CHAPTER 4

Spending on Schools

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Public opinion generally supports the conclusion that our public schools face serious problems. Common views, supported by a variety of media stories about poor performance of students, provide the backdrop for much of school policy. But, even if concern about schools is a prevalent view, the precise causes of problems are less clear. Some hold that student preparation for schools—resulting from increasing family problems, more immigrants, more poverty, or whatever—has declined over time, leading to falls in student performance. Others hold that support for schools has fallen. Budgets are turned down; pressures to lower taxes take precedence over schools; an increasingly older population has less interest in schooling. And, to the extent that teachers or other personnel contribute to any problems, it is poor pay and lack of resources that make teaching an undesirable occupation. In short, resources are the key, either directly to deal with the needs of schools or indirectly to compensate for the poorer preparation of students. Unfortunately, these common conceptions—oft-repeated in the press, in legislatures, and even in courtrooms—are for the most part simply wrong. Resource support for schools has been high, and the problems of performance—which are real—result from other forces.

A related issue centers on equity concerns. Long-standing concerns about the distribution of income, about the extent of poverty, and about intergenerational transmission of well-being frequently point to increased schooling as the key. Providing increased skills for the poor has been seen as a viable way to ameliorate distributional concerns while improving the performance of the economy as a whole. The translation of this argument into policy has largely centered on the quality of schools serving the poor and the rest of society. And the arena for debate and change has been first the courts and second the state legislatures. In fact, considerable change in the funding of schools has occurred, but it appears to have had little effect on student outcomes.

This chapter describes the resources and financing of schools. The interpretation of this, of course, depends largely on the results of resource patterns—an element highlighted here and discussed in detail in another chapter.

Background

Expectations about the outcomes of educational policy have been high for several decades. The recent era of concern about the quality of U.S. public schools can be traced to reactions about the launch of the Soviet *Sputnik* in the late 1950s. At that time attention was focused on the failure of U.S. schools to keep up with Soviet schools in terms of math and science performance. This concern was amplified with attention to the distribution of outcomes in the mid-1960s when the War on Poverty was launched. A key element of alleviating poverty was providing better schooling for the poor.

The reality has not matched the expectations. In a series of international comparisons of math and science performance that began in the 1960s, U.S. students scored in the lower half of the distribution. The exact position has varied with the specific test and precise set of countries taking each test.[1] The education sum-

1. U.S. Department of Education, *Pursuing Excellence: A Study of U.S. Eighth-Grade Mathematics and Science Teaching, Learning, Curriculum, and Achievement in International Context* (Washington, D.C.: National Center for

mit of the nation's governors in 1989 set the goal for U.S. students to be first in the world in math and science by the turn of the century, but the 1995 results of the Third International Mathematics and Science Study (TIMSS) placed U.S. students—particularly high school students—well down in the world rankings.

The international comparisons have mirrored performance on the National Assessment of Educational Progress (NAEP) that has permitted comparisons of U.S. students since the early 1970s. Performance in 1999 of seventeen-year-olds was roughly the same as that in 1970 across math, reading, and science.[2] Thus, whatever concerns about overall performance that existed three decades ago still exist.

On the distributional side, some improvement was seen during the 1980s. White students have consistently scored above black or Hispanic students, but the gap narrowed noticeably during the early 1980s.[3] This narrowing, however, stopped by 1990 and perhaps reversed somewhat.

The trends in performance have led some to call for a redoubling of efforts. Both the level and the distribution of resources to schools are seen as inhibiting reaching the desired goals. This discussion concentrates on what has happened with resources for schools.

The Overall Pattern of Public School Resource Usage

The United States recognized the importance of schooling long ago and moved more aggressively during the twentieth century than all countries of the world to educate its population. Through much

Education Statistics, 1996). Eric A. Hanushek and Dennis D. Kimko, "Schooling, Labor Force Quality, and the Growth of Nations," *American Economic Review* 90, no. 5 (December 2000): 1184–1208.

2. There are some nuances. Math and reading scores are slightly up while science is down for the entire period. Performance on each test has also followed somewhat varying patterns from the earliest testing to today.

3. See, for example, Christopher Jencks and Meredith Phillips, eds., *The Black-White Test Score Gap* (Washington, D.C.: Brookings Institution, 1998).

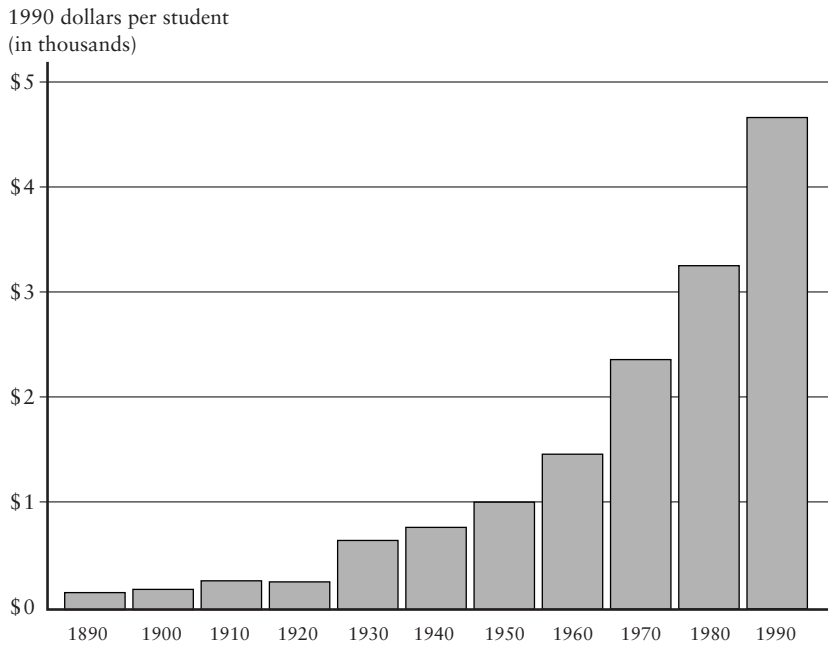
of the century, a primary emphasis was expansion of access to schools. At the beginning of the twentieth century, just 6 percent of the population graduated from high school. This percentage grew steadily until more than half the school-age population finished high school by 1950. Of course, younger cohorts systematically attained more schooling than the entire adult population. Thus, while the average levels of schooling for the entire population have continued to rise (as younger and more schooled cohorts replace older cohorts), the median school completion rates of the youngest cohorts have been constant since the mid-1970s.

With constancy of completion rates, much of the attention has switched to quality issues (i.e., the amount of learning per year of schooling). The main thrust of this has been to provide extra resources to support a deepening of schools. Before considering recent resource movements, however, it is useful to put spending and resources into the larger picture of the twentieth century.

Real spending per student—that is spending per student adjusted to remove general inflation—has grown steadily and dramatically. From a spending of $164/student in 1890, the average for the United States quintupled roughly every fifty years, reaching $4,622/student in 1990 (see figure 1). (All spending is expressed in 1990 dollars.) Such increases over such an extended period of time represent truly amazing growth, growth that is hard to find in any other sector. For example, popular accounts suggest widespread hostility to increases in health care costs, but, by some measures, the rate of inflation in health care has been less than the inflation in education. Indeed, the contrast to health care is remarkable. Many indicators suggest overall improvement in the quality of life from improvements in health care, something that cannot readily be said for performance in the education sector. Yet the popular conception is that health care costs have risen too much, while education costs are too low.

Over the long period, three factors have pushed up the spending per pupil. First, pupil-teacher ratios have fallen. Second, teacher salaries have risen. And, third, expenditures for other than instructional salaries have grown more than proportionately. An important part

Figure 1. Real Spending per Pupil in U.S. Public Schools, 1890–1990



of the story is the consistency of these forces over the century. The precise importance of each component has moved up and down some during the century, but each has provided steady pressure on overall spending.

Recent experiences coincide with those of the larger picture. The major changes of the quarter-century from 1970 to 1995 are summarized in table 1. The average pupil-teacher ratio fell by roughly a quarter. The percentage of teachers with at least a master's

Table 1. Resources in U.S. Public Schools, 1970 and 1995

	1970	*1995*
Pupil-teacher ratio	22.3	17.3
Teachers with a master's degree or more	27.5%	56.2%
Median teacher experience	8 years	15 years
Real expenditure per pupil (1997 $)	$3,645	$6,434

degree has more than doubled, so that a majority of teachers have a high level of education. Median teacher experience, which is largely driven by hiring cycles related to student demographic swings, almost doubled over this period. Finally, real spending per pupil—which is directly influenced by the preceding and other factors—increased by three-quarters over the period.

Contrast these resource changes—that reflect the general prescriptions many advocate—with the patterns of flat student performance. These data suggest on the surface real problems but not the resource shortages that many popular arguments conjure up. The large resource increases appear to be simply a reflection of the policies commonly advocated. The implied lack of relationship of resources and performance seems implausible. Could it be true? Or is something else going on below the surface?

Benign Explanations of Spending Growth

Two concerns about external cost pressures have arisen and been offered as possible mitigating factors for the bad resource outcome: the pressures of competing for skilled workers and the pressures of demands for special populations. The competition for labor, particularly teachers, can be expressed in a variety of ways including issues about the calculation of real expenditure or about quality shifts in the teacher labor markets. The concern about increased demand and requirements on schools, while possibly covering a wide variety of factors, has largely focused on the role of special education.

Measuring Cost Increases and Competition for Labor

To understand the increase in expenditures over time, it is obviously important to adjust for inflation. Most typically, expenditure in any year is adjusted by the consumer price index, or CPI. For example, table 1 showed the spending on schools in 1970 when adjusted to 1997 purchasing power. After this adjustment, the real

expenditure figures reflect the resources that society is giving up to run its schools. But the adjusted dollars may misstate the changes in resources that schools effectively have for their educational program.[4] Schools must compete for teachers with other industries. If productivity gains in other sectors of the economy permit firms to pay more for college-educated workers, schools must also pay more for teachers or run the danger of having good people go elsewhere. Thus, the costs to schools will go up, since they must pay more for workers even though they do not produce any more (i.e., even though productivity improvements are not occurring).[5] This in turn implies that use of a general deflator for inflation like the CPI does not reflect the change in actual costs faced by schools.

As is well known, the wages of college graduates have soared since the mid-1970s. Whereas the typical college graduate earned about 35 percent more than the typical high school graduate in the mid-1970s, this premium grew to more than 75 percent by

4. The effect of using alternative price deflators in the context of schools is raised by Richard Rothstein and Karen Hawley Miles, *Where's the Money Gone? Changes in the Level and Composition of Education Spending* (Washington, D.C.: Economic Policy Institute, 1995). The more general conceptual issues related to productivity differences are highlighted by William J. Baumol and William G. Bowen, "On the Performing Arts: The Anatomy of Their Economic Problems," *American Economic Review* 55 (May 1965): 495–502, in the context of the performing arts.

5. Many people assume that productivity changes are essentially nonexistent in schools because instruction is largely provided by one classroom instructor with a relatively fixed number of students. In reality, the number of students is not fixed, as described previously. In the face of increasing salaries for teachers, schools have actually moved to hire additional teachers. Thus, schools have operated very differently than suggested by the productivity model. Specifically, the productivity model of William J. Baumol, "Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis," *American Economic Review* 57, no. 3 (June 1967): 415–26, suggests that the low-productivity firm must either face higher costs or decrease quality in the face of wage pressures from other industries. If this were the reaction of schools, they would either hold pupil-teacher ratios constant or increase them. For a more complete discussion of salaries, see Eric A. Hanushek and Steven G. Rivkin, "Understanding the Twentieth-Century Growth in U.S. School Spending," *Journal of Human Resources* 32, no. 1 (winter 1997): 35–68.

1990. This phenomenon is usually interpreted as the increased demand for skilled workers, propelled by industries that have developed production methods that emphasize skills. Many take pride in recent developments of the American economy, but an implication is that schools must compete with other industries to obtain college-educated workers as teachers.

A related phenomenon is that opportunities for females in the workforce have greatly expanded over the past three decades. Although the professional jobs of women were at one time largely restricted to teaching or nursing, such is no longer the case. Wages for college-educated women have risen rapidly, and career paths have altered accordingly. Thus, the captive labor force of schools has escaped, leaving schools to compete even more broadly for teachers.

One way to adjust for this changing labor market is to deflate expenditure increases by measures that reflect how rapidly wages of college workers are increasing (as opposed how rapidly prices for products purchased by a typical consumer are increasing). Doing this suggests that the rate of increase in expenditure has been somewhat less than appears from the CPI, but it is not all that different.[6] In other words, while the precise answer differs somewhat over different periods of time, this alternative approach does not make a huge change in the picture of expenditure changes for schools.

Patterns of Teacher Salaries

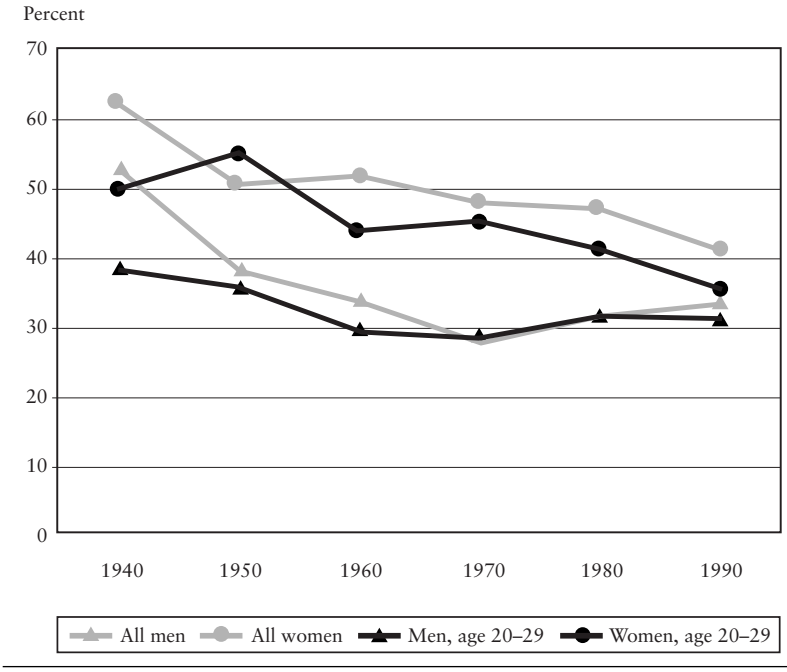
An alternative approach, however, may be more telling. Workers with a college education actually earn quite varying amounts. Although it is common to quote the averages, salaries for workers of the same age and education fall across a broad range. One expla-

6. Eric A. Hanushek, "The Productivity Collapse in Schools," in *Developments in School Finance, 1996*, ed. William J. Folwer Jr., pp. 185–95 (Washington, D.C.: National Center for Education Statistics, 1997), compares alternative deflators.

nation for this distribution is that workers with the same schooling levels actually have widely varying skills and abilities. Building on this idea, one indication of the quality of teachers at any point in time comes from considering where the typical teacher falls in the overall salary distribution for college-educated workers. Specifically, if individuals are deciding on careers based on salaries and if the most able can command the highest salaries, the comparison of average teacher salaries with other workers can give a rough "quality" measure.

In fact, the changes in salaries relative to other occupations, depicted in figure 2, have been dramatic. Teacher salaries for females—which represented some of the best options for women in the 1940s—have fallen steadily until today. The pattern is even

FIGURE 2. COLLEGE-EDUCATED EARNING LESS THAN AVERAGE TEACHER, BY GENDER AND AGE, 1940–1990
(in percent)



more exaggerated for young women. Male teachers, who comprise approximately one-third of the teacher force, saw relative earnings fall from 1940 to 1970 but hold steady (or maybe increase) subsequently.[7] By 1990, men and women teachers were coming from quite similar places in the overall salary distribution. Taken together, however, the story is that teacher salaries have not kept up with those of college graduates, suggesting that the average quality of teachers may have slipped over time.

The interpretation of this, nonetheless, requires caution. To begin with, overall salaries for college graduates may not be a good index of the specific skills required for teaching. But, beyond that, it is not inevitable that schools make these choices. In particular, schools could decide to match the rate of increase of other salaries in the economy. They did not, implying that the observed expenditure increases are held down in the sense that schools allow teacher salaries to deteriorate at the time that they have had rapid increases in overall spending. Had the choice not been made to let relative teacher salaries fall, expenditure increases would have been even more rapid. The choice that schools made involved reducing pupil-teacher ratios, while letting relative salaries fall.

The simple comparisons of teaching salaries with those elsewhere in the economy have led to general calls for increasing teacher salaries. These calls have, in part, been supported by stories of specific shortages—of math and science teachers, of special education teachers, of language and bilingual teachers. Indeed, raising the average salaries of teachers may be a course that eventually should be pursued, but the simple aggregate data are insufficient to make that case. First, detailed studies of teacher quality and salaries do not indicate that there is much relationship between the two within the current structure of schools. Importantly, salaries are generally determined by teacher experience and teacher education levels (i.e., having an advanced degree or not)

7. See Hanushek and Rivkin, "Understanding the Twentieth-Century Growth in U.S. School Spending," for a discussion of relative salary changes for teachers.

and not by any demonstrated performance in the classroom.[8] Raising salaries across the board for current teachers would equally reward both good and bad teachers without changing student achievement by much. Second, the argument for increasing salaries is based on attracting different people into teaching, but those effects would take many years to be felt. Each year a relatively small proportion of teachers is replaced through the natural processes of retirement and leaving teaching. So, even if college students today reacted immediately to the promise of increased rewards in teaching, it would take many years to see substantial change in the teaching force. Third, if the pool of teachers were to expand, schools must still be able to select the best from this group. Analysis of current hiring processes[9] does not present an optimistic assessment of the prospects for good hiring from an expanded pool.

Thus, the idea of increasing average teacher salaries without other, more fundamental changes in the hiring, retention, and salary determination processes appears to be a dubious policy interpretation from the existing data on teacher salaries.

Special Education

Concerns about the education of children with both physical and mental disabilities were translated into federal law in 1975 with the Education for All Handicapped Children Act. This act prescribed a series of diagnostics, counseling activities, and services to be provided for handicapped students. To implement this and subsequent laws and regulations, school systems expanded staff

8. For a general discussion of the relationship between resources and student performance, see Hanushek, "The Productivity Collapse in Schools," and Eric A. Hanushek et al., *Making Schools Work: Improving Performance and Controlling Costs* (Washington, D.C.: Brookings Institution, 1994).

9. For example, Richard J. Murnane, Judith D. Singer, John B. Willett, James J. Kemple, and Randall J. Olsen, *Who Will Teach?* (Cambridge: Harvard University Press, 1991); Dale Ballou and Michael Podgursky, *Teacher Pay and Teacher Quality* (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 1997).

and programs, developing entirely new administrative structures in many cases to handle "special education." The general thrust of the educational services has been to provide regular classroom instruction where possible ("mainstreaming") along with specialized instruction to deal with specific needs. The result has been growth of students classified as the special education population even as the total student population fell. Between 1977 and 1994, the percentage of students classified as disabled increased from 9.7 to 12.2 percent. Moreover, the number of special education teachers increased much more rapidly than the number of children classified as disabled. The average cost of special education is estimated to be in excess of twice the cost of regular education, putting cost pressures on schools.

From the standpoint of interpreting trends in expenditure and performance, the concern about the recent emphasis on special education is that these students tend not to take standardized tests. Thus, even if special education programs are effective, the increased expenditures on special education will not show up in measured student performance.[10]

The magnitude of special education and its growth, however, are insufficient to reconcile the cost and performance dilemma. Using the best available estimate of the cost differential for special education—2.3 times the cost of regular education—the growth in special education students between 1980 and 1990 can explain less than 20 percent of the expenditure growth.[11] In other words,

10. The laws governing special education clearly provided advantages to the special education children, some of whom are believed to be spared from exclusion to schools in addition to getting enriched programs. Nonetheless, little attention has been devoted to assessing special education outcomes. See Eric A. Hanushek, John F. Kain, and Steven G. Rivkin, "Does Special Education Raise Academic Achievement for Students with Disabilities?" National Bureau of Economic Research, working paper no. 6690, 1998.

11. Cost estimates can be found in Stephen Chaikind, Louis C. Danielson, and Marsha L. Brauen, "What Do We Know about the Costs of Special Education? A Selected Review," *Journal of Special Education* 26, no. 4 (1993): 344–70. As they indicate, costs vary widely by type of disability. The calculation of implications for school spending are found in Hanushek and Rivkin, "Understanding the Twentieth-Century Growth in U.S. School Spending."

while special education programs have undoubtedly influenced overall expenditures, they remain a relatively small portion of the total spending on schools.

Direct estimates of exogenous programmatic changes resulting from other academic aspects of schools such as language instruction for immigrants or nonacademic programs such as sports, art, or music are not readily available. Nonetheless, no evidence suggests that these can explain the magnitude of spending growth.

Conclusions about Overall Expenditure Growth

A significant overall policy issue facing U.S. public education is why dramatic increases in resources for schools do not appear to translate into enhanced student performance. Some have suggested that the answer lies in the data: measured expenditure on schools does not reflect a number of realities faced by schools. The two leading candidates are external cost pressures—making it increasingly more difficult to hire high-quality teachers—and the necessity of providing costly programs for special education. Each has some merit, implying that the measured expenditure increases do overstate the effective resource growth for regular education students. But allowing for these does not change the overall picture of striking resource improvements matched with flat student performance.

The suggestion of a disconnect between spending and student performance has actually been reinforced by detailed studies at the school and classroom level. The studies, which have been controversial largely because of their findings, indicate no systematic relationship between resources and outcomes once one considers families and other factors that determine achievement.[12] The studies, of course, do not indicate that resources never make a difference. Nor do they indicate that resources could not make a difference. Instead they demonstrate that one cannot expect to see

12. See Hanushek et al., "Making Schools Work"; Hanushek, "The Productivity Collapse in Schools."

much if any improvement simply by adding resources to the current schools.

Inequality in Expenditure

Although the previous discussion highlighted the level of average spending, there is wide variation around the average. And considerable concern and policy attention have focused on the distribution of spending.

Overall spending represents a combination of spending by federal, state, and local agencies. For the past two decades, the shares of expenditures by each level of government have been relatively stable, with the federal government contributing 6–8 percent and state and local governments roughly evenly splitting the remainder. This stability in shares did, however, occur after some significant changes in the prior two decades. During the 1960s, the federal government's share doubled. During the 1970s, the traditional majority spending role of localities declined to equality with state governments. (These averages mask wide variation across the states, however, with some states leaving no role for localities in determining spending and others strongly emphasizing the local responsibility for spending.)

The federal government has concentrated on funding compensatory programs for schools. These programs primarily include Head Start preschool programs, Title I compensatory education programs, and special education funding. In these programs, funds are targeted on disadvantaged students or special needs students.

Evaluations of the effectiveness of federal programs in improving student performance do not suggest much overall success. Title I, which has changed form repeatedly over its history, has never indicated success in boosting general performance of disadvantaged students.[13] Head Start has evolved into a health and nutrition program and has historically been dubbed as having limited

13. See, for example, George Farkas and L. Shane Hall, "Can Title I Attain Its Goal?" in *Brookings Papers on Education Policy 2000*, ed. by Diane Ravitch (Washington, D.C.: Brookings Institution, 2000).

educational effectiveness, with any gains in early performance eroding over time.[14] Special education programs have never received any overall evaluation, making it difficult to assess this 20 percent of federal education spending.[15] In sum, there is little reason with existing evidence to believe that federal actions as a whole have had much effect on student achievement for their targeted populations.

Schools are, nonetheless, the primary responsibility of the states, so the lack of systematic federal impact might not be altogether surprising. The states have pursued a variety of programs that affect equality in schools. Most significantly, states operate independently, implying substantial differences in spending, regulations, and operations across states. Although the compensatory federal spending has some equalizing effect, it is small relative to the overall disparities in funding. Figure 3 shows the distribution of mean expenditure across states. The spending data, while unadjusted for any cost of education differences, show a remarkable spread.

Differences in average spending across states are the largest component of inequality in resources available to students. When comparing differences in spending across states to that across districts within a state, the basic finding is that two-thirds of the differences in school spending come from between-state differences.[16]

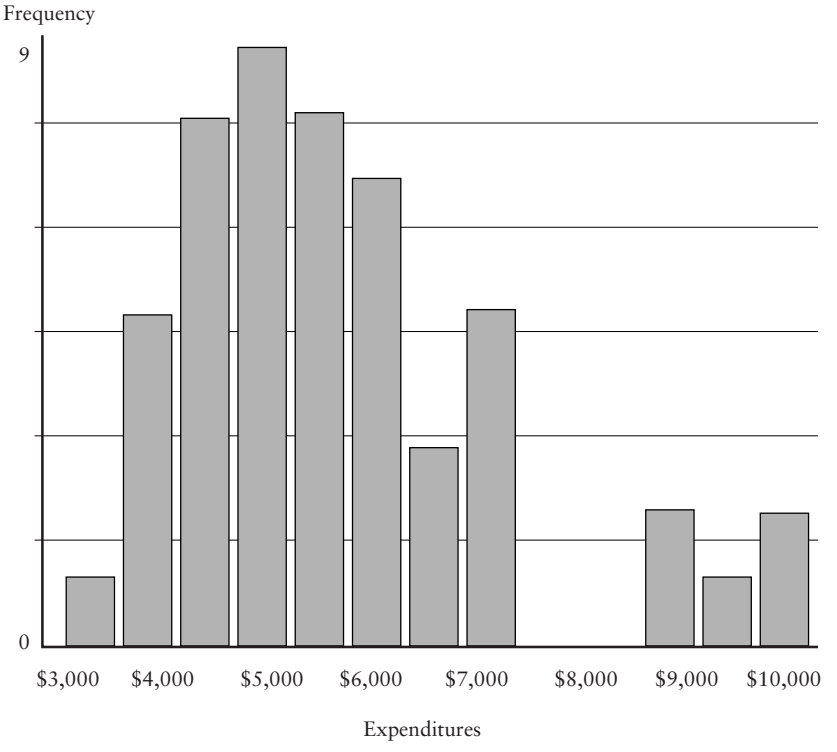
It is interesting that, while federal spending has focused on purely distributional issues in terms of disadvantaged (low-income) populations, there is little equalization of overall spending across

14. See W. Steven Barnett, "Benefits of Compensatory Preschool Education," *Journal of Human Resources* 27, no. 2 (spring 1992): 279–312.

15. Hanushek, Kain, and Rivkin, "Does Special Education Raise Academic Achievement for Students with Disabilities," find some evidence of positive effects on achievement for special education, but this investigation does not consider variations in either state or federal funds for special education.

16. The most systematic study of spending patterns is Sheila E. Murray, William N. Evans, and Robert M. Schwab, "Education-Finance Reform and the Distribution of Education Resources," *American Economic Review* 88, no. 4 (September 1998): 789–812. They employ various approaches to identify the source of variations in spending across schools, but all suggest the dominance of state differences.

FIGURE 3. DISTRIBUTION OF SPENDING PER PUPIL BY STATE, 1995



states. Federal spending has done little to disturb existing spending differentials across states, even though this large variation in spending is negatively related to the education and income of the state.

A variety of other programs and financing incentives is designed to promote more equality in schools. The growth in state shares during the 1970s is at least partially related to school funding court cases or attempts of legislatures to deal independently with the issues raised in those cases. Beginning in the late 1960s, a wave of school finance cases has swept the nation. The origins of these cases are typically traced to the California case of *Seranno v. Priest*. The underlying legal theory was that children in property-

poor school districts with their commensurately limited taxing power were being discriminated against because the ability of the school to raise funds depended on the wealth of the students' neighbors.[17] This suit, originally brought under both state and U.S. constitutions, became the model for similar suits in a majority of the states. Although the U.S. Supreme Court ruled that existing state school financing plans did not violate the equal protection clause of the Fourteenth Amendment, most state constitutions explicitly define a state role in the provision of elementary and secondary schooling, and they have been the focus of suits.

State courts have split on whether or not their financing arrangements violate the state constitution, but one overall effect of the court action has been the relative increase in state funding that has come from the state. The general thrust of these suits has been that states should take a larger responsibility in school funding so as to ameliorate if not eliminate the funding advantages that certain districts have. This by itself leads to an increase in state share. Moreover, since there is frequently a significant amount of redistribution of funding called for by court orders and by legislative "equity" initiatives, it appears frequently to be more feasible to increase the total spending while changing the pattern (i.e., it is easier to redistribute a larger pie than a constant pie). Considerable heterogeneity exists across states, however, and such generalizations fit the aggregate better than individual states.

The primary focus of the court cases has been equity (although it may be changing). If there is a wide disparity in the funding and quality of schools, the argument goes, there will be subsequent disparities in earnings and other outcomes. And, while quality is the general rubric of concern, most of the court cases have focused attention on purely fiscal and expenditure aspects of schools. The prevailing evidence suggests that court cases have tended to pro-

17. The original arguments were made by John E. Coons, William H. Clune, and Stephen D. Sugarman, *Private Wealth and Public Education* (Cambridge, Mass.: The Belknap Press of Harvard University Press, 1970), and have been modified.

mote a more even distribution of spending across districts, although the effects have not been large on average.[18]

The new version of state school finance cases has focused on "adequacy," or whether state funding is sufficient to meet state educational goals. Although ambiguity exists in the exact definition, this set of school finance cases appears to address both the distribution and the level of spending across districts. The argument tends to begin with a focus on student outcomes but then is quickly translated into pure resource terms. Again, if spending is not closely related to performance, it is difficult to specify what level of spending would be needed to achieve any desired level of outcomes that might be determined to be adequate. In other words, while introducing the idea of concern about outcomes, the adequacy discussions inherently face the same issues as the traditional equity discussions—with the difference that the level of spending also becomes a concern.

Surprisingly, there has been little study of the effects of equalization of spending in the states. There is, as suggested above, reason to believe that overall levels of spending have little impact on student outcomes, and this might reasonably be thought to generalize to the results of changing the spending patterns within states. The little evidence that does exist confirms this: there is no reason to believe that equalizing expenditure also tends to equalize student performance.[19] Nonetheless, since the school finance court cases have been such a significant element of funding discussions over

18. James H. Wyckoff, "The Intrastate Equality of Public Primary and Secondary Education Resources in the U.S., 1980–1987," *Economics of Education Review* 11, no. 1 (March 1992): 19–30, and Murray, Evans, and Schwab, "Education-Finance Reform," provide evidence on the court cases. Murray, Evans, and Schwab show that states under court order have moved more toward equality that those not under order, although most states have not made dramatic changes.

19. Thomas A. Downes, "Evaluating the Impact of School Finance Reform on the Provision of Public Education: The California Case," *National Tax Journal* 45, no. 4 (December 1992): 405–19, looks at variations in student test scores after equalization in California and finds no relationship. Hanushek and Somers (forthcoming) relate variations in school spending to variations in subsequent labor market rewards and similarly find no relationship.

the past three decades, one might expect more attention to the outcomes.

Some Conclusions

The patterns of expenditure on schools tell a fairly simple story. Real spending on schools has been increasing for a long time. The spending has in broad-brush terms been happening in the ways that is commonly advocated: teacher education has been increasing, teacher experience has been increasing, and pupil-teacher ratios have been falling. Yet, at least for the past three decades when student performance has been measured, there is little indication that these increases in resources have led to discernible improvements in student outcomes.

Consideration of other factors that might distort the resource outcome picture does not change the conclusions. Although cost pressures on teachers and special education have had some influence on the resource flows into school, they do not change the overall conclusions.

Beyond the level of resources, concern about their distribution has been an important focus of policy. Coincident with increases in the level of resources has been a shrinking of the variations of spending across districts. A portion of this has driven by court cases about spending equity, although the most important issues are variations in resources across states. With this movement toward spending equity, however, there is no evidence that outcomes have become more equalized.

All this suggests that resources per se are not the issue. And there is little reason to believe that future resource flows will have the desirable impact on student outcomes unless other, more fundamental factors change.

The puzzle of why resources do not systematically affect performance remains. The most consistent explanation is that the current incentives within schools do not push schools to concentrate on student performance.[20] A good teacher can expect roughly the

20. Hanushek et al., *Making Schools Work*.

same salary pattern, employment opportunities, and other job outcomes as a poor teacher. The same holds for virtually everybody within schools. Thus, it is not particularly surprising that added resources are not consistently translated into improved student performance. Improving the incentives in schools appears to be the most important task if resources are to be used more effectively in the future.