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# Improving Educational Productivity and School Finance

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The education productivity problem historically has been rising resources with flat or only slowly rising student achievement. In the period 1960–1990, inflation-adjusted revenues per pupil rose by slightly more than 200% (National Center for Education Statistics, 1994). However, despite a number of positive performance indicators, student achievement in core subject areas during the same period rose only modestly (Mullis et al., 1994; Odden, 1991). The future productivity problem is producing much higher student achievement, the goal of current education reform, with stable resources, because education resources have been flat for the past 5 years and are unlikely to do much better in the near future (Odden, 1994c). Both education programs and finance structures will need to be restructured to accomplish these productivity challenges.

Of course, we recognize that low student performance may be due in part to declining social and economic conditions of children and their families, lack of hard work by students, and lack of parental support for schools and children (Casserly & Carnoy, 1994; Odden & Odden, 1995, chapter 2). Indeed, there is considerable truth to the proposition that maintaining levels of student achievement in a period of decline in the conditions of children would be a significant accomplishment (Bracey, 1994; Casserly & Carnoy, 1994). But our research focused on what schools controlled and could do to improve student achievement and thus productivity.

## Factors Behind Low Productivity

There are a number of possible reasons for low productivity. We can dismiss two at the outset: Analysis of the data does not support the common assertions that wasteful administration or high teacher salaries are to blame. Other reasons merit more scrutiny.

*Poor Resource Distribution.* In the United States, the overall national investment in public schools is distributed quite unequally across states, districts, schools, and students. Differences in base funding for education can vary by as much as three to one across states, greater across districts within states (Hertert, Busch, & Odden, 1994), and substantially across schools within districts (Cooper, 1993; Hertert, 1993). Furthermore, mechanisms for distributing education dollars often provide more money to socioeconomically advantaged and higher-achieving areas (Alexander & Salmon, 1995). These resource distribution practices can be challenged on effectiveness and productivity grounds, in addition to traditional equity grounds (Odden & Clune, 1995).

*Unimaginative Use of Money.* Shortcomings in distribution of dollars are exacerbated at the district and school levels by unimaginative and unproductive resource allocation and use practices (Odden, Monk, Nakib & Picus, 1995). Many studies of how education dollars are used by states, districts, and schools have been conducted in the past few years (Barro, 1992; Cooper, 1993; Hartman, 1994; Hertert, 1993; Lankford & Wyckoff, 1995; Monk & Roellke, 1994a, 1994b; Nakib, 1994, in press; Picus, 1993a, 1993b; Picus & Bhimani, 1993; Picus, Hertert, & Tetreault, 1995; Raimondo, 1994).

The major findings are that dollars are not used in ways that directly raise student achievement. Districts tend to use most of any increased revenues to hire more teachers, typically to reduce class size or provide more out-of-classroom services. Neither strategy boosts student achievement very much (Allington & Johnston, 1989; Odden, 1990; Slavin, Karweit & Madden, 1989).

Districts also use new dollars to increase teacher salaries, but these funds have not been used strategically to enhance teacher professional expertise (Lankford & Wyckoff, 1994; Odden, in press). Another portion of increased revenues is used to expand services for special student populations, but there is little evidence that services have boosted achievement (Independent Review Panel, 1993).

Use of funds in states undergoing school finance reform reflects the same pattern of traditional resource use. Studies in Kentucky, New Jersey, and Texas showed that poor districts used relatively few of their additional dollars to improve the regular school program. Typically, these districts chose to improve their overall environment—constructing or improving facilities, buying books and supplies, funding health and social services—before ad-

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dressing central educational issues (Adams, 1994; Firestone, Goertz, Nagle, & Smelkinson, 1994; Picus, 1994).

*Bureaucratic Approach.* Typically, American schools are bureaucratic organizations, characterized by fragmentation and job specialization. This often leads to structures "heavy" in the middle, with numerous categorical program specialists supported by outside interest groups. In a typical secondary school, for example, core academic teachers comprise only 60% of all teachers, and only 40% of all staff (Odden, Monk, Nakib, & Picus, 1995). The key productivity issue is whether this approach is better than one where virtually all professional staff are engaged in instruction, but also provide counseling and other services. Such a strategy has been proposed by Sizer (1992) and Slavin, Dolan, and Madden (1994).

*Failure to Focus on Results.* Another factor blunting productive use of educational resources is that the system has not been focused on results. Thirty years ago, no state had a statewide testing system indicating the results of its educational investments. Today, only a handful of states have assessments that indicate student achievement relative to high standards. Without clear goals, specification of educational standards and good measures of them, it is impossible to be productive (Ravitch, 1995). It will be hard to teach all students to ambitious achievement standards and become more productive if student achievement is not made the priority for education resources—dollars, staffing, time, and energy (Committee for Economic Development, 1994; Ravitch, 1995).

*Focus on Services.* Partly as a result of the system's bureaucratic approach and lack of clear goals and standards, many education practitioners and policymakers have an orientation to providing services, rather than producing results (Barnett, 1994). This orientation produces a focus on finding new areas where money must be spent—such as student nutrition, parent involvement, professional development, or child care—rather than on direct education services. These areas may be very worthy, but they ignore the key question of how to allocate scarce current and new resources to boost student achievement.

*Practices That Drive up Costs.* Odden and Massy (1993) cite four practices that continually drive up education costs. Schools tend to: see themselves as labor-intensive industries that must maintain their relative wages or settle for lower quality employees, respond to new issues or conditions by adding programs, add administrative staff for each new categorical program, and engage in constant "ratcheting-up" of norms for the work place—such as reducing teaching loads or lowering class size.

### **Producing Higher Educational Performance**

Several streams of research shed light on improving student achievement and increasing productivity. Less helpful in terms of providing policy guidance is traditional production function research (Hanushek, 1989, 1994a, 1994b; Hedges, Laine, & Greenwald, 1994; McPhail-Wilcox & King, 1986; Monk, 1992; Murnane, 1983; Rossmiller, 1983; Versteegen, 1994), although new research has produced some positive findings (Ehrenberg & Brewer, in press; Ehrenberg, Goldhaber, & Brewer, in press; Ferguson, 1991; Ferguson & Ladd, 1995; Monk, 1994). More helpful is research on increased course taking, organization and management, improving high-poverty schools, changing

state school finance structures, and restructuring teacher compensation.

*Research on Increased Course Taking.* Research has shown that increased academic course taking by secondary school students has significant impacts on student achievement (Porter, 1993). Research in the late 1980s showed that in states that increased high school graduation requirements, students took more academic courses (Clune & White, 1992; Guthrie & Kirst, 1986), as much as 50% more mathematics and science courses. Subsequent research documented the substantial rigor of these courses (Odden & Marsh, 1987, 1988; Porter, Kirst, Osthoff, Smithson, & Schneider, 1993). Preliminary results of a longitudinal study by the Center for Policy Studies in Education, begun in 1991, show that New York and California high school students enrolled in new mathematics courses designed especially for non-college-bound students achieved at higher levels than other students (White, Gamoran, & Smithson, 1995).

*Organization and Management Research.* Research has sought to identify organizational and management strategies that, when linked with components of systemic reform, could improve performance. We identified high-involvement management—in which teams of individuals actually providing services or making products are given decision-making authority and held accountable for results—as the emerging model in both public and private sectors, especially for systems attempting to dramatically improve results (Barzelay, 1992; Lawler, 1986, 1992; Levine, 1995; Osterman, 1994).

The importance of high-involvement management was reinforced by Darling-Hammond, who concluded that, to accomplish current education goals, two related strategies need to be pursued: professionalizing teaching and decentralizing school organization and management to teachers (Darling-Hammond, 1993, 1994, in press). These strategies fit with the literature on professional organizations (Bacharach & Conley, 1988; Shedd & Bacharach, 1991) and with research on the relationship of types of work to the organization and management of workplaces (Mohrman, Lawler, & Mohrman, 1992).

Effective school-based management strategies have operated by decentralizing power, knowledge, information, and rewards; creating an instructional guidance focus for change; and providing facilitative principal leadership. This created conditions for professionals in schools to reorganize curriculum and instruction, redesign school and classroom organization, restructure use of resources, and increase student achievement (Mohrman & Wohlstetter, 1994; Odden & Odden, 1994; Odden & Wohlstetter, 1995; Odden, Wohlstetter, & Odden, 1995; Robertson, Wohlstetter, & Mohrman, 1995; Wohlstetter, Smyer, & Mohrman, 1994). These findings are similar to those of Darling-Hammond (in press) and David (1994).

School-based management strategies could be strengthened, however, if coupled with new compensation strategies (see below).

*Research on High-Poverty Schools.* The first step in restructuring high-poverty schools should be introduction of a focus on academic achievement and results. Once performance goals are specified, staff must "buy into" the goals at the school level and develop a comprehensive school improvement plan oriented toward the goals (Clune, 1994b).

How best to develop appropriate instructional methodology is presently not clear. Success for All schools use a relatively standard set of educational interventions, focusing on “just in time” tutoring. Still, the program requires extensive local adaptation, site development, and continuous monitoring and training (Slavin et al., 1995). Accelerated Schools lack such a standardized methodology and rely on ideas developed at the school site. Successful schools of the Slavin, Levin, and Comer variety probably are good examples of how to implement components of successful site-based management (Barnett, 1995).

Incremental costs of effective instructional programs for the disadvantaged are not clear. Clune has recommended a figure of \$2,000 per pupil per year, including Chapter 1 funds (Clune, 1995a, in press). Whatever the additional funds available, it is clear that such schools must use their budgets in flexible and innovative ways and look at the entire school budget as offering opportunities for productive reallocations (Slavin et al., 1994).

Other factors crucial to success of disadvantaged schools include creating minimally adequate physical facilities and setting salaries to mitigate the difficulty of hiring and retaining qualified instructors (Murnane et al., 1991). Finally, any system of high-performance schools for low-income students faces the problem of “going to scale”—replicating good results throughout the system (Elmore, in press; Slavin, Dolan, & Madden, 1994). Rather than funding all schools at once, states should consider adopting a system of phased and evaluated implementation that begins in early grades and selected schools (Clune, 1994a, in press a).

### Concerns With and Changes Needed in State School Finance Structures

These new approaches to education programs, and school management and organization, require a redesigned school finance system (Odden, 1994a, 1994b; Odden & Clune, 1995). Although the history of school finance, at least up to 1990, is a history of the struggle to provide more fiscal equalization across school districts within states (Coons, Clune, & Sugarman, 1970; Cubberly, 1905; Elmore & Fuhrman, 1995; Odden & Picus, 1992) and formulas drawing from intergovernmental grant theory have been developed to accomplish these goals (see Odden & Picus, 1992, chapters 4 & 7), school finance equalization formulas have been less than stellar in accomplishing traditional fiscal equity objectives (Brown et al., 1977; Hertert, Busch & Odden, 1994; Schwartz & Moskowitz, 1988; Wykoff, 1992). Even recent school finance reforms in Kentucky, New Jersey, and Texas made only modest improvements in fiscal equity (Adams & White, 1995; Goertz, 1995; Picus & Toenjes, 1994).

The finance strategies, inadequate for the equity tasks of the past, appear to be even less adequate for the results needs of the future. First, there is an evolution in court decrees requiring much higher levels of horizontal equity, that is, equal expenditures per pupil across school districts within a state, after adjustments for price, special pupil, and district needs (Clune, 1992, 1994a, in press a; Underwood, 1995). The historic inability of current formulas to make substantial dents in expenditure per-pupil disparities across districts implies a need for substantial change to meet these stiffer demands.

Second, school finance formulas—which fund districts—are becoming disconnected from movements within education policy that target the school site—largely on effectiveness and productivity grounds. District funding formulas are cumbersome tools as states devolve management to sites or seek to finance schools through charter, public choice, vouchers, private contracting, and other site-oriented policy initiatives (Odden & Kotowski, 1992; Odden, 1994a, 1995; Wohlstetter & Anderson, 1993).

Third, recent emphases on outcomes and standards raise additional concerns about the form and structure of current school finance formulas. The issue is how the finance system that is focused on inputs can be reconstructed to reinforce an education policy agenda that is focusing on results and outcomes, largely produced at the school. In short, it is time to modify education finance as we know it and reinvent new *school* finance structures appropriate for the education goals of today and the education system of tomorrow.

### Strategies for Reinventing School Finance

*Set Fiscal Policy Targets.* Despite the historic emphasis of school finance on fiscal equity, it is, in fact, remarkable that few states, even those under court order, have developed specific numerical targets for fiscal equity, and the degree of fiscal equity has not improved for several decades. To correct the problem of continued fiscal inequity, courts and legislatures must first set fiscal equity targets for state aid programs.

*Structure It Right.* Conceptually, we believe that the fiscal equity targets can be designed by using two tiers or components of state aid: (a) a foundation plan guaranteeing equal spending at around the 90th percentile of rural spending (or the median spending in the state as a whole) and above that, (b) a guaranteed tax base keyed to the 90th percentile of statewide wealth per pupil, which can be tapped to support spending up to the 90th percentile of statewide spending. Above base spending for the “average” child, there is also need for a substantial additional amount (~\$2,000) to provide the extra services each poor child attending a high-poverty school needs to achieve to high standards.

*Additional Adjustments.* Three additional modifications of traditional formulas can be justified on effectiveness grounds: (a) a set-aside of about 2–4% of the total educational budget for development of teacher and organizational capacity to teach a high-standards curriculum; (b) another set-aside to reward exceptional performance at the school level; and (c) a third, small set-aside to develop and administer a statewide student assessment (achievement test) to be used for measuring student and school progress (an issue not discussed previously but required for a results-driven education system).

*Decentralize School Finance.* Greater productivity also argues for moving education finance in a decentralized direction, toward school-based budgeting with both short- and long-run strategies. In the short run, states could require districts to transfer a high percentage (85%) of the budget directly to the school level under conditions of maximum budgetary flexibility. In the long run, adoption of direct funding of schools by the state, as in Australia and other countries, with concomitant restructuring of the role



of school districts, or other regional authority, should be considered.

*Research on Restructuring Teacher Compensation.* As mentioned above, a move to decentralize school management also brings into question the single salary schedule, the largest, formal reward and incentive element of the current system. A redesigned compensation structure, aligned with strategic initiatives of standards-based reform and drawing on new approaches to compensation in other organizations (Lawler, 1990), could provide incentives for: developing knowledge and skills needed to teach new curriculum standards (thus aligning investments in professional development with the largest expenditure of funds); acquiring and using the expertise necessary to engage in effective school management; and producing improvements in educational results (with a focus on school, rather than individual teacher, performance). Nearly a dozen states have begun to move on this agenda by developing school-based performance awards and paying teachers for becoming certified by the National Board for Professional Teaching Standards, thus adding an element of competency pay to the current system, but, thus far, dollar amounts are very small and their impact is unknown. Several alternative compensation structures and issues would need to be addressed in implementing overall changes (Conley & Odden, 1995; Firestone, 1994; Kelley & Odden, 1995; Mohrman, Mohrman & Odden, in press; Odden, in press).

### Summary

Improving productivity of America's schools may be the only way the education system can "produce" on the goal of teaching all students to high standards. Important steps include making student achievement the priority goal for schools; enhancing curriculum and insuring that more students take a rigorous program; managing dollars, resources, people, and time at the school and classroom levels; focusing on adequate funding and programming in high-poverty schools; providing a variety of system incentives towards these objectives; and restructuring school finance and teacher compensation.

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