genetic characteristics that account for whatever lack of successes they have experienced. This latter thesis is not strictly American, of course. It arose in Britain in the nineteenth century and was used both in that country and in Continental Europe to justify proposals for the eugenic sterilization of "undesirable" persons and "Breeding a Master Race." The story of how this thesis entered the United States has been told by both Leon Kamin (1981) and Stephen Jay Gould (1981), and it is still being argued today by American advocates such as Arthur Jensen (1972) and Richard Herrnstein and Charles Murray (1994), who have advanced tainted evidence suggesting that genetic factors are largely (if not solely) responsible for differences in general intelligence, specific skills, or other inherited traits. When applied to the poor, essentialism argues that poverty results from intractable, genetic "flaws" shared by poor persons.

And still other beliefs draw from the *culture of poverty* thesis. Such beliefs argue that "minority" persons fail to succeed because of inappropriate (or "inferior") traditions in the subcultures of their homes, communities, or ethnic groups. This notion was originally suggested by an anthropologist, Oscar Lewis (in 1966), but most Americans were introduced to it four years later in a book edited by Daniel Patrick Moynihan (1969), which argued that Blacks in America are not disadvantaged by genetic shortcomings but rather by "inappropriate" social traditions within the African American community. When applied to the poor, such beliefs suggest that persons in impoverished communities fail because they possess only "limited linguistic codes" or are handicapped by lack of appropriate "cultural" or "social capital."[10]

Each of these belief systems can lead to the argument that children from impoverished homes are unlikely to benefit from a "quality" education, hence it would only waste tax dollars if America were to fund public schools equally in rich and poor neighborhoods. While these beliefs are rarely heard publicly today, we believe they are still used by many people to rationalize their resistance to proposals for equal school funding.

3. Contested Studies

In addition, reluctance to provide equal funds for American public schools has been fueled by claims from prominent researchers, reviewers, and others who have asserted that level of funding for schools does not affect student achievement. Such claims do not seem to have the evidence on their side, and often reflect ideologies hostile to public education. To illustrate, The Heritage Foundation has opined that:

> *Virtually all studies of school performance, in fact, reveal that spending has little bearing on school achievement.... Research demonstrates that [reforms focused on performance assessment] will be far more successful than [those] that concentrate on salary levels and class size.*[11]

What could justify such a claim?

Early Studies of School Funding and The Coleman Report. To answer this question, we should look at the history of research on school funding and student achievement. Although a few, modest surveys on this topic had already appeared by the early 1960s, most of these had used small samples that did not represent the wide range of schools found in America. In 1966, however, a major report concerned with student achievement was released by James Coleman and his colleagues.[12] This document, entitled *Equality of Educational Opportunity* (now commonly referred to as "The Coleman Report"), described a massive study that had been commissioned by the National Center for Education Statistics in response to the Civil Rights Act of 1964. The study had involved students from several thousand, randomly selected schools from across the nation and was, at that time, the

largest educational survey that had *ever* been conducted (in America or elsewhere).

Many results discussed in the Report concerned other equity issues, but its third section focused on the determinants of achievement and came to a surprising conclusion. In brief, the Report found that factors related to students' home backgrounds and peer groups in their schools were major generators of achievement, but that school quality (and level of school funding) had little-to-no impact once home and peer factors were taken into account. Thus, the investigators wrote: "Schools bring little influence to bear on a child's achievement that is independent of his [sic] background and general social context" (p. 325).

The Coleman Report was lengthy, its procedures and statistics were complex, and its text was murky — and, as a result, almost nobody actually read it. It was released, however (without prior review but with great fanfare), by well-known scholars, and its conclusion about the ineffectiveness of school factors was widely trumpeted in the press. Thus, the public was led to believe that research had "proven" that schools (and their funding) had but little effect. Conservative forces hostile to the public sector rejoiced because their negative opinions about public schools had been vindicated, whereas public educators, political liberals, and advocates for disadvantaged children became alarmed and began to "explain away" the Report's conclusions and to attack its authors.

However, at the time, many did not notice that errors likely to have reduced the size of its estimates for school effects on students' achievements had appeared in the Report.[13] Among other things, the Report's authors had failed to use available scaling techniques to validate their procedures, had made mistakes when assigning indicators to major variables, and had failed to measure crucial variables now known to be associated with school effects. (To illustrate the latter, the study included no measures for classroom size, teacher qualifications, classroom procedures, academic press, or sense of community associated with schools in the study — thus, in effect, it had concentrated its efforts on school processes that probably *don't* have an impact.) In addition, the Report had used nonstandard procedures for statistical analyses that generated falsely deflated estimates for school effects.[14]

Efforts by Economists. At about the same time, a sizable group of economists began to publish studies trying to estimate the size of effects (if any) of investing in public education. In doing so, they were responding to ideas expressed by influential leaders in their field. In the early 1960s, Milton Friedman had begun to preach a doctrine that favored privatization of most public enterprises (including education), and about a decade later Kenneth Boulding, noting that then-recent increases in education funding seemed not to have been associated with greater student achievement, gave a speech suggesting that "the school industry [might be] a pathological section of the American economy."[15] These ideas led some of their economist-colleagues to pose models for studying the effects of educational investments, and these models were (again) tested in studies based on surveys with small samples.

A good many such studies have since appeared, and most have *not* reported statistically significant net effects for school funding, a fact noted by Eric Hanushek, an influential economist with conservative ties. This has led Hanushek to declare that level of funding is not related to achievement in the real world of public education.[16] On the other hand, Hanushek's claims have also attracted opposition. For example, meta-analysts Rob Greenwald, Larry Hedges, and Richard Laine have noted that the bulk of studies by economists have reported positive net effects for funding, and if one combines their findings through statistical aggregation, the resulting pooled estimates suggest *sizable* effects of funding.[17] This latter conclusion has been welcomed by educators and those motivated to redress inequities in funding but has been attacked by Hanushek, and the issue has remained unresolved.[18]

A major problem in resolving this dispute is that most of the studies reported suffer from methodological problems. Most were based on

small samples that did not represent the full range of American schools, and most did not examine school funding directly but rather funding-associated school characteristics — such as teacher salaries, student-teacher ratios, or administrative costs — that may or may not be tied to student achievement. Many also employed questionable measures, nonvalidated scales, poor regression models associated with multicollinearity, and inappropriate techniques for statistical analysis.[19] Thus, as a group they are poor tools to use for estimating funding effects in the real world, and it is not clear that much can be learned about the issue by reviewing their findings.

Other Studies and Their Findings

Fortunately, not all studies of the effects of funding have been flawed. On the contrary, a number of strong studies have also appeared on the topic, and useful things can be learned by reviewing their results.

Features of Strong Studies

To do this, it is necessary to explain what a strong study of funding effects should look like. What does it take to pin down the effects of differential funding in education? As in other fields, the best way to do this would be to conduct experiments in which research subjects are assigned randomly to different process conditions. However, it would be unethical to design an experiment in which students, classrooms, schools, or perhaps school districts are assigned randomly to conditions of adequate and inadequate funding.[20] Nevertheless — and tragically — such conditions exist in the real world of American education, so our next best strategy is to examine the outcomes of such conditions using well-designed surveys.

As a rule, strong surveys collect data from reliable sources, make use of validated measuring and scaling procedures, and employ appropriate statistical tools for analyzing data. In addition, strong surveys concerned with the effects of school funding should meet three specific conditions. *First,* they should be based on sizable samples that include examples of both well-funded and impoverished schools. (Normally this is done by drawing a large and representative sample, by random means, from schools across the country or a geographic entity within the nation, such as a state, that exhibits a wide range of funding conditions.)

Second, such studies should include statistical controls for level of income, socioeconomic status, or other types of advantage in the home or community that students bring with them to the school. (Nearly *all* studies of funding impact have reported positive, base-level correlations between school funding and student outcomes, but since high levels of funding are also associated with greater student advantages, and the latter also lead to more positive student outcomes, one must "back out" or "control for" the effects of home or community advantage when estimating those associated with school funding. Normally this is done through the use of regression analysis.)

And *third,* such studies should examine effects associated with only *one* level of aggregation. For example, if effects of funding are to be examined for *classrooms,* then all other variables used in the analysis should also apply to classrooms — or if estimates for funding effects are to be made for *schools, school districts, or states,* the other variables in the analysis should also be measured for the same analytic units.[21] The reason for this last requirement is that the sizes of base-level statistics change as one goes up the aggregation ladder. To illustrate, when studying eighth-grade mathematics achievement among school districts, Kevin Payne and Bruce Biddle (1999) found correlations of +.361 and -.412, respectively, for the effects of school funding and student poverty, whereas Biddle (1997) reported correlations of +.433 and -.700 for comparable effects when analyses were done at the state level.[22]

Surveys that meet the conditions described above can have many advantages. Among others, they can examine the impact of variables — such as gender, race, ethnicity, home advantage, or other background conditions — that cannot or should not be

manipulated in experiments. They can also explore the joint effects of various types of variables that may (or may not) bear on educational outcomes — particularly those likely to be associated with differences in funding such as levels of teacher qualifications, class sizes, the conditions of school buildings, processes occurring in classrooms and school environments, or the types of teachers and students found in schools.

On the other hand, even strong surveys have difficulty pinning down causal relations. For example, let us assume that a survey examines a sample of schools where level of funding varies and discovers that those schools with greater funding also have higher levels of student achievement (controlling for level of home or community advantage). Does this mean that those funding differences generated the achievement outcomes? Hardly. Perhaps causal relations in the real world go the other way. (However unlikely, it is at least possible that parents in modestly resourced schools where large numbers of children had proven to be high achievers over the years would thereafter be more willing to provide greater funding for those schools.) Or funding differences might also be affected by other conditions in students' homes or communities that are also tied to achievements (perhaps attitudes favoring education, for example) that no investigator has yet thought to examine.

Thus, no matter how carefully one constructs a survey of funding and its outcomes, critics may point out that it had not yet ruled out all alternatives that might have "explained away" its findings. Thus, to establish the case for a causal relation, one must conduct several surveys, using different techniques, which collectively rule out "all" reasonably credible, alternative processes that might account for the apparent effect one is studying.[23] The bottom line? Even if we confine our attention to strong studies of funding effects — well-conducted surveys meeting the criteria set forth above — we must also look at findings from various studies (involving controls for alternative processes) before we decide that funding effects have been pinned down convincingly.

Strong Study Findings

Bearing these cautions in mind, can we locate strong studies, and if so what have those studies found? Indeed, such studies *can* be found,[24] and although not all of them are listed here, the examples we cite will indicate typical findings. As a rule, such studies report that level of funding is tied to *sizable* net effects for student outcomes, but that these effects are *smaller* than those for level of advantage in the home or community. To illustrate, in their study of eleventh-grade achievement scores among school districts in Oklahoma, Ellinger, Wright, and Hirlinger (1995) found that both student poverty and per-student revenues within schools were associated with achievement, but effects for the former were roughly twice the size of those for the latter. Similar results were reported by Payne and Biddle (1999) for the determinants of eighth-grade achievement scores among school districts from across the nation that participated in the Second International Study of Mathematics Achievement. And Wenglinsky (1997a), using data drawn from the National Assessment of Educational Progress, found that average student socioeconomic status and per-student expenditures within school districts were both associated with level of mathematics achievement in the eighth grade, but that the effects of the former were again larger than those for the latter.

Collectively, these studies have employed various techniques designed to rule out alternative hypotheses, and all of these studies have concluded that funding has substantial effects. We see no reason to challenge this conclusion.

Research on Related Issues

International Studies of Achievement

So far we have not discussed the size of effects associated with differences in school funding and student advantage. How large are those effects? Do level of school funding and advantages in the home or community make for small or large differences in student outcomes?

As a rule, some studies report that level of funding is tied to *sizable* net effects for student outcomes, but that these effects are *smaller* than those for level of advantage in the home or community.

One way to answer such questions is to compare student achievement scores from American communities where funding is adequate and student poverty is low, versus those from other American communities where funding is inadequate and poverty is rampant, with achievement scores earned by other countries in international studies of achievement. Fortunately, such comparisons are now beginning to appear.

The International Association for the Evaluation of Educational Achievement recently published its Third International Mathematics and Science Study (TIMSS), which dealt with student achievements in various countries,[25] and in 2001 they released a *Mathematics Benchmarking Report,* which compared eighth-grade mathematics achievement scores, earned by other nations, with those from specific states, school districts, and school consortia within the United States.[26] The two best-scoring entities reported for America were the Naperville, Illinois, public school district and the self-proclaimed "First-in-the-World" Consortium (composed of school districts from the Chicago North Shore area). Both of these entities enjoy high levels of funding and serve low numbers of impoverished students, and both earned *high* achievement scores that compared well with those from Hong Kong, Japan, and other top-scoring countries from abroad. In contrast, the two *worst*-scoring American entities were the Miami-Dade County Public Schools and the Rochester (New York) School District. Both of the latter receive inadequate funding and serve many poor students, and each earned low achievement scores similar to those of the worst-scoring nations in the TIMSS study — Turkey, Jordan, and Iran.

Thus, we learn that differences in student advantage and funding generate achievement disparities that are roughly equivalent in size to those separating the highest- and lowest-achieving nations in international studies. Are these differences sizable? They are indeed. Do inadequate school funding and high levels of childhood poverty in some of America's *major* communities matter? Not only do they matter, but they are major factors responsible for low achievements in those communities. (Note also that similar comparisons were made and effect sizes were reported by Kevin Payne and Bruce Biddle, 1999, in their study of achievement scores from the Second International Mathematics and Science Study.)

Funding Differences Over Time

Another claim sometimes made by critics of public schools is that aggregate funding for schools has increased sharply in recent years, but this increase has not generated achievement gains. To illustrate, here is what Benno Schmidt, former President of Yale University, said when attempting to justify his decision to head a new, national, for-profit, *private* school program:

> *We have roughly doubled per-pupil spending (after inflation) in public schools since 1965… yet dropout rates remain distressingly high.… Overall, high school students today are posting lower SAT scores than a generation ago. The nation's investment in educational improvement has produced very little return.*[27]

A strong refutation of this claim may be found in a careful study of spending patterns reported by Karen Miles and Richard Rothstein (1995), which covered the years from 1967 to 1991 and nine school districts

sampled from across the nation. These authors noted that enhancing the achievements of mainstream students is only one of many intended outcomes for today's public schools. In fact, recent legislative mandates and court decisions have created a host of *new* responsibilities for our schools designed to meet the needs of disadvantaged students — those with physical and mental handicaps, those from impoverished homes, those representing racial and ethnic minorities, those from immigrant families who do not speak English at home, those who are unruly and unmotivated, and the like — mandates that have often been underfunded but, taken together, have raised costs for public schools significantly.

As a result, Miles and Rothstein found, about one-third of net new dollars during this period went to support special-education students; 8 percent went to dropout prevention programs, alternative instruction, and counseling aimed at keeping youths in school; another 8 percent went to expand school-lunch programs; another 28 percent went to fund increased salaries for a teacher population whose average age was increasing; and so forth. In contrast, during these years very few additional dollars were provided for needs associated with basic instruction.

If Miles and Rothstein's work can be confirmed with additional research, longitudinal evidence provides little support for the claim that additional funding for schools has been "wasted" because it did not generate higher levels of student achievement. (Note that Hamilton Lankford and James Wyckoff, 1995, have already published similar findings for increases in spending for school districts from the state of New York.)

Funding, Resources, and Student Outcomes

If better-funded schools generate higher levels of achievement, how is this task accomplished? Or, to restate the question, what additional resources or strategies, prevalent in well-funded schools, lead to higher levels of student achievement, and why do these effects appear?

Various studies have begun to explore this question, too, and interesting findings have begun to appear from the effort. So far the most impressive are associated with teacher qualifications. In brief: Better-funded school districts, schools within those districts, and classrooms within those schools seem to be able to attract teachers with higher levels of education, more experience, and higher scores on competency tests; these teachers, in turn, help to generate better achievement scores among students. Moreover, large disparities in student achievement are apparently associated with these differing levels of teacher qualification.[28] Why are teachers with better qualifications able to generate more achievements among their students? Because those teachers have more subject-matter knowledge, greater skills in teaching and managing classrooms, more experience, and perhaps more ability to inspire students.

In addition, better-funded schools are often able to reduce class sizes, and smaller classes seem also to help generate better achievement among students. As a rule, the effects so far reported for class size appear to be weaker than those for teacher qualifications, but this conclusion may not be valid. For one thing, some studies of the problem have not examined class size directly but rather the effects of a proxy variable — student-teacher ratio — that is assumed to represent class size,[29] but problems are associated with this assumption. (Among others, student-teacher ratio is normally measured at the school or district level and often counts coaches, nurses, social workers, and other service professionals in the school who do not teach. Properly conceived, class size refers to the number of students a given teacher instructs within a specific classroom.)

For another, evidence indicates that class-size reduction raises achievement *when applied in the early grades* — in part because early small-class experiences lead to more focused and supportive teacher-student contacts, more effective socialization into classroom culture, and higher levels of academic self-concept among young students — but evidence has not yet appeared indicating that class size has much effect in the middle-school or high-school

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years. Thus, to study the effects of funding-associated differences in class size on achievement properly, one should focus efforts on class size in the early grades. Fortunately, at least one well-crafted survey study has already done this, and that study reported *strong* effects for class size.[30] In addition, strong field experiments and trial programs have also appeared concerned with the effects of reducing class size in the early grades, and these studies confirm that such actions generate both immediate and long-term advantages in student outcomes and that these effects are greater for students who are impoverished or from minority groups normally deemed to be "at risk" in education.[31]

Well-funded schools also enjoy other advantages that generally are not available in poorly funded schools. Some of these are surely also related to student achievement, and a few studies have begun to explore these latter effects, too. Harold Wenglinsky (1998) has reported a study, which found that when funding for instruction and capital expenditures are high, achievement gaps between students from rich and poor homes are reduced, but when they are low those achievement gaps are greater. Elizabeth Harter (1999) has found similar effects for funds applied to school upkeep. And Marta Elliott (1998) has reported achievement effects associated with funding for classroom resources. Additional research will also be needed to ferret out how these (and other) mechanisms interact with teacher qualifications and class size as generators of student achievements.

The bottom line? Higher levels of school funding not only generate better student achievements, but the resources and strategies associated with this effect are now becoming known.

Differential Impact

Given the evidence reviewed above, it seems obvious that students from disadvantaged families will suffer particularly from the American system of unequal school funding, and yet there are actually two reasons why this effect should occur. For one thing, as we know, disadvantaged families are not likely to live in affluent American suburbs, so in many cases children from those families are forced to attend poorly funded public schools where many students are provided second-class educations.

But how do disadvantaged children, in particular, fare in such schools? Extensive research has shown that students from impoverished homes, African American and Hispanic families, and homes where English is a second language do not achieve as well as their middle-class, White, native-speaking peers within the typical American school. One assumes that such students would suffer particularly when school funding is inadequate — surely a school *must* have adequate academic resources if it is to provide the extra help needed for such students — and research is beginning to support this assumption, too. As suggested above, in his recent study, Harold Wenglinsky (1998) found that gaps in achievement between students from high and low socioeconomic status homes are *greater* in poorly funded than well-funded schools. And Elizabeth Harter (1999) has reported that the achievement effects of funding levels associated with school upkeep are *greater* in schools serving impoverished students. These latter results suggest that students from impoverished and minority families are likely to suffer particularly when forced to attend poorly funded schools.

Other Outcome Measures

As the findings reviewed above suggest, most studies of funding outcomes to date have concentrated on standardized measures of student achievements. Many other measures have also been studied as indicators of student success or failure in education (and life), and more research is also needed to see how these respond to differences in funding for education.

Doing Something About Unequal Funding

The funding of public schools through local property taxes has deep historical roots in our country, and suburban resistance to plans for greater equity in public school funding has been intense. Given such facts, what can be done to help solve this problem today?

Funding inequities are found both within and between states, and this means that the ideal way to address them would be through changes in *federal* policies. Americans normally turn to Congress and the President for leadership regarding national problems, but interest in school funding issues has not been great in Washington, DC and — as a result — among the national media. Instead, recent federal debates about educational reforms have tended to focus either on policies designed to increase accountability among educators or to provide additional services for specific groups of students deemed to be at risk in education. Concerted effort will be required to change this situation as long as many federal politicians remain dependent on support from wealthy donors who live in the suburbs.[32]

But what about the federal courts? One would think that inequitable school funding creates conditions that violate Americans' claims for equal opportunities, and yet such a contention was denied in a landmark Supreme Court decision, rendered in 1973, entitled *San Antonio Independent School District v. Rodriguez.* That year, by a five-to-four vote, the high court ruled that, despite glaring inequities in funding among school districts in the San Antonio metropolitan area, the United States Constitution does not require that funding among school districts be equalized.[33] This decision effectively foreclosed federal court action to remedy inequities in school funding, at least for the near future.

This does not mean that the funding equity issue has been dead in state courts. On the contrary, many state constitutions have wordings that mandate equal opportunities. As a result, suits challenging the legality of unequal funding based on district property taxes have been filed in more than three-fourths of the states, and these suits have been upheld or are still pending in at least 31 states.[34] Details and histories of these efforts have varied sharply from state to state, but results from them can be summarized with four statements:

- First, particularly when successful, these suits have stimulated both public interest and follow-up actions by state legislatures designed to provide greater funding equity.
- Second, in many cases such actions have provided additional dollars from state taxes for impoverished school districts while leaving levels of funding for affluent school districts in place.
- Third, these reforms have tended to reduce but not eliminate the within-state inequities to which they were addressed.
- And fourth, these actions have not addressed inequities in school funding among the states.

Meanwhile, the focus of some state litigation has begun to shift away from "equity" to "adequacy" of support for schools, the latter term referring to whether schools have sufficient funds to "provide adequate education so that all students have equal opportunities to play roles as citizens and to compete in the labor market."[35] This shift reflects despair that affluent Americans will ever consent to funding that is truly equitable, as well as recent conservative political demands seeking to link level of school funding to outcome measures. Needless to say, this shift opens a can of worms, since it is by no means clear how one would go about developing valid and agreed-upon measures of "adequacy."[36]

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What Do We Now Know About Unequal School Funding and Its Effects?

As noted, good information is available about unequal school funding from public records maintained by the Office of Education and Bureau of the Census, strong surveys concerned with the effects of unequal funding, and other resources. Taken together, these materials suggest a number of conclusions about unequal funding and its effects:

- Public schools in America are provided sharply unequal funding. Among America's school districts, annual funding per student can range from less than $4,000 to $15,000 or more, and although the "typical" substantial school district receives roughly $5,000 per year for each student, affluent districts may receive $10,000 or more for their students.
- Sharp differences in public school funding appear both between the states and within many (but not all) states.
- American funding differences appear, in part, because much of the support for public schools comes from local property taxes, and this means that the amount of funding communities are able to provide for their schools varies inversely with community affluence.
- Although most Americans are not aware of it, other advanced nations do *not* fund public schools with local property taxes; instead, they provide equal per-student funding from general tax revenues for all schools throughout the state. Some nations also provide extra funding for disadvantaged students.
- Most Americans say they support equal funding for public schools, but affluent and powerful Americans often oppose efforts to correct funding inequities.
- Opposition to equity in school funding reflects several factors: ignorance about funding differences, unthinking acceptance of traditional methods for funding education, desires to keep personal taxes low, and beliefs about the causes of poverty that reflect individualism, essentialism, or the culture of poverty.
- Opposition to funding equity has also been supported by claims from some researchers (and reviewers of research) who assert that level of funding "does not matter" — that advantages in the home or community matter greatly, but that differences among schools and their funding have little-to-no net effects on student outcomes.
- (Strong studies indicate that) level of student advantage within the home or community matters a great deal to outcomes in education, but sizable (although smaller) net effects are also associated with differences in school funding.

In addition, initial results from related studies indicate that:

- The joint effects of student advantage and school funding are *sizable*; achievement scores from American school districts where funding is substantial and student poverty level is minimal are similar to those earned by the *highest*-scoring countries in international comparative studies; scores from districts where funding is inadequate and poverty

level is excessive are similar to those of the *lowest*-scoring foreign countries.

- Aggregate increases in school funding during recent years have been driven largely by new demands placed on public schools and have not been used for additional resources that would generate increases in average student achievement.
- Two types of resources associated with greater school funding have been tied to higher levels of student achievement: stronger teacher qualifications and smaller class sizes in the early grades.
- The achievements of disadvantaged students are more likely to suffer in response to American inequities in school funding for two reasons: Those students are more likely to attend poorly funded schools, and they are more likely to be hurt by lack of academic resources when schools are underfunded.

Finally:

- Legal and political efforts to reform funding inequities have been weak at the federal level, but considerable activity concerned with unequal funding has recently taken place in state courts and legislatures. The latter efforts have provoked some increases in state funds for poorly funded districts while leaving funding for rich, suburban districts largely in place.

Policy Implications

Given Americans' traditional beliefs about individual efficacy and the recent flowering of conservative thought in our country, it is hardly surprising that voices have recently appeared arguing that access to education is a personal right to be exercised by students (and their families) solely for their own benefit.[37] And yet, Americans have also long embraced an alternative vision for public education that was enunciated in the writings of John Adams, Thomas Jefferson, James Madison, those who led the Common School Movement, and John Dewey. This vision has stressed the need for a public school system that generates the informed citizenry needed for a democratic government, embraces the welfare of *all* children in the nation, upholds the ideal of equal opportunity, and stresses the belief that public education can and should provide a "level playing field."

Given this latter, broader vision, once they understand the huge size of funding differences and their effects in our country, most Americans *will* support reforms designed to provide greater funding equity. However, such efforts are opposed by powerful forces — often affluent Americans who live in the suburbs, business leaders opposed to taxes and the public sector, right-wing think-tanks and foundations, and their political allies in federal and state capitals. The issue, then, is how to mobilize potential support for funding reform in the face of such opposition.

If you are an educator, administrator, school board member, parent, civil servant, or political leader interested in greater funding equity, here are a few strategies you should consider:

- Become familiar with the facts and issues associated with equity and funding in American schools, the claims about funding effects sometimes made by those who oppose equitable funding, and the research findings that contradict those claims.
- Become politically active in support of funding reform: (a) work with representatives of the media to raise public awareness of funding inequities and their implications in education; (b) lobby your representatives in Congress to make the case for more federal support of impoverished schools; and (c) work with others at the state level to support legal and legislative actions favoring greater funding equity.

Once they understand the huge size of funding differences and their effects in our country, most Americans **will** support reforms designed to provide greater funding equity.

If, on the other hand, you represent the media, encourage the production of news items and editorial pieces that focus attention on inequities in funding for public schools and their consequences for individual students and American society, now and in the future. And, if you are a jurist or public servant, welcome opportunities to make the case for greater funding equity in the courts and legislatures.

In addition, if you are an educator serving in a public school with inadequate funds, try to focus effort on strategies, more often found in well-funded schools today, that are now known to be associated with greater student achievement (such as recruiting, motivating, and retaining qualified teachers and reducing class sizes in the early grades).

Endnotes

1 See *The Condition of Education 2000,* National Center for Education Statistics (2000b), p. 102.

2 Figure 1 reports data appearing in *Quality Counts 2000,* a supplement published by *Education Week* (2000), p. 82. These and most data concerned with funds provided for schools in America come from regular reports published by the Department of Education and the Bureau of the Census.

3 Figure 2 was prepared with calculations kindly supplied by Mark Glander at the National Education Data Resource Center, U.S. Department of Education (2002), using information from the Common Core of Data for 1998, School District Data Book, National Center for Education Statistics (2000a).

4 Nor is the American practice of inequitable public school funding confined to the district level. Inadequate funds may also be assigned to schools serving less-privileged children within a given district or to classrooms serving less-privileged children within a specific school (see Rothstein, 2000). A moving illustration of funding inequity within a single district appears in Jonathan Kozol's *Savage Inequalities* (1991) where the author contrasts education provided in schools from two, vastly different venues in New York City, Riverdale, and the South Bronx, the latter serving large numbers of impoverished children. Systematic data are not available concerning such within-district inequities, but they are obviously huge in some of America's larger school districts. They appear because the needs of disadvantaged children are less often heeded in debates about programs, facilities, and funding allocation in such districts.

5 Figure 3 was prepared using information from the Common Core of Data for 1995, School District Data Book, National Center for Education Statistics (2000a).

6 John Dewey's maxim (1889/1900), now a century old, is relevant here: "What the best and wisest parent wants for his [sic] own child, that must be what the community wants for all its children. Any other ideal for our schools is narrow and unlovely; acted upon, it destroys our democracy."

7 As in Figure 3, information for school funding displayed in Figure 4 came from the Common Core of Data for 1995, School District Data Book, National Center for Education Statistics (2000a), and the data displayed came from school districts enrolling 1,000 or more students that year. Information for student poverty rates came from the 1990 census School District Special Tabulation component found in the same source.

8 See Rainwater & Smeeding (1995).

9 Kluegel and Smith also report that Americans who have more often enjoyed "success" — for example, those who are affluent, male, and are *not* members of minority groups — are more likely to subscribe to the ethos of individualism, a result also supported by Zucker & Weiner (1993).

10 See Bernstein (1970); Bourdieu (1984); and Coleman (1988).

11 The Heritage Foundation (1989).

12 See Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York (1966).

13 Actually, a few critics did speak out at the time (see Bowles & Levin, 1968; Cain & Watts, 1970; and Hanushek & Kain, 1972), but their voices were largely ignored.

14 In brief, the Report used step-wise procedures in which estimates for the size of school effects were made only *after* the effects of students' homes and communities had been taken out of the analysis. But these three environments overlap in how they affect student achievements, and this meant that much of the variability associated with schools had already disappeared from the analysis. James Coleman actually corrected this latter error in subsequent reanalyses of project data using regression techniques — see Coleman (1972). As would be expected, these reanalyses generated larger estimates for the effects of schools, but Coleman did not stress this fact in his later text, and his reanalyses were generally ignored.

15 See Friedman (1962) and Boulding (1972).

16 See, for example, Hanushek (1986, 1989, 1991, 1996a, 1996b).

17 See Hedges, Laine, & Greenwald (1994); Greenwald, Hedges, & Laine (1996); and Hedges & Greenwald (1996).

18 Hanushek's declarations about the lack of evidence for funding effects have endeared him to some political conservatives who have extolled his conclusions, complimented his efforts, and asked him to testify in various forums where funding equity is debated. And, in return, Hanushek has embedded his conclusions about school funding in a broader endorsement of a conservative educational agenda (see Hanushek, 1995). Given these activities, it is no longer possible to assume that Hanushek's judgments about the impact of funding are unbiased.

19 Additional discussions of these problems may be found in Fortune & O'Neil (1994); Fortune & Spofford-Richardson (2000); Lockwood & McLean (1997); Monk (1992); Payne & Biddle (1999); and Wenglinsky (1997b).

20 An interesting partial exception to this generalization has been provided by the "Gautreaux" desegregation program in Chicago. As a result of a successful lawsuit challenging segregated housing, in 1976 the Chicago Housing Authority (with help from federal funds) began moving African American families out of segregated, low-rent public housing units into private housing located throughout the Chicago metropolitan area. More than 4,000 families have been moved through the program, some to primarily White suburbs, others to mostly Black urban areas. Families were assigned to these alternatives, on a more-or-less random basis, as private housing units became available. Studies have now begun to appear on outcomes of these moves, and results have shown that children of families who moved to the suburbs have done better on almost all measures of success in education (and life) — see Kaufman & Rosenbaum (1992). Since those children attended better-funded schools, this suggests a possible effect of differences in school funding. But those schools, and the communities in which they were located, also enjoyed other advantages — smaller numbers of students from impoverished homes, more community institutions supporting education, lower rates of crime and drug abuse, and the like — these advantages may also have helped students who moved to the suburbs.

21 Or, if data are collected from analytic units representing more than one level of aggregation, the study must use an advanced statistical technique, such as Hierarchical Linear Modeling, appropriate for analyzing such data — see Bryk & Raudenbush (1992).

22 Such differences appear for both technical and substantive reasons. On the one hand, base-level statistics, such as correlations, involve estimates for the sizes of error variances. But error variances shrink as one goes up the aggregation ladder, and this means that correlations grow larger at higher levels of aggregation. On the other, additional (substantive) factors also come into play at higher levels. To illustrate, impoverished communities can have high rates of crime or inadequate health facilities, and these can certainly lead to depressed student achievements, but such effects cannot be assessed if one studies only the poverty of families.

23 This is a difficult but not impossible task. Take, for example, surveys that studied the relation between cig-

arette smoking and lung cancer. For years critics would complain that those surveys had not yet established a causal relation between smoking and cancer because they had not yet examined other crucial events that might also cause cancer (such as genetic factors, living in stressful or polluted cities, poor nutrition, and the like), but additional surveys would shortly appear thereafter that controlled for all these factors and more, and eventually thoughtful persons decided that the case *had* been made, that cigarette smoking did indeed cause lung cancer.

24 See, for example, Biddle (1997); Dolan & Schmidt (1987); Ellinger, Wright, & Hirlinger (1995); Elliott (1998); Ferguson (1991); Harter (1999); Payne & Biddle (1999); and Wenglinsky (1997a, b).

25 See Mullis et al. (2000).

26 See Mullis et al. (2001).

27 Quoted in Rothstein (1993). See also claims put forward by Hanushek (1996b).

28 See, for example, Darling-Hammond & Post (2000); Elliott (1998); Ferguson (1991); and Ferguson & Ladd (1996).

29 See, for example, Ferguson (1991) or Wenglinsky (1997a, b).

30 See Ferguson & Ladd (1996).

31 See Biddle & Berliner (Winter 2002); Biddle & Berliner (2002); Finn, Gerber, Achilles, & Boyd-Zaharias (2001); Glass, Cahen, Smith, & Filby (1982); Mosteller (1995); and Word et al. (1990).

32 See Mintrom (1993).

33 See Koski & Levin (2000); or Rothstein (2000).

34 See Morales (1997); Murray, Evans, & Schwab (1998); and Rothstein (2000).

35 Rothstein (2000, p. 74); also see Ladd, Chalk, & Hansen (1999); and Ladd & Hansen (1999).

36 Indeed, if Americans were truly to commit themselves to a "level playing field" in public education, they (like the Dutch) should provide *extra* funding for schools that serve large numbers of impoverished students. Such funds would be needed not only for special educational programs and extra physical facilities but also for additional salaries needed to recruit and hold qualified teachers who would otherwise migrate to schools serving fewer "problematic" students. (Ferguson, 1991, documents the migration of qualified teachers from poorer to richer schools in Texas, while Rothstein, 2000, discusses how this problem generates inequalities within large school districts.)

37 See Chubb & Moe (1990), for example.

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