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# A School Finance Research Agenda For An Era Of Education Reform

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UNTIL about 1980 the issues surrounding public school finance remained the same. They were fiscal in nature, and included spending inequalities related to differences in school district property wealth per pupil, technicalities related to various state equalization formulas, funding structures that recognized higher costs for special student populations and, in some instances, state/local tax levels and burdens by income class. The major concern was how *equitably* to finance education *in general.* Stimulated largely by legal action mandating change, school finance reform with respect to these issues became a top legislative priority in nearly all states in the 1970s.

Since the beginning of the education reform movement, however, the issues related to public school finance have expanded rapidly and now include not only the financing of education in general but also the financing of numerous specific components of the education enterprise in local schools and districts. The new concern is how to finance education to improve its quality. As a result, the focus of school finance research needs to expand in order to provide the substantive underpinnings for this new policy interest.

This article discusses a series of new research directions for school finance that should accompany this expansion of policy issues. The first section briefly describes why and how school finance has evolved so rapidly in the past few years. The next section outlines a series of school finance research topics related to recently enacted state education reforms. The following section identifies research topics that link traditional school finance issues to the funding of education reforms. The last section identifies education policy issues beyond those related to current education reforms and suggests school finance research issues related to them. This article is not a comprehensive overview of all new

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trends in school finance research. It concentrates narrowly on issues raised by state education reform agendas.

## The Evolution Of School Finance

Four integral trends provide some insight into how and why the nature of school finance issues has changed in recent years:

1. The tax and expenditure limitation phenomenon that has altered the rate of change of state/local governmental activity from growth to steady state;
2. New knowledge about education improvement that provides a technology for linking the issues of finance and quality;
3. The content of recent state education policy that moves beyond education in general into the details of local education programs; and
4. The evolving nature of the economy, emerging job skill needs and the perceived links between education improvement and national economic growth.

### State And Local Government: From Rising Tide To Steady State

State and local governmental activity in the country grew consistently and quite rapidly during the 1950s, 1960s, and at the beginning of the 1970s, but has now halted and even declined moderately in some places. Proposition 13 in California and a host of similar tax and expenditure limitation referenda in the late 1970s and early 1980s represent the clearest expressions of the public mood against governmental growth. Moreover, the inclination to halt the growth of government pervades all levels of government: local, state and federal.

This fact has significant implications for current and near–term education reform efforts. Strategies for reform simply through growth, typical of the 1960s and 1970s, are politically and fiscally very difficult in the 1980s. Thus, new education programs often need to fit within a likely stable budget in real terms. In short, "buying reform" is more difficult. Indeed, analyses of both national[1] and California trends[2] suggest that education revenues per pupil under optimistic assumptions are likely to stay even in real terms from 1985 to 1990, even with large funding increases from state education reforms. As compared to the

1. Allan Odden, "Education Finance 1985: A Rising Tide or Steady Fiscal State?" *Educational Evaluation and Policy Analysis*, vol. 7, no. 4 (Winter 1985).

2. Jack Osman, *Projections of Education Expenditures and Revenues in California to 1990* (Berkeley, CA: University of California, Policy Analysis for California Education, 1985).

school finance reform decade of the 1970s when education revenues rose 26 percent in real terms, the macro–context for education funding over the 1980s seems to be a steady fiscal state, albeit with fluctuations (sometimes dramatic) from year–to–year. Thus, school finance research needs to analyze the use, allocation and reallocation of resources, in addition to determining how much extra money is needed to finance new programs. This focus directs school finance research to issues of efficiency and programmatic effectiveness.

## Linking Finance And Quality

A second new factor is the existence of a knowedge base undergirding effective school practices and local education change that has emerged from research over the past twenty years and is solidifying just as public and political demands for education excellence have become the top priority. Compared to the late 1960s when the social science research base on the elements of school effectiveness was thin, policymakers and education practitioners today have a series of knowledge bases on which to develop research–based strategies for reform including that on effective teaching,[3] effective principals,[4] effective schools,[5] change at the local level for the purpose of school improvement,[6] and program and policy implementation. Even economists, through methodologies that analyze individual student data over time, find that several important school related factors produce significant impacts on students.[7] Thus, school effectiveness issues can be addressed directly by research, including how the underlying fiscal base relates to education quality. Rather than dodging the finance/quality issue, a behavior of the past, school finance

3. Merlin Wittrock, (ed.) *Handbook of Research on Teaching* (New York: Macmillan, 1986).

4. Lorri Manassee, "Improving Conditions for Principal Effectiveness: Policy Implications from Research," *Elementary School Journal,* vol. 85, no. 3 (January 1985).

5. Stewart Purkey and Marshall Smith, "Effective Schools: A Synthesis," *Elementary School Journal,* vol. 83, no. 4 (March 1983); *see* also, Michael Cohen, "Instructional Management and Social Conditions in Effective Schools," *School Finance and School Improvement: Linkages for the 1980s,* Allan Odden and L. Dean Webb (eds.) (Cambridge, Mass.: Ballinger, 1983).

6. Allan Odden and Beverly Anderson, "How Successful State Education Improvement Programs Work," *Phi Delta Kappan,* Vol. 67, No. 8 (April 1986); *see* also, A. Michael Huberman and Matthew B. Miles, *Innovation Up Close,* New York: Plenum Press, 1984).

7. Byron Brown and Daniel Saks, "The Microeconomics of Schooling," *Review of Research in Education,* David C. Berliner (ed.) (Washington, D. C.: American Educational Research Association, 1981); *see* also, Richard Murname and Barbara Phillips, "What do Effective Teachers of Inner–City Children Have in Common?" *Social Science Research,* vol. 10, no. 1, (March 1981).

analysts can draw from the education effectiveness research and begin to show in some detail the linkages between funding and school improvement.[8]

## The Elements Of State Education Reforms

Even if the outlines of a technology for school effectiveness were not available from research, the nature of current state education reform forces school finance analysts to develop linkages between finance and the elements of local school programs. Within just the past five years, states have dramatically altered what they fund in education and how they fund it. Before, states allocated the largest portion of state education revenues to the general aid (school finance equalization) formula and smaller portions to categorical programs on the periphery of core education activities. The strategy was to provide unrestricted funds to help support the general program that was designed by local districts, and to target fund a few areas which had received inadequate local attention such as special education, bilingual education, and compensatory education. While the general aid formula still consumes the bulk of state education appropriations, even in education reform states, a series of new programs, targeted directly on core education activities in districts and schools, have been developed and consume increasing portions of new categorical funds.[9] The following are examples:

(1) increased high school graduation requirements, which received funding earmarked for the building of science laboratories and creation of new science and math courses in Florida
(2) expanded testing programs
(3) new curriculum guides
(4) various programs designed to improve the schooling process:
    a. effective schools
    b. effective teaching
    c. effective principals
    d. general school improvement
    e. Florida's writing program
(5) Various programs designed to improve teachers:
    a. mini–grants for program development
    b. inservice training requirements

8. Allan Odden and L. Dean Webb (eds.) *School Finance and School Improvement: Linkages for the 1980s* (Cambridge, Mass: Ballinger, 1983).

9. Allan Odden, *Education Finance in the States: 1984* (Denver, Colo.: Education Commission of the States, 1984).

c. career ladder programs
d. beginning teacher evaluations
(6) smaller classes
(7) secondary school counseling programs
(8) pre–kindergarten and full–day kindergarten programs
(9) merit school programs.

Many other examples exist. The point is that states have developed new "education reform categorical programs" that affect core education activites in schools; states fund these new categoricals, moreover, with restricted, targeted dollars.

These actions represent an unprecedented encroachment of the state into the school house and classroom. Questions will be raised about the effectiveness of these new strategies. To provide answers, school finance analysts will need to analyze an array of issues concerning the relationship between the level and use of funds and the effectiveness of the education and schooling process, an arena of issues here–to–fore not addressed vigorously by the school finance research community.

## The Changing Nature Of The Economy

The changing economy and its implications for education also force new issues onto the school finance agenda. Although there is debate over the specifics, there is general agreement that there is a decline in the percentage of manufacturing jobs in the economy and a growth in the service and high technology scetors; that the U.S. is retreating from labor–intensive large scale production and moving toward automation when possible and identifying market niches for specialized and custom products; and that computer and related technologies on balance are increasing the skill requirements for those in the labor market. Skill requirements are being raised either through increased skill requirements for specific jobs or through increased requirements for general analytic skills so workers can move from job to job as old jobs are eliminated and new jobs, requiring different specific skills and often in different geographical locations, are created. The bottom line is that the changing nature of the economy is increasing the skill requirements for people in the work force, thus raising the importance of investments in human capital development, i.e., in funding schools and universities. This economic rationale for funding education, too, focuses on the core output of the education system: more and higher levels of general analytic skills, and increases in the numbers of people with specific high technology skills. These specific foci further forge the linkages between edu-

cation dollars and education quality. Appropriate response involves targeting new dollars for specific, substantive education reforms, not just to education generally.

The economic thrust for new education policy, moreover, does not push aside the traditional equity issues that have been associated with education and school finance in the past. Indeed, the demand for people in the U.S. labor force with a higher overall level of skills reinforces the need to improve the impact of schooling on precisely those populations which have been the target of public policy for the past twenty years: the poor, language and ethnic minorities, and women. The U.S. economy will have difficulty maintaining its productivity unless children from poverty backgrounds, Blacks, Hispanics, Asians, language minorities, immigrants, and women not only gain their fair share of the high technology jobs but also gain the higher skills needed for most other jobs. Further, the decline in the birth rate and aging of the population mean that the nation needs to maximize the number of skilled school graduates entering the labor force; increasing high school dropout rates could critically threaten this sheer need for numbers of people, a point highlighted by recent reports to the President on how to maintain U.S. economic productivity.

### Summary

A variety of changes in the economy, in the role of government, in state legislatures and in education itself have thrust new issues onto the school finance agenda. The macro-issues of the past are now joined by an even larger number of micro–issues that require a detailed linking of finance to education quality and improvement. Issues of program cost, program effectiveness, and allocation and use of funds now take an equal standing with the traditional issues of fiscal equity. The remainder of the article outlines some of the new micro–level research issues in more detail.

## School Finance and Education Reform

At least five new areas of school finance research have been created or reinforced by recently enacted state education reform programs:

1. Distribution of reform dollars to and use of reform dollars by local districts;
2. Allocation and use of resources in effective schools;

3. Costs of education reform programs;
4. The relationship between costs and impacts of reform programs; and
5. The relationship between costs and effects of alternative strategies for reaching reform objectives.

## Local Use of Reform Dollars

A key policy issue in the near future will be: Where did education reform dollars go and what programs and services did they buy locally? School finance research will need to identify: (1) the characteristics of school districts receiving education reform funding; (2) the patterns of reform dollar use within districts and across education reform objectives; and (3) the reasons for the results. While there was considerable research on distribution patterns of school finance reform funding in the 1970s, there was little research on what those funds supported locally; Kirst's study of California was a major exception.[10] The allocation and use of education reform dollars of the 1980s should not go unaddressed. The rationale for increasing funds for schools was to finance programs that would improve the education system. Identifying which reform objectives received fiscal support in local districts, then, becomes a key element in the assessment of the impact of the reforms.

Four inter–related issues need to be addressed. First, research is needed on the distribution patterns of education reform funds. Some education reform programs are formula funded; many are not. They are voluntary, incentive programs in which either districts, schools or teachers decide to participate. Thus, the flow of state resources depends on local decisions about whether to join the program. A key issue is the final, overall distribution pattern. District characteristics such as property wealth per pupil, household income, geographical location in terms of urban or rural, concentration of special needs students, expenditures per pupil, average teacher salaries, and pupil/teacher ratios should be used to describe the patterns of distribution for these funds.

Second, information is needed on the impact of education reform funding on local spending decisions. The question is whether education reforms have changed, in a macro–sense, spending decisions of schools and districts. To what degree have education reforms changed the allocation of expenditures by function and, within function, by purpose? Most education re-

10. Michael Kirst, "What Happens at the Local Level After School Finance Reform?" *Policy Analysis*, vol. 3, no. 1 (Summer 1977).

forms targeted the general education program for improvement—curriculum issues, more courses through increased high school graduation requirements, and higher teachers' salaries. Most states collect data on expenditures by functional categories such as instruction, administration, personnel benefits, operation and maintenance, and transportation. Analysis should focus on whether spending for instruction has increased, and within instruction, on what objects—teacher salaries, classroom materials, pupil support services, and curriculum development. Statewide aggregate expenditure changes should be identified, as well as spending differences and changes categorized by district characteristics listed above.

Third, information is needed more specifically on the degree to which various education reform objectives received fiscal support in local districts and schools. Although states funded some reform objectives through newly created categorical programs, like Florida's writing program and Tennessee's career ladder program, most reform objectives were not separately funded. States expected districts and schools to use increases in general state aid and local property taxes to support state education reform objectives. Indeed, Arkansas developed a set of new educational standards and gave local districts substantial discretion over how to allocate funding to meet those objectives. The question is which reform objectives ultimately received local fiscal support, and what strategies were developed to address the new objectives. Were low cost objectives funded first, or did districts concentrate new funds onto the higher cost objectives, and were there different patterns across districts and schools? In short, research is needed to determine how education reform programmatic objectives and increased funding were handled locally.

Fourth, and related to the above topic, information is needed on how the design of the funds distribution mechanisms for education reform dollars affected local response to reform objectives. Were objectives funded by new categorical programs addressed more vigorously locally than those that did not receive targeted dollars? Or was the traditional state approach of providing aid through the equalization formula as effective in generating local fiscal response to new concerns? For categorical programs that were created, most states used flat grant mechanisms to distribute funds. How effective was this funding approach in stimulating local response, and specifically how do flat grants compare with the few matching and wealth equalizing formulas that some states used to fund education reform categoricals? One research residue of the 1970s is knowledge of how districts respond to different

intergovernmental grant designs; this knowledge can be used to assess the design of education reform funding mechanisms.[11]

These four issues are interrelated. Analysis of them will entail using three different, but related strategies. One will be quantitative analysis of revenue, expenditure, pupil and district characteristics data routinely collected by most states. Such analyses will provide broad indicators of the fiscal impacts of reform. Few districts, however, have program expenditure data that allow the kind of analysis needed to link fiscal issues to reform objectives and programs. A second strategy, thus, will be to collect more detailed data through surveys sent to representative samples of districts in states; surveys likely will be needed to identify how districts supported fiscally various education reform objectives. The third strategy will be to conduct field studies of local schools and districts using semi–structured interviews with various local educators to determine in even more detail how programmatic and fiscal decisions were made locally and reasons for such decisions. Four key questions would drive the research:

(1) Which reform objectives received priority for funding and why?
(2) Was differential response caused by underlying fiscal differences (different fiscal capacity), varying educational and management expertise (different human capacity), or some combination?
(3) Was differential response caused by the design of the programs themselves: some formula funded, some proposal funded, some under–funded and some unfunded?
(4) Was differential response caused by local preferences, priorities or conditions before the reform?

In short, a set of school finance studies needs to be developed in each education reform state to answer the questions of who received education reform funds, what they did with them, and why. These questions are likely to be especially salient in Arkansas, Florida, South Carolina, Tennessee, and Texas, states that raised taxes specifically to finance large–scale education reform programs, and also in California, Georgia, and Kentucky, states that enacted reform programs but funded them without increasing state taxes.

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11. Mun C. Tsang and Henry Levin, "The Impacts of Intergovernmental Grants on Education Spending," *Review of Educational Research*, vol. 53, no. 3 (Fall 1983).

## Resource Allocation and Use in Effective Schools

A second arena for new school finance research would seek more directly to link school finance to school effectiveness, by adding a fiscal component to effective schools research. No effective schools study has stratified sites by fiscal variables; there has been no systematic attempt to study effective schools in high, medium, and low spending school districts, for example. Similarly, there has been no systematic attempt to analyze resource allocation and use in effective schools. While there is a large body of research on effective schools,[12] there is almost no information on how they are financed, how they allocate, manage and use resources or whether they are different in high–, low–, and average–spending districts.

A series of studies examining the fiscal nature of effective schools seems in order. How do effective schools allocate and use resources: people, materials, curriculum content, time, money, and energy? To what degree is effective resource use at the school level dependent on, related to or constrained by district fiscal policies? Can district and state funding policies be modified to support the patterns of resource use in effectvive schools? Indeed, are the key elements of school effectiveness related at all to fiscal variables, and if so, which ones?

This type of research should be augmented by continued work on the micro–economics of schools as conceptualized by Thomas,[13] Brown and Saks,[14] and researched by Monk,[15] Rossmiller,[16] and Brown and Saks.[17] These studies apply micro–economic theory to resource allocation, use and impact within classrooms using data gathered from long term observations of student and teacher behavior in classrooms.

While these initial two categories of studies would illuminate the fiscal side of education excellence, the first reflects a top–down look at the fiscal implementation of actual reforms, while

12. Michael Cohen, *op. cit.*

13. Alan Thomas, *Resource Allocation in Classroom* (Chicago: Educational Finance and Productivity Center, University of Chicago, 1977).

14 Byron Brown and Daniel Saks, *op. cit.*

15. David Monk, "Interdependencies Among Educational Inputs and Resource Allocation in Classrooms," *Economics of Education Review,* vo. 3, no. 1 (Winter 1984); *see* also, David Monk, "Alternative Perceptions of Cost and the Resource Allocation Behavior of Teachers, *Educational Administration Quarterly,* vol. 18, no. 2 (Spring 1982).

16. Richard Rossmiller, "Resource Allocation and Achievement: A Classroom Analysis," *in School Finance and School Improvement: Linkages for the 1980s,* Allan Odden and L. Dean Webb (eds.) (Cambridge, Mass.: Ballinger, 1983).

17. Byron Brown and Daniel Saks, "Economic Analysis of Time and School Learning," *Perspectives on Instructional Time,* Charles W. Fisher and David C. Berliner (eds.) (New York: Longman, 1985).

the second reflects a bottom–up look at the fiscal component of school effectiveness. Combined, the sets of studies would provide a wealth of micro–level, i.e., within district and school, information on the linkages between school finance and education effectiveness that would be useful as states seek to refine reforms over time as well as design new reforms that require minimal increases in costs. The utility of such research would be enhanced even more if it was linked to an explicit model of resource allocation from the state to districts to schools, classrooms and students, preliminary outlines of which have been provided by Monk.[18]

## Costs of Reform Proposals

A third set of new school finance issues concerns the costs of various reform programs. There is little analytic work of any depth on the costs of various education reform programs. Odden[19] provided some crude, ballpark estimates of costs, the American Association of School Administrators[20] collected rough costs estimates from a small sample of local school districts, Wagner[21] provided one of the most detailed costs estimates of reform for the program proposed by the Regents of New York State, and various state legislative and education department staff have developed rough cost estimates of reform proposals.[22] What is needed is objective, analytic, substantive cost analyses for various education reform programs. The studies need to identify how costs vary as program elements are altered, and need to show how statewide average cost estimates vary across local districts in a state. Such studies should identify startup, medium, and long term costs, as well as hidden costs. Increased high school graduation requirements, for example, carry a zero appropriation in most education reforms but adding science programs require substantial funds as do remedial programs for students not meeting raised standards. Raising beginning teacher salaries may be a low–cost item today, but as increasing numbers of new teachers are hired, the costs will rise significantly. State policy

18. David Monk, "Toward a Multilevel Perspective on the Allocation of Educational Resources," *Review of Educational Research,* vol. 51, no. 2 (Summer 1981).

19. Allan Odden, "Financing Educational Excellence," *Phi Delta Kappan,* vol. 65, no. 1 (January 1984).

20. American Association of School Administrators, *The Costs of Reform: Fiscal Implications of a Nation at Risk* (Arlington, Va.: American Association of School Administrators, 1983).

21. Alan Wagner, "Financing Improvements in Educational Quality," *The National Reports: Recommendations for Improvements in Educational Quality,* (Albany, NY: Rockefeller Institute of Governance, State University of New York, 1984).

22. Allan Odden, *op. cit.*

makers in the medium term need sound, realistic cost estimates for various reform strategies so new reform initiatives can match more closely new programs with available revenues.

Few states have appropriated additional funds sufficient to cover the costs of new education reform programs.[23] As a result, the country has numerous new education reform programs in many states, all with insufficient state resources. A question, then, is how this mismatch is resolved locally. Do districts implement only part of a program to compensate for the inadequacy of funding? If so, which parts get implemented and with what effect on the objective of the program? Do districts supplement state funds with local revenues and thus generate sufficient funds? Which districts provide such local funds? Only the wealthy? Only the higher spending? Those districts with local objectives that match state objectives regardless of fiscal circumstance? Are extra local funds derived from the general education program, programs for special needs students, tax increases or other sources? Answers to these questions as well as more accurate delineation of reform costs could help to sustain reform momentum by making expectations match the level of funding for reform initiatives.

## Cost Impacts of Reform Programs

A fourth and quite important group of studies would focus on cost–impact issues and address the general question of what states are getting for new, education reform dollars. Data in California, for example, suggest the state has purchased only an extra four minutes for the school day for the millions it has spent on longer day incentives; while in some districts the impact was substantial—restoration of the sixth period in high school—in other districts there was no impact. Other data in California and in Utah, for example, suggest that the former's mentor teacher program and the latter's career ladder program, both relatively low cost, have produced substantial gains. These issues need further investigation.

The general purpose of cost–impact studies would be to quantify the effects of education reform programs, relate the results to costs for the program, and calculate a cost–impact ratio that would indicate the level of impact for a given expenditure, such as $100 per pupil. Since many education reform programs target similar or overlapping objectives, cost–impact studies analyzing cumulative impacts and total costs also would provide useful information. The objective of this set of studies not only would be

23. Ibid.

to quantify cost–impact relationships, but also to identify those approaches that are the most cost–effective [i.e., does a short extension of the school day (tens of millions) produce the same cost impact as an intensive training program in instructional effectiveness (one or two million?)] and those programs for which impacts do not justify the costs and therefore should be dropped.

Conducting cost–impact research would largely entail adding a cost component to impact and implementation studies that would be conducted in states interested in whether reforms "worked." The addition of cost data would bring traditional school finance researchers together with traditional policy evaluation and impact researchers to share information and broaden the findings of both. Cost–impact research also would add an additional dimension, often overlooked, to implementation analysis.

## Cost Effectiveness of Alternative Strategies For Reform Objectives

A fifth set of school finance research issues related to education reform would take a broader look at reform objectives and identify alternative strategies for reaching education reform objectives. These investigations would draw upon research knowledge as well as proposed state education reform programs to identify the full range of strategies, and their costs, for reaching reform objectives. The idea would be to enrich the knowledge base of the relationship between possible reform strategies and their costs, especially as states seek either to refine current reform programs or enact new ones and be efficient in the use of scarce, new dollars.

For example, five strategies for improving student performance in basic skills (a key education reform goal)—improved instruction, class size reduction, longer school days, computer assisted instruction and peer tutoring—have been researched. Their costs vary substantially, as do their effects. Interestingly, both peer tutoring and computer assisted instruction, which have received little attention in education reform proposals, are more effective and less costly than smaller classes and longer days, which have received the bulk of attention.[24] Another example includes raises in teacher salaries; more needs to be known about the effects of hiking beginning salaries, raising salaries across the

24. Henry Levin, Gene V. Glass, and Gail R. Meister, "The Cost–Effectiveness of Four Educational Interventions," Stanford University, Institute for Research on Educational Finance and Governance, 1984.

board or creating career ladders, all costly but at different levels, on recruiting or retaining more able people in teaching.[25]

Indeed, less costly initiatives such as mini–grants for teachers, effective schools projects or school improvement programs might be more or as effective alternatives. Further, more radical alternatives for staffing schools need to be explored. Increasing the number of full–time, career–oriented, master teachers, but replacing a large portion of regular teachers with adjunct teachers, teacher aides and greater uses of computer assisted instruction might improve school effects at budget levels that can be afforded.

Therefore, a set of studies needs to be developed to: (1) identify a series of reform objectives; (2) summarize and synthesize research on the effects of alternative strategies for accomplishing those objectives; (3) develop cost figures for each alternative; and (4) present cost–effectiveness ratios to show the level of impact each would provide at a given additional expenditure of money. The results not only would identify a broader range of reform interventions for states to consider but also would give policymakers more options on how to use limited resources to accomplish new objectives for public education.

## Traditional School Finance and Education Reform

While education reform raises a series of essentially new school finance issues, it also raises issues that need attention within the traditional framework of public school financing such as:

(1) national trends in education funding
(2) the equity of resource allocations
(3) funding of programs for special needs students
(4) the equity of the tax side of education finance
(5) revenue sources, specifically alternative sources.

## National Trends in Education Finance

Periodic analytic discussion of trends in school financing help identify the macro–fiscal context within which all education policy is developed. Such discussions, which both state policymakers and school finance researchers have found useful, have been provided in the past by the Education Commission of the States but are unlikely to be produced in the future. Several topics could be

25. James Ferriss and Donald Winkler, "Compensation and the Supply of Teachers," *Elementary School Journal* Vol. 86, No. 4 (March 1986).

covered by such a document. One would be a discussion of the overall level of education funding—is it increasing, decreasing, or staying steady in real terms? Are there differences by region, by state? Are finance levels in education reform states dramatically different from non–reform states? A second topic would analyze whether education reform is sparking increases in education funding like the school finance reforms of the 1970s, and if not, what kind of funding impact reform is having? A third topic could be the effect of demographic changes on education financing. Are enrollment increases consuming the bulk of new education resources so revenues per pupil are staying constant in real terms as initial reports have concluded?[26] California, even after adding more than $6 billion to education over the last three years, is about where it was in 1980 in terms of revenue per pupil after adjusting for inflation. Are there differential fiscal impacts in states with rising versus declining enrollments? Are the fiscal impacts of changes in teacher demographics, now that many teachers are retiring and many new teachers are being hired, providing fiscal opportunities for change in personnel structures? Do both combine to lower the cost curve for schooling? Further, is school finance reform—the old equity issue—dead or alive? Finally, how are the macro–issues of school finance—fiscal equity—treated in the new era of excellence? While many other issues emerge each year, an annual analytic discussion of national trends in school financing would provide a needed and useful resource.

## Equity of Resource Distribution

A second traditional issue concerns the characteristics of the distribution of education revenues. The question is whether traditional school finance equity—the lack of a relationship between spending per pupil and local property wealth per pupil (and household income)—has been strengthened or eroded since passage of state education reforms. Has the use of flat grants to distribute reform dollars eroded progress towards fiscal equity? Has the education reform agenda overrun the school finance reform agenda? Do states still enact school finance reforms? Are school finance formula changes in the 1980s different from or similar to those of the 1970s? In short, are funds, when totaled, distributed more or less equitably after education reform, and how do the changes relate to trends in place before the reforms?

26. Allan Odden, *op. cit.*, and Jack Osman, *op. cit.*

These issues have been central to school finance research for the past decade. Analyzing the equity of resource distribution would draw upon the methodology outlines by Berne and Stiefel.[27] Equity for students under the horizontal principle of equity would use statistical tests of expenditure and revenue per pupil disparity such as the coefficient of variation (unaffected by inflation) and the McLoone index. Equity for students under the vertical equity principle would use techniques such as pupil shares or horizontal equity tests using a weighted pupil count. Equity for students under the non–discrimination equity principle would use statistical tests of relationship such as the correlation coefficient and elasticity.

### Funding for Special–Need Students

A third issue concerns the funding of programs for special student needs. The issue is the degree to which programs for handicapped students, low achieving, economically disadvantaged students, and limited–English proficient students continue to receive adequate funding as states target new excellence programs for priority concern. This topic includes the degree to which states continue to develop programs for special–need students, as well as fund those programs enacted before the education reform "movement" began. Imbedded within this issue is the degree to which funding of programs developed for education reforms benefit urban, large city districts as well as other types of districts. The umbrella issue is whether education reforms have been an adjunct to traditional concerns for special–need students and city school districts where the bulk of such students attend schools, or whether education quality is proceeding at the expense of special–need students.

Funding programs for special–need students is important for equity reasons as well as for economic growth. School–aged children are increasingly comprised of language and ethnic minorities, children from poverty backgrounds, and the learning disabled. In the past, the education system has not succeeded very well with these students. But the declining number of children, and therefore a declining number of entrants to the workforce, heighten the need for these students to become well educated and thus productive workers. Funding programs for special–need students is an issue where equity and economic necessity join together for the next ten to fifteen years.

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27. Robert Berne and Leanna Stiefel, *The Measurement of Equity in School Finance* (Baltimore, MD: Johns Hopkins University Press, 1984).

## Education Reform and Tax Equity

A fourth issue concerns the tax equity side of education excellence funding. In the 1970s, school finance reforms—designed to make the distribution of school resources more equitable across school districts—usually were financed by increases in state income and sales taxes and accompanied by both property tax reduction and reform. The result was a decreased use of property taxes that imposed a regressive burden for low income households (i.e., with income below $10,000) and increased use of taxes (state sales and income) that, combined, imposed a progressive burden on upper income households. In short, school finance equity was accompanied by policies on the revenue and tax side that improved the progressivity of state and local tax burdens. By contrast, education reforms tend to be funded by increases in the state sales tax (at best a proportional tax) and increases in local property taxes (regressive for low income families). Education reform, thus, probably increases the regressivity of the state/local tax burden. Further, education reforms are being financed by tax structures less elastic to changes in personal income, thus providing a less stable base for education funding.

Analysis of these issues on the revenue side of education reform has received scant attention. The issues, though, have long term implications for the fiscal health of schools. It makes little sense to pay for improved education quality by tarnishing tax burden equity, nor does it make sense to support education quality on an unstable funding base. Analysis of the tax and revenue side of education reform seems in order to insure that progress in moving towards education excellence is not derailed by unanticipated problems on the revenue side. Standard tax burden methodologies could be used to conduct these studies.[28]

## Alternative Revenue Sources for Schools

Finally, some investigation of new and alternative revenue sources for schools is needed. The advantages, disadvantages and technical obstacles related to local option sales and income taxes need reanalysis, especially for states like California and Washington which likely have no chance to increase local property taxes for the forseeable future. In addition, analysis is needed of other creative local tax schemes that have grown as the local property tax has been severely restricted; in California, for exam-

28. Donald Phares, *Who Pays State and Local Taxes?* (Cambridge, Mass.: Oelgeschlager, Gunn and Hain, 1980).

ple, districts tax the number of parcels of property and add developer fees to new houses to raise funds to build schools. None of these reflects tenets of sound tax policy. The emergence of local education foundations, a rapidly growing phenomenon, is another topic that could be analyzed. Opportunities for school districts to charge fees–for–services is another activity that needs to be studied, including opportunites to use school assets to develop for–profit business ventures. Another issue is the increasing private support of public education which includes not only education foundations, but also business contributions, parental contributions to maintain a sixth period in high school (which has occurred more than once in California), and various other initiatives. Issues such as the magnitude of these new sources of funds, whether all all types of districts have access to them, who controls their use and what impact they have on local education programs need to be researched.[29]

## Finance Aspects of New Issues

Although the bulk of new school finance research will be related to current policy issues, such as those described in previous sections, some attention could be given to the financial side of emerging education issues. Three present themselves as prime candidates: (1) pre–school and day–care services; (2) public sector choice initiatives; and (3) expansion of computers and related technologies.

### Pre–School and Day–Care Services

A few states have created new pre–kindergarten programs for young children, usually restricted to children from economically disadvantaged homes; in 1985, states spent $227 million serving 172,000 pre–school children. Some large urban districts have expanded kindergarten to a full day program. The thrust of these efforts is to expand education services for pre–school aged students from low income families. Research indicates these programs have long term cost–effective impacts.[30] In addition to these policy initiatives, there have been an increasing number of conferences on the interfacing of pre–school, day–care and public school services for young children.

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29. Lionel R. Meno, "Sources of Alternative Revenues," *Managing Limited Revenues*, L. Dean Webb and Van. D. Mueller (eds.) (Cambridge, Mass.: Ballinger, 1984).

30. W. Steven Barnett, "Benefit–Cost Analysis of the Perry Preschool Program and its Policy Implications," *Educational Evaluation and Policy Analysis*, vol. 7, no. 4 (Winter 1985).

More information is needed as states continue to include pre–school and day–care programs in policy for education. As a beginning, more baseline information is needed on these activities: What are the number of students receiving and needing services? What kinds of programs—public and private—are now provided? What do current funding arrangements look like— what is the mix of public and private resources? Is there any relation between program quality, and funding level and source? Further, what is a reasonable cost estimate for full day kindergarten, half– or full–day preschool for four year olds, for three year olds, for before– and after–school day care? What are alternative public policy arrangements that could tap current institutional structures and funding mechanisms without driving out the obviously vibrant private sector now providing the bulk of these services?

Probably more importantly, who needs these services? Is it just low income, single parent, primarily female–headed households? Or is it upper income, professional, working parent, baby boom households who value choice (usually not available in the public sector), control (also difficult in public schools), quality (which has been lacking in public schools), and for whom price is a less important factor? In short, what are the socio–economic characteristics of households that need pre–school, day–care and early childhood programs; how can public education policy be developed to meet those needs; and what would be the costs?

Finally and more broadly, has the changing nature of families and the femininization of the labor force affected family investment in childen, and if so, what are the long term impacts? For example, when college educated women work and their children receive day care from less educated people, less is invested in the child; the issue is the magnitude and impact of such changes. What is the implication for school finance? The tax implication might be to stucture incentives or disincentives for such behavior; the tax credit for child–care currently is a disincentive for direct parental interaction with children. Framing these issues, and their school finance and tax policy implications would be a good concomitant to the more straightforward cost issues of pre–school and day–care programs.

## Public–Sector Choice Programs

Second, choice proposals usually within just the public sector are receiving renewed attention by wide ranging coalitions of people and groups. The rationales go beyond the traditional argument that choice will provide the public school monopoly with

competition and therefore increase quality. First, many households with young children have experienced a wide array of choice for day–care and pre–school education services, and can become disaffected when choice is eliminated when their children reach age five—kindergarten age. Second, choice systems have remarkable success in attaining some pretty difficult public objectives: magnet schools have proven successful alternatives to forced bussing, several alternative schools have been successful with potential high school dropouts, and even privately provided special education services at public cost have given quality service at costs below those in public schools. Third, creative choice proposals are emerging from a variety of places and designed to accomplish a variety of purposes, such as:

1. A proposal to allow parents to send their children to any public school between their home residence and place of work. This provides opportunities for upper income and mainly nonminority students to enroll in central city public schools and further desegregation goals.
2. A proposal to use excess school space in schools surrounding central cities for pre–school, day–care, and before– and after–school care for school–aged children on a fee–for–service basis. Such programs: (1) can make the public school system more attractive to people who might choose to leave; (2) foster economic and racial integration; and (3) use school assets more efficiently.
3. Proposals from governors—four to date—to let secondary students attend any public school in the state, at public cost.

There are thorny technical, substantive, legal, and fiscal issues associated with all of these proposals. But research on the fiscal elements of these rapidly emerging proposals would seem to be prudent; when governors (four in one year) propose major public sector choice programs, state enactment of some variation of them is probable in the near term. Sound fiscal information concerning them would contribute to more informed public policymaking.

## Computers and School Finance

Finally, both a current and emerging issue is the cost and financing of both capital and operating elements of computers and related technologies. First, are the obvious issues of the source of revenues to purchase, lease or license both software and hardware. There is evidence that property–rich and higher–spending districts have more computers and related technologies

than property–poor and lower–spending districts. Thus, equity issues surround access to computer technologies. Second, there are technical issues of how computer hardware and software can be acquiried through the operating, textbook and capital budgets; accounting procedures raise different issues across the states.

The arrival of speech synthesizers, user–friendly environments such as that on the Apple Macintosh, and interactive video–disks together with falling prices create new possibilities for strengthening the education process as well as lowering some of its costs. These possibilities need to be investigated in objective ways. Current cost–effectiveness research on computers generally reflects technological possibilities of the mid–1970s.[31]

Indeed, while many states are rushing to purchase computers, less attention is given to how they will be used and what the cost–effectiveness of alternative uses is. Further, computers can be used to improve effects and/or to reduce costs for both administrative and instructional components of education. Only Arkansas, however, has funded a study of the cost–effectiveness of various uses of computer technologies. The possible education uses of today's computer technologies need to be outlined, their effects and costs need to be calculted, and new cost–effective uses of computers need to be considered by states and local school districts.

## Conclusion

Even though school finance reform seems not to be a top legislative item today, the issues related to school finance are important in state education policy arenas. School finance reform, too, retains a priority ranking. Indeed, all ten states that have enacted major education reforms since April 1983 also have enacted major school finance reforms within the past ten years; Arkansas, Georgia and Texas legislated major school finance reforms as part of their education reform programs.

Further, as this article has argued, the issues of school finance have increased rather than decreased. Education reforms have raised a series of new topics that relate funding to education program quality. Education reform also has reinforced a number of traditional school finance concerns. Emerging education issues beyond reform create even further school finance topics.

School finance is vibrant and alive today. The traditional school finance reform agenda has been expanded by recent policy

31. Henry Levin, Gene V. Glass, and Gail R. Meister, *op.cit.*

events in education; a wide range of new research topics have developed and challenge school finance researchers to expand their research horizons to include them in future analytic work.