



**CASCADE
POLICY
INSTITUTE**



Money for nothing?

An analysis of the Oregon
Quality Education Model

by **Richard Vedder, Ph.D.**



August 2000

About the Author

Richard Vedder, an adjunct scholar to Cascade Policy Institute, is a distinguished professor of economics at Ohio University and a consultant to the Joint Economic Committee of Congress. An economic historian and labor economist, he has authored numerous books and monographs, as well as over 200 scholarly articles. He is the author of the 1993 Cascade Policy Institute report, “The Economic Impact of an Oregon Sales Tax,” and his most recent book is *Can Teachers Own Their Own Schools? New Strategies for Educational Excellence*.

Professor Vedder received his Ph.D. in economics from the University of Illinois, and has been a visiting professor at numerous colleges and universities, most recently serving as the John M. Olin Visiting Professor of Labor Economics and Public Policy at the Center for the Study of American Business, Washington University in St. Louis.

Professor Vedder is a former elected member of the Athens (Ohio) City School Board, his wife is a public high school guidance counselor, and his son and daughter teach in public schools. For the past decade he has extensively analyzed the results from proficiency tests administered in his state, in particular analyzing the relationship between resource use, socioeconomic factors, and student learning.

Acknowledgments

For the research of this report I benefited from the assistance of several individuals, notably Joshua Hall, staff economist at the Joint Economic Committee of the Congress of the United States.

About Cascade

Founded in 1991, Cascade Policy Institute is Oregon’s premier policy research center. Cascade’s mission is to explore and promote public policy alternatives that foster individual liberty, personal responsibility and economic opportunity. To that end the Institute publishes policy studies, provides public speakers, organizes community forums and sponsors educational programs. Focusing on state and local issues, Cascade offers practical, innovative solutions for policy makers, the media and concerned citizens.

Cascade Policy Institute is a tax-exempt educational organization as defined under IRS code 501(c)(3). Cascade neither solicits nor accepts government funding, and is supported by individual, foundation, and corporate contributions. Nothing appearing in this document is to be construed as necessarily representing the views of Cascade, or as an attempt to aid or hinder the passage of any bill before any legislative body.

Copyright © 2000 by Cascade Policy Institute. All rights reserved.
Photos used in this publication © 1999-2000 www.arttoday.com

Contents

About the Author	ii
Acknowledgments.....	ii
About Cascade	ii
Preface	v
Introduction.....	1
QEM fact sheet.....	2
The Quality Education Model and contemporary educational research.....	3
Education reform and testing: Oregon and the nation.....	4
Oregon public education spending in historical and geographic perspective	5
The Oregon QEM: Ignoring other approaches to reform	8
The determinants of student achievement: What the literature tells us.....	10
School expenditures and student achievement	11
Non-resource determinants of student achievement	16
Structural changes in education: What the QEM study ignored.....	17
Financial implications of the QEM and the impact on economic growth	19
Conclusions.....	20
Notes.....	20
References.....	25



Preface

Oregonians feel strongly about our public school system, but some things many believe about it may not be true: “Things are different here,” “our schools produce the best students in the nation,” and “schools have been starved for funds since the passage of Measure 5 in 1990.”

Three reports released this summer should cause Oregonians to question these assumptions, and look for answers outside the standard one-size-fits-all Kindergarten through 12th grade school system.

First, an *Oregonian* investigative report found that our state’s public school drop out rate is the highest in the Northwest, and one of the worst in the nation.

Second, the Rand Corporation found that, after adjusting for socioeconomic factors favorable to Oregon, our students perform nowhere near the best in the country, scoring only near the average.

And third, this Cascade Policy Institute analysis of the Oregon Quality Education Model (QEM) finds that Oregon has already invested more money in its public schools than many other states, yet our results are far from stellar. Even worse, the newest model for improvement, the QEM, relies on very costly proscriptions that fail to pass educational research and cost-benefit tests.

Richard Vedder, Distinguished Professor of Economics at Ohio University, tried to find research-based justifications for the elements making up the Oregon QEM. His report deals extensively with one of the primary assumptions of the QEM: that increased funding will positively affect student achievement. Dr. Vedder shows that this assumption is not

supported by the research. Moreover, he demonstrates that spending money in the ways called for by the QEM may actually be detrimental to learning.

Dr. Vedder looks at significant research ignored by the Model and offers some valuable insights as to what *does* have a positive impact on learning. Vedder identifies such important factors as family environment and notes that in general, more learning occurs in schools where students, teachers and administrators are empowered to make their own educational decisions.

Vedder also suggests fruitful avenues that might lead to better results—avenues that are being explored now in most states but that the QEM doesn’t even acknowledge. He discusses market-based approaches to reform, which greatly increase the role of students and their families in allocating educational resources. Among other findings, Vedder reports that the early research on vouchers is largely quite supportive, and that the high parental demand for charter schools is a measure of their success.

Dr. Vedder’s report should be read by all Oregonians interested in better understanding the complex relationship between school funding and educational results. Parents and teachers should be especially interested in the discussion of alternative ways to provide better education at less cost.

While the education policy debate is far from over, we believe this report will help move Oregon toward more effective ways of improving our education system.



Steve Buckstein, President
Cascade Policy Institute

Introduction

The United States began a path towards reforming its system of public education shortly after the release in 1983 of *A Nation at Risk*.¹ In the next decade, most states enacted education reform legislation designed to improve student performance in the schools. In Oregon, the cornerstone piece of legislation was the Oregon “Education Act for the Twenty-First Century,” passed in 1991, which put in motion the standards and assessment system defining the Certificate of Initial Mastery that was the primary accountability tool of the school reform system. In 1997, the then Speaker of the Oregon House of Representatives, Lynn Lundquist, formed a Legislative Council to develop the Oregon Quality Education Model (hereafter, QEM). In the spring of 1999, the Model was released to the public in a report, that with appendices, ran over 160 pages.²

The QEM attempts to create a goal and vision of an effective, accountable school in which 90% of the students will meet statewide achievement standards as measured by the Certificate of Initial Mastery. Because the Model’s designers believe that students themselves have too diverse circumstances to permit useful analysis, they created what they call “prototype” elementary, middle and high schools. The QEM unit of analysis is thus the school building, not the individual student.

The QEM was largely developed under the direction of an associate professor of education at the University of Oregon, David Conley, although it was approved by the council of 22 individuals, consisting mostly of business leaders and current or retired educators. In the QEM report, it is argued that by adopting the Commission’s recommendations Oregon public schools would produce improved student performance. Ac-

ording to the chair of the Legislative Council, Mr. Lundquist, the QEM “is foremost a remarkable tool—unique in the nation—that will enable the lawmakers of this state and potentially others to make reliable decisions about the funding of education. And for the first time, that funding can be linked to performance.”³

In this study, I perform an independent assessment of the QEM and Oregon’s efforts in public education. It is clear from the statements made by members of the Legislative Commission and other state education officials, that many leaders sincerely believe that by following the guidelines outlined in the QEM, Oregon will improve student performance and the quality of life of Oregonians. The intentions of those responsible for the QEM are honorable and arguably even noble. Yet my own assessment is that an objective evaluation of the research evidence suggests that the QEM is highly flawed, and that blindly following it will prove extremely costly to Oregon taxpayers, without commensurate benefits. The QEM reports no original research (e.g., relating student achievement of Oregon children to such proposed mandates as greater instructional time or smaller class size), is biased in its reference to secondary research sources, is excessively reliant on the expertise of a single educator, and is narrowly limited in the options it considers.

I further suggest that the report is flawed conceptually from the beginning by explicitly minimizing cost considerations, one of the basic ingredients in the cost-benefit analysis that all good public policy analysis should incorporate.⁴ Examining research by respected scholars who take both costs and benefits into account, I conclude that many of the assertions of the QEM are highly questionable from the standpoint of good public

The QEM reports no original research, is biased in its reference to secondary research sources, is excessively reliant on the expertise of a single educator, and is narrowly limited in the options it considers.

QEM fact sheet

The following fact sheet was distributed by the Legislative Council on the Oregon Quality Education Model, on March 3, 1999.



The Oregon Quality Education Model

- The Oregon Quality Education Model was developed over two years by the Legislative Council on the Oregon Quality Education Model, which was appointed in 1997 by then Speaker of the House Lynn Lundquist.
- The Legislative Council on the Oregon Quality Education model consists of prominent educators, business leaders, parents, teachers and legislators.
- The Oregon Quality Education Model will provide a cost to bring 90% of the students to statewide CIM standards.
- The Oregon Quality Education Model will link school funding to student performance and provide lawmakers a reliable tool on which to base a school budget.
- The components of the Model are: the Oregon 21st Century Schools Act, the seven Developmental Goals identified by the Oregon Board of Education, appropriate class size, proper professional development for teachers and administrators, adequate duration of instruction time, and sufficient operational support.
- Three prototype schools (one elementary, one middle, and one high school) were created, based on the components and additional elements, in order to determine the cost of a quality education.
- The elements and components of the model were calculated using data from the Database Initiative Project, Oregon Department of Education, professional education associations, and experts from Oregon school districts and schools.
- Oregon is the only state in the union with this technology. Many other states have attempted this project; Oregon is the first to complete this task.
- The Oregon Quality Education Model will fundamentally change the way we fund education, not only in this biennium, but in many to come.

policy and maximizing the use of resources.

The Model is seen by its authors as a way to relate costs to performance and not as a set of fixed proposals. Yet the initial QEM report concludes that “Costs for Full Implementation of *The Oregon Quality Education Model* as outlined in the Prototype Schools would be \$5.65 billion.”⁵ This is more than \$1 billion greater than Governor Kitzhaber’s initial proposed 1999-2001 K-12 education budget of \$4.5 billion. While actual approved spending was \$4.81 billion (an increase of over 10 percent from the previous biennium), adopting any of the options being studied with the QEM would almost certainly increase spending substantially.

As indicated below, the assertion that the Model would lead to 90 percent of students passing the CIM test is not supported by mainline academic research.

The Quality Education Model and contemporary educational research

The QEM purports to reach its conclusions about the educational needs of Oregonians after reviewing the corpus of research pertaining to the delivery of public educational services. In introducing the bibliography, the author of the QEM study notes that “the bibliography references provide justification for both tangible and intangible dimensions of the Model...”⁶ This appeal to scholarly authority, indeed, is appropriate, and is the hallmark of scholarly work—reaching conclusions after evaluating evidence that seeks the truth. Yet any study is only as good as the researcher(s) doing the work, and the quality of the research cited.

Major studies on which significant policy recommendations are made are usually based

on the work of multiple scholars serving in a consulting role. The use of several scholars increases the intellectual quality of the results, provides greater expertise on many topics within the general area of inquiry, and provides a diversity of viewpoints. Thus the government of Russia, when it recently wanted some consultation on its plan for economic reform, invited nine scholars from five nations to assist it.⁷ When the U.S. government wanted a national evaluation of U.S. education in the early 1980s, it created a commission with a staff including several scholars and researchers, and then commissioned some 40 scholarly studies from outside academic experts.⁸

The Legislative Commission formed by former speaker Lundquist, however, hired a single outside consultant, David Conley of the University of Oregon, to provide some research direction to the project. Thus the group lacked the breadth of knowledge and the diversity of views that are hallmarks of most major reassessments of public policy.

Moreover, the reference list accompanying the QEM report ignored a number of distinguished scholars and writers on educational reform. Based on my familiarity with the literature of education reform, I selected thirteen leading scholars whose work on various aspects of education have commanded attention in recent years. These included not only professors of education, but scholars in the fields of economics, English, history, political science, psychology, and sociology. A majority of them are associated with distinguished research institutions, such as Harvard University, Stanford University, the University of Michigan, the University of Chicago, or the Brookings Institution. Only *one* of the thirteen names on this list is included among the nearly 200 people and organizations referenced in the QEM report

The assertion that the Model would lead to 90 percent of students passing the CIM test is not supported by mainline academic research.

Major themes covered in much modern educational research were ignored in the QEM, and their findings were not conveyed to the largely lay members of the Legislative Commission.

bibliography, and that individual was not cited for his major scholarly works. These omissions show that major themes covered in much modern educational research were ignored, and that their findings were not conveyed to the largely lay members of the Legislative Commission. This also suggests that the Oregon QEM might be based on a skewed or biased reading of modern scholarship.

Education reform and testing: Oregon and the nation

Is the Oregon Quality Education Model “unique” as indicated by former speaker Lundquist? After reading the Oregon QEM document and examining sample tests for the Certificate of Initial Mastery that is integral to the Oregon reform effort, I would conclude that the Oregon approach is *not* particularly unique or different. A majority of American states have instituted statewide testing of K-12 students to some degree. Many of them tie scholarly advancement in part to test results, and some provide financial incentives or sanctions for schools whose students show relative high or low achievement levels with respect to the tests.

To cite one example quite familiar to the author, in Ohio statewide testing at several levels and in several subjects began in 1990, even before the passage of the Oregon legislation mandating such testing. Students in Ohio who fail any subject (mathematics, reading, writing, citizenship or science) on a ninth grade proficiency test may not receive a high school diploma (students with disabilities excepted). Promotion from the fourth to fifth grade is contingent on passage of proficiency tests adminis-

tered in fourth grade. Tests scores are an important component in an assessment procedure that puts poor performing districts into a category that can lead to sanctions up to the state taking over management of the district. Districts showing good improvement on proficiency test scores are given incentive grants. The notion of establishing standards and enforcing accountability is thus not unique to Oregon. Indeed, sanctions for poorly performing schools are more explicit and substantial in many other states.

A related issue is whether the national move to higher standards and accountability has led to better academic performance. In addition to greater testing and accountability standards, the reform movement has involved different forms of educational change in the various states. A few examples of popular changes include: reducing class size; adopting uniform curricular standards; adopting new approaches to instruction such as phonics, Core Knowledge, Direct Instruction, block scheduling, and so forth; easing teacher certification requirements; allowing greater public school choice; and the opening of charter schools.

The evidence of positive results from the reform movement in general is somewhat disappointing. While there are some examples of clear improvement in student performance, the overall evidence is not unambiguously positive. Table 1 shows the average test

Table 1
Average scores, NAEP reading tests, 1992-1998

Grade Level	1992	1998	Change, 1992-98
Fourth	217	217	0
Eighth	260	264	+ 4
Twelfth	292	291	-1

Source: National Assessment of Educational Progress.

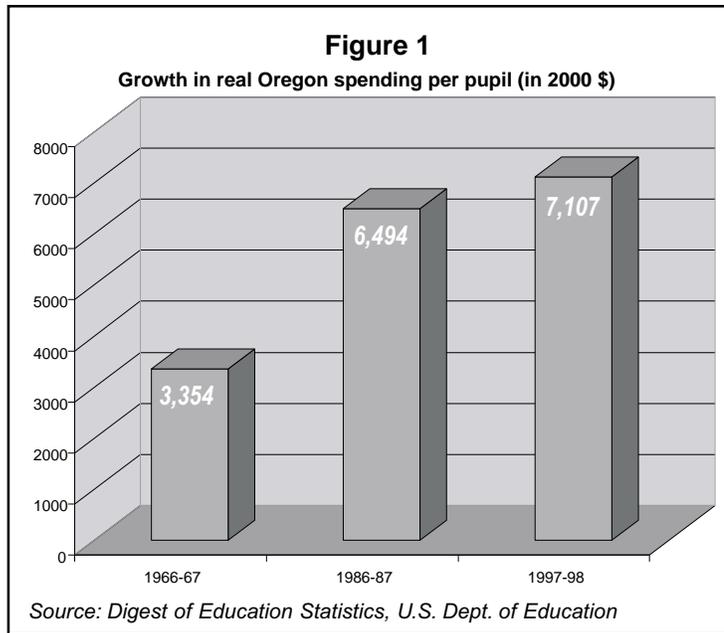
scores in reading at the fourth, eighth and twelfth grade levels on the National Assessment for Educational Progress administered in most states (but not Oregon) over the period 1992 to 1998 when the testing/standards/accountability movement was in full swing.¹⁰

Aggregate average test scores showed no change at the fourth grade level, some improvement for eighth-graders, but a slight decline at the twelfth grade level. To generalize, I conclude that the results were mixed, showing no clear overall trend.

The national historical experience to date suggests that proponents of reform should be cautious in claiming that their proposed changes will bring about significant improvements in educational performance. This is not meant to suggest that reform is “bad,” but rather that suggestions that a given plan or model will guarantee large gains in academic achievement should be received with great skepticism.

Oregon public education spending in historical and geographic perspective

Proponents of the Oregon Quality Education Model suggest that Oregon needs to invest considerably more resources into public education in order to improve student performance, as measured by such instruments as the Certificate of Initial Mastery. This critical premise—that greater resource commitment will likely lead to noticeable improvements in student performance—needs to be examined. First, it is worth examining Oregon’s financial commitment to



Oregon’s spending per pupil has *more than doubled* in real terms in the lifetime of most adult Oregonians.

its schools over time. Doing so, the following facts emerge:

- Oregon’s spending per pupil has *more than doubled* in real terms in the lifetime of most adult Oregonians;
- The growth in spending adjusted for inflation has continued to grow significantly in the past decade;
- Oregon’s per pupil public education spending exceeds the national average;
- The taxpayer burden of educating a public school child is well above the national average, in part because Oregon’s income per capita is below the U.S. average;
- The most significant cost item is personnel; teacher salaries in Oregon are above the national average, even though Oregon workers on average earn less than workers nationwide.

Elaborating, Figure 1 looks at current expenditures per K-12 student in Oregon for three

Per pupil spending in Oregon has been consistently greater than the national average.

dates over the past one-third century, correcting for inflation using the Consumer Price Index for All-Urban Consumer (CPI-U). The results indicate that in real resource terms, spending per pupil *more than doubled* from the 1966-67 school year to the 1997-98 year. For technical reasons discussed below, that is probably a very significant understatement of per pupil spending growth.

The reader might observe that the spending growth in more recent years (e.g., the 11 years from the 1986-87 to the 1997-98 school years) has slowed down (arguably in part due to the passage of a citizen's initiative in 1990, Measure 5, which placed a limit on local property tax rates for education). Using the official CPI-U, the growth in per pupil spending is only slightly more than 9.4 percent over that period, reflecting a reduction (but not an ending) of the rate of expenditure growth allowing for inflation.

However, it is widely acknowledged by experts that the official CPI-U overstates the rate of inflation. A congressional commission of prominent economists led by Michael Boskin concluded that the overstatement was probably about 1.1 percentage points a year.¹¹ The Bureau of Labor Statistics has acknowledged some of the problems, and has constructed an experimental index that it reports in addition to the official index. Using an index that reduces reported annual inflation by 1.1 percentage points as the Boskin commission suggested, the growth in real spending per pupil in Oregon from 1986-87 to 1997-98 rises to 22.1 percent; with the BLS experimental index, the real growth is 13.5 percent. It is probably safe to say that spending per pupil over that 11 year period rose 13-22 percent in real terms.

Per pupil spending in Oregon has been consistently greater than the national average (see Table 2). I selected eight dates at random over the past one-third century, and in every single year current expenditures per pupil were greater in Oregon than in the United States as a whole.

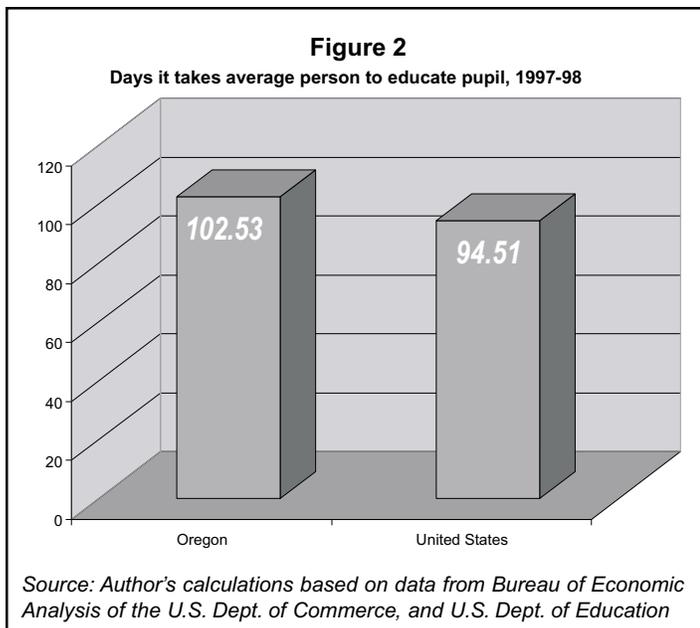
What is particularly remarkable is that per capita personal income in Oregon over the same time has been *below* the national average.¹² This means the taxpayer burden in Oregon, relative to the nation, is even greater than what the per pupil spending statistics indicate. As Figure 2 shows, in 1997-98 it took the average Oregonian about eight more days to earn the income to educate a K-12 public school student than was the average for the nation. Any suggestion that Oregon is relatively lax in its commitment to public education is clearly unfounded.

While it is beyond the scope of this study to review this issue in great detail, I did explore one important area of expenditure, teacher salaries. If teachers are poorly paid by national norms, that might be a sign of a lack of commitment to instruction not revealed

Table 2
Current expenditure per pupil, Oregon vs. United States, 1966-98*

School Year	Oregon	United States
1966-67	\$ 645	\$ 569
1974-75	1,425	1,250
1980-81	3,130	2,473
1986-87	4,236	3,970
1990-91	5,840	5,139
1994-95	6,250	5,907
1995-96	6,390	6,103
1997-98	6,719	6,548

SOURCE: U.S. Department of Education, U.S. Department of Commerce
* Figures are not adjusted for inflation.



ceiving substantially higher fringe benefits than the non-teaching work force.

Higher pay for Oregon teachers is not necessarily “bad.” Indeed, one could assume that relatively high pay for Oregon teachers was justified as a way to obtain high quality instructors. At the same time, it may be true for Oregon that “the substantial increase in the money spent on teacher salaries likely has not had as large an impact on educational attainment as would have occurred had the money been targeted to the

In short, Oregonians have made a substantial financial commitment to public education. Real resources have increased dramatically per pupil, and continue to rise.

in aggregate expenditure data. The evidence was striking. Oregon teachers are paid more than the average of teachers nationally. I picked nine years at random from 1940 to the present and observed in seven of those years higher salaries than the national norm.

For example, National Education Association data indicate that in 1998-99 the average teacher salary in Oregon (\$42,200) exceeded the national average by 7.1 percent. At the same time, the average annual earnings of all Oregon workers is estimated by the U.S. Bureau of Labor Statistics to be more than 7 percent below the national average. Thus relative to local labor market conditions, Oregon teachers receive about 14 percent more pay than is typical in the United States as a whole.

Moreover, that is probably an understatement of the pay advantage of Oregon teachers relative to other workers. In the aggregate, benefits for all Oregon public school district employees total about 38 percent of salaries.¹³ By contrast, benefits for all full-time workers in the American economy average slightly over 20 percent.¹⁴ Assuming a similar percentage in Oregon, the state’s teachers are re-

recruitment and retention of a more highly qualified teaching force.”¹⁵ Certainly it is worth investigating whether there are better ways to improve teacher quality than increasing compensation.

In short, Oregonians have made a substantial financial commitment to public education. Real resources have increased dramatically per pupil, and continue to rise. Spending on students and on teachers (as measured by average salaries) are high relative to the national average for teachers, even though overall incomes in Oregon are below average.

Some individuals cite statistics that seem to show Oregonians fare relatively well on standardized tests relative to students from other states. They might conclude that high per pupil spending in Oregon has paid off in higher student performance. Reaching this conclusion, however, is dangerous for several reasons.

First, there is relatively little evidence on the performance of Oregon students relative to those in other states. Data are available for

Limited data suggest Oregon mirrors the national average in student achievement.

the Scholastic Aptitude Test used for college admissions. They show Oregon students with composite scores that compare quite favorably with the rest of the nation, but only when states where a large proportion of students do not take the SAT are eliminated. Participation rates vary widely among states (particularly since some states favor the use of the alternative ACT test for college admissions). The test also tells us very little about educational achievement at lower grade levels. Unfortunately for comparison purposes, Oregon has not been a continuing regular participant in the testing of the National Assessment of Educational Progress (NAEP), an alternative and more comprehensive measure of student academic achievement. Limited data suggest, however, Oregon mirrors the national average in student achievement.¹⁶

Second, as discussed below, there is strong evidence that out-of-school factors such as family educational background, family cohesiveness, welfare, and even religious commitment are important in explaining student achievement. With respect to these factors, on balance Oregon compares favorably to other states. For example, research suggests that students with college educated parents, other things equal, do better in school. To illustrate, in 1998 on the National Assessment of Educational Progress reading test administered at the eighth grade level, the average score for students with parents with less than a high school education was 243 out of a possible 500, dramatically lower than the 274 score for students whose parents had graduated from college.¹⁷ In 1998, 27.7 percent of adult Oregonians were college graduates, compared with 24.4 percent nationwide. Oregon ranked 12th among the states in the proportion of college graduates.¹⁸ Therefore, even if it were determined that Oregon students perform above the national average, it would still be an open question whether this reflects high

resource involvement in Oregon or other factors that research shows play a major role in student achievement. Indeed, correcting for demographic factors, a recent Rand Corporation study suggests Oregon schools perform at about the national average.¹⁹

Third, by some other measures of achievement, Oregon does quite poorly. The dropout rate has been rising dramatically, both absolutely and relative to national trends. One news account recently reported that “Oregon schools post the worst dropout rate in the Northwest and among the worst in the nation.”²⁰

The Oregon QEM: Ignoring other approaches to reform

There are at least three major approaches to educational reform followed in the United States:

1. *Structural change*: fundamentally alter the method of delivery of public educational services, introducing student-centered financial incentives (e.g., vouchers), establishing charter schools, facilitating home schooling, and so forth. More conservatively, make major changes in rules by which schools operate, such as liberalizing (or ending) the licensing of teachers and administrators, implementing performance-based pay, or ending teacher tenure.
2. *Curricular reform*: maintain the current mechanism of educational delivery, but change ways of serving students, the nature of what is taught, or how students are taught. Establish minimum levels of knowledge required for graduation or promotion to higher grades.
3. *Financial reform*: maintain the current mechanism of educational delivery, but in-

crease the resources provided to the schools. In some cases, this includes reducing the disparity between school districts in per student expenditures.

With all three approaches, increased testing of students is typically called for to evaluate the success of reform efforts in improving student achievement, although there is serious debate about just what tests should be used and who should be responsible for them.

The Oregon QEM largely ignores the first approach to educational reform, only partially deals with the second, and concentrates on the third. There is no discussion of vouchers, charter schools, or home-schooling. Even modest reforms like loosening licensing requirements to increase entry into teaching and administration are not discussed. Yet these structural approaches are commanding much attention in a majority of American states. For example, the superintendents or CEOs of the school districts in America's three largest cities (New York, Los Angeles, and Chicago) are now non-educators without training in school administration, and many smaller cities (e.g., San Diego, Houston, Seattle, Kansas City) have turned to non-traditionally trained leaders as well.²¹ Yet Oregon has resisted this innovation. Indeed, the president of the Portland Association of Teachers, Richard Garrett, recently commented, "The practice of employing unlicensed teachers . . . has not yet found a place here."²² Yet it is working well elsewhere.²³

The QEM implicitly rejects the move to decentralize educational decision-making down to the school or even family level, a hallmark of much of the educational reform movement in the United States, in favor of an educational model that says, citing just one example, that there should be one school

guidance counselor for every 250 students in every public school in the state. It thus reaffirms the highly centralized approach to educational decision-making that is under attack in many states. It implicitly rejects the market approach that suggests that competition for public school dollars from students free to choose their school might be an attractive alternative to the existing paradigm. The implicit assumption is that the current structure of educational delivery works fine, and that the introduction of competition or parental choice into the educational process is not needed or is undesirable.

The Certificates of Initial and Advanced Mastery are discussed extensively, and much is made of the fact that the QEM will lead to enhanced student performance. There are specific subject areas that are to be covered in grades K-12, and examination at approximately the 10th grade (CIM) and 12th grade (CAM) is designed to assure that standards are met. Yet there is no real discussion of detailed curricular issues, such as the advantages/disadvantages of innovations like Core Knowledge or the whole language approach, or the relative merit of using incremental school time to promote, say, science as opposed to foreign language instruction. While some discussion of the resources needed for technology enhancement is included, it does not outline specific plans for, say, distance learning to enhance curricular offerings in rural high schools, or discuss the efficacy of Internet-based instruction.

Yet the QEM is quite specific on the need for increased resources. The proposal has specific recommendations regarding class size, the numbers of certain types of support personnel, the need to lengthen the school year, and so forth. These recommendations in general raise the per pupil cost of instruction, and implicitly assume that the provision of

The QEM reaffirms the highly centralized approach to educational decision making that is under attack in many states.

Over a long time span Oregon has reduced the proportion of K-12 public spending that actually goes for instruction. One option that Oregon has is to reallocate funds within existing education budgets.

these additional resources will enhance learning. The major emphasis in the QEM study is on the need for more resources to attain an ideal defined by the study.

In reaching its conclusions, the QEM study ignores historical evidence that suggests that over a long time span, Oregon has reduced the proportion of K-12 public spending that actually goes for instruction. One option that Oregon has is to reallocate funds *within* existing education budgets, for example, hiring more teachers to cut class sizes, but financing that by reducing the number of administrators, curriculum coordinators, transportation specialists, etc. That possibility is not even discussed.

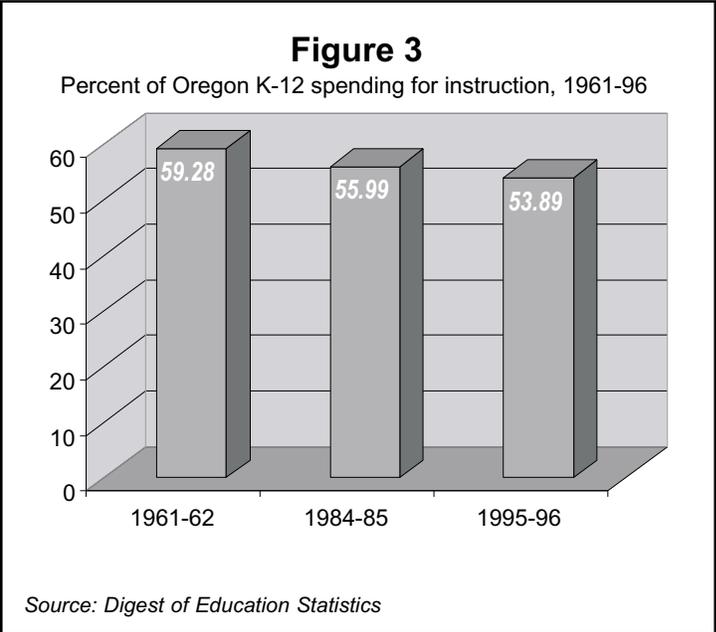
Figure 3 documents that the proportion of spending on instruction in Oregon K-12 budgets has declined over time. I looked at the *Digest of Education Statistics* for three random years over a span of one-third century.²⁴ The evidence is clear that a smaller proportion of spending directly supports efforts in the classroom. More and more, resources given to the schools have been diverted from instructional purposes. Whereas in 1961-62, Oregon devoted a far greater proportion of educational budgets to instruction than was the average nationwide (59.28% vs. 54.62%), that was not so in 1995-96 (Oregon's proportion of 53.89% barely exceeded the national figure of 53.63%). Thus the relatively significant decline in the proportion of budgets allocated to instruction was a phenomenon in Oregon, but not nationally, where the decline over time was modest.

To conclude, the QEM is not a thorough investigation of alter-

native paths to educational reform, and largely embraces the status quo, with the exception of the call for greater financial resources. It ignores major reform efforts going on across the country with respect to parental choice, independent (charter) public schools, alternative certification, etc. It makes no recommendations to implement or even consider any of these alternative ways to reform, approaches that seem promising and relatively cost-effective in many instances. The QEM ignores the rise in non-instructional expenditures in Oregon, and fails to investigate its origins, its consequences, and possible changes.

The determinants of student achievement: What the literature tells us

The Oregon QEM study leaves the impression that there is a strong academic research justification to conclude that the increased use of educational inputs leads to improvements in student performance. The bibliography cites a number of studies that support that perception, yet the study ignores *a much larger body of literature* that suggests that the



relationship between school resources and student achievement is, at best, extremely modest. Even where learning does improve with incremental resources, however, there is also the issue of the relationship between the degree of improvement to the magnitude of the cost of those resources. Resources are finite, and money spent on educational spending crowds out spending on other things such as public health, infrastructure and private consumption. The Oregon QEM study completely ignores that issue. Thus the QEM proposes increases in school resources on the basis of biased and inadequate evidence and ignores the fact that resources have a cost.

The literature on the resource/learning relationship is immense, and attempting to summarize it all accurately in a few paragraphs is difficult. Nonetheless, taken as a whole, the literature seems to support the following three stylized facts:

1. **Resources are of secondary importance.** The majority of the evidence suggests that there is little relationship between expenditures on schools and the amount of learning going on in them. While in some situations enhanced resources may make some difference, the impact of increased spending is typically small, and sometimes is even perverse (more spending, less learning). While it may be a little strong to say that “money does not matter,” the literature on balance suggests that is far closer to the truth than the implicit assumptions of the QEM, which come closer to concluding that “money alone matters.”

2. **Out-of-school factors are important in explaining student achievement.** By contrast, most studies show that student performance is enormously impacted by family factors. For example, children from intact families with two college-educated parents

are far more likely to succeed academically than those coming from broken families with relatively uneducated parents. The presence of public assistance seems to be inversely correlated with learning. Some research shows that children of churchgoers, other things equal, learn more than children of those without a strong faith tradition. Parents who push their children to excel tend to get results. Studies, for example, tend to show a strong correlation between school attendance and learning, and even between participating in extra-curricular activities and student performance.

3. **The school environment can make a large difference in student performance.** Even after controlling for differences in student socioeconomic status, spending per pupil, and so forth, on average students in Catholic and other private schools learn more than those in public schools. School systems where strong principals are able to make decisions independent of the central office often succeed more than where decision-making is centralized. Teachers with a strong knowledge base and a sense of mission can also make a difference. In general, more learning occurs where there is a strong sense of school community, where students, teachers, and administrators feel empowered to make their own educational decisions.

School expenditures and student achievement

The most authoritative and oft-cited work on the spending/learning relationship has been performed by Professor Eric Hanushek of the University of Rochester and the National Bureau of Economic Research. While Hanushek himself has performed a number of studies explaining the relationship be-

In general, more learning occurs where students, teachers, and administrators feel empowered to make their own educational decisions.

Most of the time there is no observed statistically significant relationship between spending and learning, and when there is a relationship, it is often very weak.

tween resource usage and public school performance, his most important work has been summarizing the results of hundreds of other studies on the topic. In his initial major piece on the topic, published in 1986, Hanushek examined some 147 studies.²⁵ He found that of the 65 studies explicitly examining expenditures per pupil, only 16 percent showed any statistically significant relationship between spending per pupil and learning (and a couple of them showed a negative relationship). Similar findings were observed for other measures of resource use, such as the teacher-pupil ratio (a proxy measure for class size), teacher educational training, teacher salaries, etc.

Hanushek has updated his results on several occasions. In the most recent update, published in 1997, Hanushek reports on nearly 400 studies, concluding that “there is not a strong or consistent relationship between student performance and school resources, at least after variations in family inputs are taken into account.” He also notes that these findings are compatible with other approaches (e.g., meta-analysis) that look at the impact of school expenditures on labor market outcomes.²⁶

I myself, working with Joshua Hall (staff Economist at the Joint Economic Committee of the Congress), have run scores of regressions examining the spending/academic achievement relationship using a vast database for Ohio schools, looking at student achievement at different grade levels, using alternative measures of student performance, using different samples of schools, and so forth. Our findings remarkably parallel Hanushek’s. Most of the time there is no observed statistically significant relationship between spending and learning, and when there is a relationship, it is often very weak (it takes a massive amount of resource in-

tion to even measurably impact student performance). And, as Hanushek reports, occasionally there is an observed negative relationship between spending and student performance.²⁷

Some authors have commented that while the general findings of Hanushek are valid on the spending/learning relationship, some types of spending *are* positively associated with learning. For example, Heinbuch and Samuels note that direct instructional spending is positively associated with learning, even if other spending is not, suggesting that incremental funding targeted for instruction only may have positive benefits.²⁸ While this may well be true (my own research with Joshua Hall is consistent with that finding), the reality is that a large percentage of incremental public funding tends to go for non-instructional activities, and that many of the elements of the Oregon QEM proposal involve non-instructional expenditures. Moreover, the Oregon evidence (Figure 3 above) relating to instructional spending suggests that the decline over time in the proportion of Oregon educational budgets going for instruction means that resources may well have been reallocated in a fashion *detrimental* to learning.

The most important challenge to the student expenditure/performance studies (as reported by Hanushek) has come in studies by two respected economists, David Card and Alan B. Krueger. They argue that enhanced school expenditures have positive social effects in any case (notwithstanding the Hanushek findings), based on their belief that there is a positive correlation between spending (which Card and Krueger equate with school quality), and later *earnings* in the workplace. This implies that enhanced school spending raises labor productivity.²⁹

Julian Betts, reviewing a significant body of literature on the school spending/earnings issue, effectively argues against the Card and Krueger findings. After surveying the literature, he concludes there is “very little” linkage between earnings and school resources. Moreover, the studies finding such a link are based on workers over the age of 30 who typically were educated before 1970, at a time when school resources per pupil were dramatically lower than is typical today. The studies also likely suffer from a significant aggregation bias because they use state averages of educational costs, rather than school-specific data. Those researchers using school-specific data show no significant correlation between school spending and earnings. Moreover, even if Card and Krueger and other writers were correct, they “suggest a very low or even negative rate of return to additional spending per pupil at conventional rates of discount.”³⁰ This finding is highly consistent with Betts’ own research using data for white males from the National Longitudinal Survey of Youth.³¹

Class size

The Oregon QEM calls for limits on class size at all grades, implicitly assuming that reductions in class size have significant positive effects on student achievement. The QEM work group making recommendations on class size stated, “Large class sizes can hamper achievement of goals especially at K-3 levels....Therefore, the Work Group recommends class sizes of 20 students or less for grades K-3.”³²

Before dealing with the basic assumption that reduced class size has important positive effects on learning, it is important to note that class size reduction is *extremely* expensive. Since public policy decisions need to compare costs with benefits, the fact that class size

reduction is extremely costly means that the positive benefits need to be very large for this reform to be cost effective, to offer as much “bang for the buck” as other options for expenditures, both within and outside of education.

An example will illustrate. Suppose a school has an average class size of 25 in its primary grades, and it wishes to reduce it to 20. Suppose there are 200 primary students and that currently it takes eight teachers to service them. With class sizes of 20, the minimum number of required teachers would be 10. If the two new teachers hired earn the same average salary and benefits as the older ones (which they likely would in any case over time), instructional costs will rise 25 percent. If those costs constitute 40 percent of total expenditures per pupil, then per pupil spending will rise at least 10 percent. In fact, it is likely to rise far more, for two reasons. First, if 20 is an absolute maximum number of students allowed per class (as the Oregon QEM implies), more teachers will likely be hired than the example above indicates since the number of students per grade is not typically neatly divisible by 20. For example, there may be 50 first-graders in a school previously serviced by two teachers that now would require three—a 50 percent, not a 25 percent increase. Average class size would fall from 25 to 16.7 in the first grade.

Second, the addition of teachers increases other costs. There are additional needed classrooms which imposes significant capital costs, which are often at least partially disguised in the short run by the failure of school districts to fully practice generally accepted accounting practices (e.g., depreciate buildings). There may be a perceived need for more teacher aides to assist teachers, and even more custodial help to maintain greater instructional space. In short, the total increase

The fact that class size reduction is extremely costly means that the positive benefits need to be very large for this reform to be cost effective, to offer as much “bang for the buck” as other options for expenditures.

While other instructional considerations can make a difference, class size per se is typically a relatively minor factor in explaining variations in learning.

in costs very well may be closer to 20 percent than the 10 percent rise associated with higher direct instructional costs indicated above.

The extremely large costs associated with class size reduction have been recognized by the chief academic adviser on the Oregon QEM, David Conley. Writing in 1993, Conley cited the late Albert Shanker saying that “a 20 percent cut in class size would mean an equal increase in staff and education budget—a huge and unrealistic increase for one item.”³³ Conley also makes another interesting point after a discussion of larger class sizes in Asian schools. “Teachers and parents tend to accept as dogma that smaller is better. Getting them to question this assumption and to explore alternative organizational and group arrangements will be quite difficult in many cases.”³⁴ Small classes are politically popular, especially because the presumed beneficiaries themselves pay no marginal cost for the smaller classes. Yet at the same time, there is abundant evidence that there are alternative ways of improving academic performance, most of them far cheaper and more effective than class size reduction.

In the most far-reaching review of the literature on class size, Eric Hanushek concludes that “there appears to be little systematic gain from general reductions in class size.... From production function estimates, there is little reason to believe that overall reductions in class size will yield much in the way of positive achievement gains.”³⁵ In reviewing 277 estimates of the class size/learning relationship, only 28 percent of the studies report a statistically significant relationship; of these about as many observe a *positive* relationship (*bigger* classes lead to *greater* learning) as a negative one.³⁶ While other instructional considerations (the quality of the teacher in particular) can make a difference, class size per

se is typically a relatively minor factor in explaining variations in learning.³⁷ This is not to say that class size is *always* fairly unimportant, since in some situations the dynamics of the classroom setting might favor small classes. As Hanushek puts it, “The real difficulty is that we do not know how to describe, a priori, situations where reductions in class size will be beneficial. Thus it is not possible to legislate only good outcomes from the state capitol....”³⁸

While the preponderance of national studies explaining variations in learning show little or no impact from reductions in class size, they typically use “macro” (school or school district) data, and do not focus specifically on the class size issue. A major exception is a study of the STAR (Student-Teacher Achievement Ratio) project, in which the state of Tennessee began a significant class size reduction experiment in 1985. The results suggest that “smaller classes did produce substantial improvement in early learning and cognitive studies.”³⁹ Student learning in classrooms with 13 to 17 students (average about 15) was compared with that in classrooms of 22 to 25 students (average about 24). Students in the smaller classes showed initial learning gains that a second phase of the study (the Lasting Benefits Study) suggested were long-lived.

While the STAR results are interesting, their relevance to the Oregon QEM is questionable on several grounds:

1. The results dealt with reductions in class size from around 24 to 15. Oregon is not considering reducing class sizes to 15, presumably on cost considerations. It may very well be that most of the observed learning gains observed in Tennessee reflected the reductions in class size below

20 per class, a class size range not under consideration in the Oregon QEM.

2. There were significant problems in the Tennessee experiment in measuring the longer-term success of students owing to the mobility of students into and out of smaller classes. “For example, less than one-half of those in the original experiment in kindergarten remained in the experiment at the end of third grade.”⁴⁰ The attrition from the experiment was not random in nature.⁴¹ Indeed, the lower academic achievement of students who left the experimental classes biases the findings towards the conclusion that class size reduction had long run benefits.
3. To this day, the researchers in Tennessee have refused to make the raw data from the experiment available to other scholars wishing to do their own independent analysis of student performance, making some scholars skeptical of the conclusions drawn from the study.
4. The STAR study draws dubious policy conclusions based on the observation of relatively steady learning advantages to small classes observed in grades K-3. If small classes had *persistent* advantages, one would expect the small class size learning differential to rise in, say, grades two and three as a result of continuing educational benefits of smaller classes. In fact, the STAR results might support small class size in kindergarten, and arguably the first grade, but not grades two and three because that expected rising learning differential is not observed.

To determine that massive additional resources should be devoted to class size reduction based on a single study is irresponsible, particularly given the mass of alternative evi-

dence that shows modest or no benefits from such reduction. Moreover, even if there are learning advantages to small class size, the evidence from the STAR experiment and other sources suggest those advantages are relatively modest relative to costs, which can easily exceed one thousand dollars per pupil or more, the exact amount depending on the precise extent of class size reduction, incremental capital costs, and the amount of support personnel hired to assist new instructors. On this point, a new study by Alan Krueger and Diane Whitmore does find long-term benefits arising from small class size, but they estimate the rate of return from investing in smaller classes is less than six percent, below the rate of return on many other forms of investment.⁴² Even putting the evidence on class size in the best possible light, the rate of return on class size reduction is likely to be very low.

Additional QEM recommendations

The Oregon QEM study recommends additional resources be expended in a number of areas. A specific example is the call to have one guidance counselor for every 250 students.⁴³ Again, there is no published empirical research, to my knowledge, in significant scholarly outlets that supports this conclusion. There is, however, some research that indicates a *negative* relationship between expenditures on non-instructional resources and student achievement.⁴⁴ To be sure, there may be arguments for guidance counselors (and other resources) that are unrelated to the instructional mission of schools, but the extension of the schools into non-instructional areas is certainly going beyond the call for providing greater learning opportunities for children, the ostensible rationale for the Oregon QEM.

The Oregon QEM calls for more spending

There is some research that indicates a *negative* relationship between expenditures on non-instructional resources and student achievement.

It is clear that many scholars believe the keys to promoting learning come from outside the school.

on professional development for teachers and administrators. Again, on the surface this sounds like a good idea. Yet whether this is in fact justified on cost-benefit grounds cannot be ascertained from the Model. Published studies on the impact of teacher education on learning adds to the scepticism. Fewer than 10 percent of the results reported in the latest Hanushek research review shows a positive statistically significant relationship between teacher education and student performance.⁴⁵ It may be that short workshop training exercises have a more positive impact than formal college courses, but again there is little reason to be certain of that.

To be sure, I do not wish to leave the impression that everything mentioned in the Oregon QEM is without merit, or fails to pass a rational cost-benefit test. The discussion of “prototype schools” speaks of the case for smaller schools than conventionally exist. A significant body of literature argues that learning is more likely to occur in smaller schools. As one study put it: “the two primary arguments for large schools, cost savings and curriculum enhancement, pale in comparison with the positive schooling outcomes apparently achieved by smaller schools.”⁴⁶

Non-resource determinants of student achievement

The emphasis in the Oregon QEM study is on increasing resources with a goal for achieving greater student achievement. As indicated earlier, a substantial body of literature stresses the importance of non-school (particularly family) factors, not to mention the nature of the school and community. While a major elaboration of these points is not practical here, it is clear that many scholars believe the keys to promoting learning come from outside the school. Moreover, research suggests that internal school policies

to promote learning are likely in many cases to require few or no incremental resources.

The role of the family and non-resources factors in explaining learning differentials was suggested as early as the 1960s by James Coleman, the eminent sociologist, in the famous Coleman Report.⁴⁷ Expanding on that theme, Coleman and associates in the early 1980s argued forcefully that a strong sense of school community contributed to greater educational achievement in Catholic schools.⁴⁸ His work in some sense was supported by a major study of American high schools published in 1990 by John Chubb and Terry Moe. Chubb and Moe found that resources were a secondary consideration in explaining school success, but that school organization, the power of teachers and principals and the role of parents played significant roles in explaining differential achievement.⁴⁹ Meanwhile, as the number of statistical studies of student achievement multiplied, they increasingly found that family and other socioeconomic factors were important determinants of student achievement.

Other important writers involved in the debate over educational reform stressed the importance of curricular content and method. Diane Ravitch and Chester Finn argued that our children are woefully ignorant of major works that form part of our cultural heritage.⁵⁰ This led to an attack on the anti-intellectualism of modern teacher education and a bemoaning of a lack of “cultural literacy” by prominent William Blake scholar E.D. Hirsch.⁵¹ Prominent psychologist Harold Stevenson argued that learning in American schools has been far behind that of those in Japan and China.⁵² Several writers argued that major structural changes in American public education were necessary to overcome the curricular and other prob-

lems associated with our schools.⁵³ To these writers, special interest groups such as teacher unions and colleges of education were fighting piecemeal reform and that therefore more radical changes were necessary, leading to calls for vouchers, charter schools, privatization of education, home schooling, and so forth. This issue is discussed more extensively below.

Another issue regarding school effectiveness is the *source* of funding. Many states have increased state funding, and reduced local funding of public schools in the past decade. In Oregon, this shift was precipitated by the passage of Measure 5 in 1990. In addition to placing a limit on local property tax rates for education, the measure also required the state to replace lost property tax revenues to school districts for five years. This legal mandate has expired, nonetheless the Oregon QEM accepts the current funding apportionment as a given. Yet, one might argue on theoretical grounds that accountability and performance are likely to be greater when funding comes directly from the customer base utilizing the educational services. Moreover, Harvard and National Bureau of Economic Research scholar Caroline Hoxby has found a negative correlation between learning and the proportion of school funding coming from non-local sources.⁵⁴ This suggests that learning could be enhanced by shifting funding sources partially back to local school districts (as well as by increasing the instructional proportion of the budget).

The point being made here is that the Oregon QEM is devoid of a discussion of this ferment in educational policy, implicitly assuming that most or all of it is either irrelevant or wrong. Thus the Oregon QEM study has no serious discussion of concepts like Core Knowledge, no evaluation of the growing research on alternative forms of educa-

tional delivery, no discussion of the implications of centralized financing, and so forth. It is almost as if the last 15 years or so of debate on American public education did not exist.

Structural changes in education: What the QEM study ignored

As indicated above, the Oregon QEM study ignored a national whirlwind of efforts to redefine the way educational services are delivered in the United States. Some of these efforts involve relatively modest changes in the existing structure, such as introducing merit or market-based compensation systems, or easing restrictions on entry into the teaching profession. Other changes are moderately substantial, such as the introduction of charter schools largely free of the regulatory strictures facing traditional public schools. A growing number of experiments involve substantial change, including market-based approaches that greatly increase the role of students and their families in allocating educational resources.

Space does not permit an elaborate discussion of all potential forms of structural change. An abridged discussion of some ideas that have received national attention will demonstrate the weakness of the unstated but very real assumption of the Oregon QEM that significant structural reform is unwise or not worth seriously exploring.

Scholarships / vouchers

For several years, students in Milwaukee and Cleveland have been able to attend private schools at public expense, in some cases schools with a religious affiliation. Additionally, in recent years a number of private groups have funded a significant number of

A growing number of education reform experiments involve substantial change, including market-based approaches that greatly increase the role of students and their families in allocating educational resources.

The early research on vouchers is largely quite supportive of the concept.

scholarships for low-income students in various cities.⁵⁵ The theory is that by giving funds to the consumers rather than producers of education, consumer choice increases and educational efficiency and outcomes are enhanced. Instead of having public school monopolies dictating to students where they will go to school and what they will study, scholarship (voucher) based public funding gives consumers (students and their families) a commanding role in deciding where public educational funds will be spent. Assuming these consumers are out to maximize their children's welfare, they presumably will avoid schools with a poor reputation and flock to schools with a record of accomplishment. This will stimulate poorly performing public schools to improve in order to survive in a market environment.

The early research on vouchers is largely quite supportive of the concept. The most extensive research effort has been undertaken by a team of scholars led by the distinguished political scientist Paul E. Peterson, Henry Lee Shattuck Professor of Government at Harvard University. Regarding Milwaukee, the results showed students receiving vouchers did better on math and reading achievement than students attending conventional public schools, controlling for other factors that might explain performance.⁵⁶ An independent assessment of that program performed by Cecilia E. Rouse for the National Bureau of Economic Research concluded that students selected for the voucher experiment in Milwaukee did better in math achievement, although not reading.⁵⁷

In their early assessment of the Cleveland voucher program, the Peterson team concluded that for two schools for which good data were available, not only did students witness a rise in test scores in math and read-

ing, but parental satisfaction with the program was far greater than for students attending conventional public schools.⁵⁸ Similar results are observed with respect to privately-funded vouchers experiments. For example, 46 percent of private-school parents in Washington, D.C. participating in a voucher program gave their school a grade of "A," compared with 15 percent for non-voucher students attending public school.⁵⁹

Charter schools

Coleman, Chubb and Moe and other scholars find that schools are more often successful when given considerable freedom to manage their own affairs. These findings argue for freeing public schools from most of the bureaucratic restrictions imposed by their own central administrations and state governments. This perception led to the beginning of charter schools in the early 1990s. In the 1999-2000 school year, over 1,600 charter schools were in operation in the United States, enrolling over 250,000 students.⁶⁰ Enrollments have been rising 50 percent or more a year.

If parental demand is a measure of success, then the charter school movement has been quite successful since a majority of such schools have a waiting list for admission.⁶¹ Oregon is a latecomer to this movement, with S.B. 100, the charter school bill, being signed into law only on May 29, 1999. Oregon's charter law, like that of many states, does not grant true complete autonomy to charter schools, for example requiring that at least one-half of teachers have certification.⁶² Any serious discussion of Oregon public education should evaluate at length the probable growth in charter schools, their implications for conventional schools, etc. The Oregon QEM study does not do this.

Alternative certification

As indicated above, Oregon has been slow in offering nontraditional routes to becoming a teacher. While technically permissible, all persons seeking alternative means of certification must receive approval of the Teacher Standards and Practices Commission. Many states do have more liberalized means of entry into the profession. The current restricted teacher certification system is more explainable in terms of erecting barriers of entry into the profession to enhance income for existing members rather than in terms of any tangible educational benefits. There is little doubt that reduced barriers to entry increases the pool of available teachers which should, other things equal, increase the quality of those actually hired.⁶³ Moreover, there are some indications that alternative certification is a means of promoting increased minority participation in teaching.⁶⁴ Again, the Oregon QEM Model does not discuss this significant topic.

Other structural changes

The topics above do not exhaust the avenues for structural change. Home schooling has grown dramatically, and arguably public policy should move to accommodate home schoolers, perhaps, for example, by online provision of educational materials, distance learning, and so forth. Merit pay for teachers deserves consideration, as does providing differential pay for high-demand positions such as math and science teachers. Perhaps laws should be eased permitting greater contracting out of educational services with private providers such as Edison Schools. Similarly, so-called “prevailing wage” laws could be relaxed for school construction to lower the costs of offering quality physical facilities. This list is not exhaustive. The point is that any true evaluation of Oregon’s edu-

ational system needs to discuss items such as these, and probably policy changes are necessary to accommodate innovative ways of delivering educational services.

Financial implications of the QEM and the impact on economic growth

While the Oregon QEM study appropriately is concerned about K-12 public education, the study has broader implications for the Oregon economy. Proponents might argue that the earnings differentials between skilled and unskilled workers have grown and that the QEM will increase skills, making Oregon a more desirable locale in terms of the New Economy.⁶⁵ Opponents would observe that there is little or no certainty that the Oregon QEM will actually improve skills of young Oregonians much, and that the financing of the QEM will have profound negative economic effects on the Oregon economy.⁶⁶

The QEM report concludes that the cost of phased to full implementation this biennium would have ranged between \$457 million and \$1.15 billion above the Governor’s proposed budget, a 10% to 25% increase.⁶⁷ Oregonians already have a high income tax burden, and the voters have rejected general sales taxation on numerous occasions. Past historical experience and economic theory suggest that an increase in already very high income tax rates would have a significant adverse impact on economic growth—another “cost” of the QEM ignored by its authors. A detailed analysis of the financial and economic consequences of the QEM is beyond this study, but the evidence on the adverse impact of taxation on economic growth makes it likely that whatever benefits that might arise from increased skills (and, based on previous research, I am dubious they would be very large) would likely be more than offset by the

The current restricted teacher certification system is more explainable in terms of erecting barriers of entry into the profession to enhance income for existing members rather than in terms of any tangible educational benefits.

Without a meaningful and objective evaluation of its basic premises, proceeding to implement the QEM would likely lead to a significant waste of taxpayer resources.

negative consequences of increased taxation. At a minimum, the means and magnitudes of financing the QEM should be identified and the implications of that explored for the broader Oregon economy.

Conclusions

The Oregon Quality Education Model implicitly ignores an immense body of literature in reaching conclusions about needed educational change in Oregon. There is no direct evidence based on original Oregon-specific research indicating that the changes suggested, such as mandatory low limits on class size in the primary grades, would have any positive effect whatsoever. The QEM implicitly assumes that resources are not scarce, thus giving no consideration to the relationship between incremental benefits and increased costs that could have added one billion dollars to this biennium's budget. There is no consideration of important alternative approaches to improving performance such as introducing greater school competition and promoting parental choice.

By stressing "prototype schools," the Oregon QEM implicitly assumes that there is some ideal school model that applies in every community and learning environment. In reality, learning communities are highly diverse in terms of student and teaching abilities and strengths, cultural and socioeconomic influences, and so forth. The needs and wants of our children vary from city to city, school to school, classroom to classroom. The centralist thinking pervading the Oregon QEM ignores that reality.

Because trying to improve the educational performance of young Oregonians is commendable, perhaps a relatively apolitical and objective commission could reevaluate the direction of educational reform. Such a

group ideally would have a sizable staff of non-Oregonians without any vested interest in the outcome. This staff could include serious scholars from outside the college of education milieu coming from a variety of disciplines such as economics, political science, psychology, sociology and English. This group could examine many possibilities for change, not merely regulatory mandates that increase costs. Arguably it would conduct original Oregon-specific research evaluating issues such as the spending/learning relationship and the importance of class size in an Oregon context. Above all, it would relate costs, including the broader effects of financing any incremental spending, to benefits. The Oregon QEM study fails to do this. Without a meaningful and objective evaluation of its basic premises, proceeding to implement the QEM would likely lead to a significant waste of taxpayer resources.

Notes

1. National Commission on Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform: A Report to the Nation and the Secretary of Education* (Washington, D.C.: Government Printing Office, 1983). Web: <http://www.ed.gov/pubs/NatAtRisk/index.html>.
2. Oregon Legislative Assembly, *The Oregon Quality Education Model* (Salem, OR, June 1999). Web: <http://dbi.ode.state.or.us/qualityed>.
3. Ibid., p2.
4. On this point, see the *Oregon QEM*, page 39: "The model was not developed with attention to cost; it was developed with attention to quality."

5. Ibid., p. 11. The QEM also offers a Phased Implementation plan which would raise spending to \$4.95 billion.
6. Ibid., p. 95.
7. I was part of that group.
8. For details see the *A Nation at Risk* web site, *op. cit.*
9. A search of educational literature using the Nexis-Lexis and Social Citation Index databases confirm that the names that I thought should be referenced were in fact widely cited in the literature, indeed far more so than the most prolific writers cited in the QEM study. My list of thirteen scholars: Chester Finn, Diane Ravitch, E.D. Hirsch, TheodoreSizer, Eric Hanushek, Caroline Hoxby, John Chubb, Terry Moe, James Coleman, Harold Stevenson, Herbert Wahlberg, Myron Lieberman, and Paul Peterson. The only one of these referenced in the QEM study was Wahlberg.
10. Information on the NAEP test results is online at <http://nces.ed.gov/nationsreportcard/site/home.asp>.
11. Michael J. Boskin et al., "Consumer Prices, the Consumer Price Index, and the Cost of Living," *Journal of Economic Perspectives*.12(1) Winter 1998, pp. 2-26.
12. In 1967, per capita personal income in Oregon was 15 percent below the national average; in 1999 (preliminary), it was five percent below that average. See U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970* (Washington, D.C.: Government Printing Office, 1975), pp. 243-245 and the web site for the Bureau of Economic Analysis, at <http://www.bea.doc.gov/>.
13. See the Oregon Department of Education web site: <http://www.ode.state.or.us/stats/schoolFinance/BUDsum9900.xls>.
14. See the 1999 *Statistical Abstract of the United States* (Washington, D.C.: Government Printing Office, 1999), p. 443; on the web at <http://www.census.gov/prod/www/statistical-abstract-us.html>.
15. Hamilton Lankford and James Wyckoff, "The Changing Structure of Teacher Compensation, 1970-94," *Economics of Education Review*. 16(4), 1997, pp. 371-384; the quote is from p. 382 and is not specifically directed at Oregon teacher compensation.
16. As one example, in fourth and eighth grade mathematics in 1996, the same proportion of Oregonians scored at the advanced level as was the case nationally, while a slightly lower proportion scored at the "below basic" level. For more data, see <http://www.heritage.org/schools/oregon.html>.
17. See the NAEP Internet site, *op. cit.*, for more details.
18. U.S. Bureau of the Census, *1999 Statistical Abstract of the United States* (Washington, D.C., Government Printing Office, 1999, p. 171). Web: <http://www.census.gov/prod/www/statistical-abstract-us.html>.
19. "Oregon's just-average schools," *The Oregonian*, July 27, 2000. For the original study, see David W. Grissmer et al., *Improving Student Achievement: What NAEP State Test Scores Tell Us* (Santa Monica, CA: Rand Corporation, 2000), available online at <http://www.rand.org/publications/MR/MR924/>.

20. Bill Graves, "1 in 3 Misses Graduation," *The Oregonian*, June 25, 2000. Web: http://www.oregonlive.com/news/oregonian/index.ssf?/news/oregonian/00/06/lc_12drop25x.frame.
21. Tamar Levin, "Educators Are Bypassed As School System Leaders," *New York Times*, June 8, 2000, p. A1. Premium subscribers to the Times' web site may find the story archived via <http://www.nyt.com>.
22. Richard Garrett, "Look beyond classrooms when examining 'crisis,'" *Oregonian*, June 6, 2000. Web: <http://www.oregonlive.com/oped/index.ssf?/oped/00/06/ed060602.frame>.
23. A personal note: my son and daughter teach in Georgia public schools, neither of whom took a single education course towards meeting licensing requirements before being hired, but both of whom had strong academic backgrounds in their majors. One of them has won two teaching awards. That probably could not happen in Oregon.
24. See the National Center for Education Statistics, *Digest of Education Statistics*, various years, published by the Government Printing Office. Available on the web via <http://www.nces.ed.gov>.
25. Eric Hanushek, "The Economics of Schooling," *Journal of Economic Literature*. 24(3), September 1986, pp. 1141-1177.
26. Eric A. Hanushek, "Assessing the Effects of School Resources on Student Performance: An Update," *Educational Evaluation and Policy Analysis*. 19(2), Summer 1997, pp. 141-164.
27. Our most recent paper using the Ohio data is Richard Vedder and Joshua Hall, "Private School Competition and Public School Salaries," *Journal of Labor Research*. 21(1), Winter 2000, pp. 161-168.
28. Susan E. Heinbuch and Judith A. Samuels, "Getting More Bang for the Educational Buck: A Microfinancing Approach," *Public Productivity & Management Review*. 18(3), Spring 1995, pp. 233-242.
29. See David Card and Alan B. Krueger, "Does School Quality Matter? Returns to Education and the Characteristics of Public Schools in the United States," *Journal of Political Economy*. 100(1), February 1992, pp. 1-40. See also their "School Quality and Black-White Earnings: A Direct Assessment," *Quarterly Journal of Economics*. 107(1), February 1992, pp. 151-200.
30. Julian R. Betts, "Is There a Link between School Inputs and Earnings? Fresh Scrutiny of an Old Literature," in Gary Burtless, ed., *Does Money Matter: The Effect of School Resources on Student Achievement and Adult Success* (Washington, D.C., Brookings Institution, 1996). See page 184 for the quote.
31. Julian R. Betts, "Does School Quality Matter? Evidence From the National Longitudinal Survey of Youth," *Review of Economics and Statistics*. 77(2), May 1995, pp. 231-247.
32. *Oregon QEM*, p. 116.
33. David T. Conley, *Roadmap to Restructuring: Policies, Practices and the Emerging Visions of Schooling* (Eugene, OR: ERIC Clearinghouse on Educational Management, 1993), p. 258. This is written as part of a discussion about allowing more non-

certified personnel into the classroom.

34. *Ibid.*, p. 382.

35. Eric A. Hanushek, "The Evidence on Class Size," in Susan E. Mayer and Paul E. Peterson, eds., *Earning and Learning: How Schools Matter* (Washington, D.C.: Brookings Institution Press, 1999), pp. 131-168. The quote is from p. 161.

36. *Ibid.*, p. 149.

37. On the importance of the quality of teachers, see Eric A. Hanushek, "The Trade-Off Between Child Quantity and Quality," *Journal of Political Economy*. 100(1), January-February 1992, pp. 84-117.

38. "The Evidence on Class Size," *op cit.*, p. 162. The Rand study, *op cit.*, argues that targeting class size reduction for lower income or disadvantaged children might make sense.

39. Frederick Mosteller, "The Tennessee Study of Class Size in the Early School Grades," *The Future of Children*. 5(2), Summer/Fall 1995, pp. 113-127. The quote is from p. 113.

40. Eric Hanushek, "Some Findings from an Independent Investigation of the Tennessee STAR Experiment and from Other Investigations of Class Size Effects," *Educational Evaluation and Policy Analysis*. 21(2), Summer 1999, pp. 143-163.

41. See Alan B. Krueger, "Experimental Estimates of Education Production Function," National Bureau of Economic Research Working Paper 6051 (Cambridge, MA: NBER, June 1997), and Harvey Goldstein and Peter Blatchford, "Class Size and Educational Achievement: A Review of

Methodology with Particular Reference to Study Design," *British Educational Research Journal*. 24(3), 1998, pp. 255-268.

42. Alan Krueger and Diane Whitmore, "The Effect of Attending a Small Class in the Early Grades on College-Test Taking and Middle School Test Results: Evidence from Project Star," National Bureau of Economic Research Working Paper #W7656 (Cambridge, MA: NBER, June 2000).

43. In the interest of full disclosure, I am married to a public high school guidance counselor.

44. See, for example, Gary M. Anderson, William F. Shughart and Robert D. Tollison, "Educational Achievement and the Cost of Bureaucracy," *Journal of Economic Behavior and Organization*. 15(1), January 1991, pp. 29-45.

45. Hanushek, "Assessing the Effects," *op cit.*, p. 144.

46. William F. Fowler, Jr., and Herbert J. Walberg, "School Size, Characteristics, and Outcomes," *Educational Evaluation and Policy Analysis*. 13(2), Summer 1991, pp. 189-202; the quote is from p. 200.

47. James S. Coleman et al., *Equality of Educational Opportunity* (Washington, D.C.: Government Printing Office, 1966).

48. James S. Coleman, Thomas Hoffer and Sally Kilgore, *High School Achievement: Public, Private and Catholic Schools Compared* (New York: Basic Books, 1982).

49. John E. Chubb and Terry M. Moe, *Politics, Markets and America's Schools* (Washington D.C.: Brookings Institution,

1990).

50. Diane Ravitch and Chester E. Finn, Jr., *What Do Our 17-Year Olds Know? A Report on the First National Assessment of History and Literature* (New York: Harper & Row, 1987).

51. E.D. Hirsch, Jr., *Cultural Literacy: What Every American Needs to Know* (Boston: Houghton Mifflin, 1987), and his *The Schools We Need and Why We Don't Have Them* (New York: Doubleday, 1996).

52. Harold W. Stevenson, *The Learning Gap: Why Our Schools are Failing and What We Can Learn from Japanese and Chinese Education* (New York: Summit Books, 1992).

53. Representative studies include Chester Finn, *We Must Take Charge: Our Schools and Our Future* (New York: Free Press, 1991), and Myron Lieberman, *Public Education: An Autopsy* (Cambridge, MA: Harvard University Press, 1993).

54. Caroline M. Hoxby, "Does Competition Among Public Schools Benefit Students and Taxpayers?" National Bureau of Economic Research Working Paper #4979, December 1994. All the recent NBER working papers on education are obtainable via <http://www.nber.org>.

55. For example, Cascade Policy Institute facilitates the Children's Scholarship Fund—Portland, part of a national private scholarship program for low-income K–8 students.

56. Jay P. Greene, Paul E. Peterson and Jiangtao Du, "Effectiveness of School Choice: The Milwaukee Experiment," Program on Education Policy and Govern-

nance, Kennedy School of Government, Harvard University, Occasional Paper 97, March 1997, on the web via <http://data.fas.harvard.edu/pepg/mil.htm>.

57. Cecilia E. Rouse, "Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program," *Quarterly Journal of Economics*. 113(2), May 1998, pp. 553–602; see also the National Bureau of Economic Research Web site at <http://www.nber.org/papers/W5964>.

58. Paul E. Peterson, William G. Howell and Jay P. Greene, "An Evaluation of the Cleveland Voucher Program After Two Years," Harvard University, June 1999, available on the Web at <http://www-vdc.fas.harvard.edu/PEPG/clev2rpt.pdf>.

59. Patrick J. Wolf, William G. Howell, and Paul E. Peterson, "School Choice in Washington, D.C.: An Evaluation After One Year," Harvard University, February 2000; Executive Summary available on the web at <http://www-vdc.fas.harvard.edu/PEPG/dc00x.pdf>.

60. See U.S. Department of Education, Office of Educational Research and Improvement, *The State of Charter Schools 2000* (Washington, D.C.: U.S. Department of Education, 2000). For a useful Web site containing this and other information, go to <http://www.uscharterschools.org>.

61. For a representative account from a parent on the need for and success of charter schools, see Chiara R. Nappi, *Why Charter Schools: The Princeton Story* (Washington, D.C.: Thomas B. Fordham Foundation, October 1999). Web: <http://www.edexcellence.net/library/wcs/wcs/html>.

62. For a general description of school choice efforts in Oregon and other states, see Nina Shokraii Rees, *School Choice 2000* (Washington, D.C.: Heritage Foundation, 2000), available on their Web site at <http://www.heritage.org>.

63. On this point, see Carla J. Stevens and Micah Dial, "A Qualitative Study of Alternatively Certified Teachers," *Education and Urban Society*, 26(1), November 1993, pp. 63-77, or "Dena E. Franke, "The Alternate Route: Testimonial from a Texas Teacher," *Educational Leadership*, 49(3), November 1991, pp. 34-35.

64. See Sharon Brennan and Traci Bliss, "Increasing Minority Representation in the Teaching Profession through Alternative Certification: A Case Study," *Teacher Educator* 34(1), Summer 1998, pp. 1-11.

65. On this point, see R.J. Murnane, J.B. Willet, and F. Levy, "The Growing Importance of Cognitive Skills in Wage Determination," *Review of Economics and Statistics*, 77(2), 1995, pp.251-266, or John Bishop, "Achievement, Test Scores, and Relative Wages," in Marvin H. Koster, ed., *Workers and Their Wages* (Washington, D.C.: AEI Press, 1991), pp. 146-86.

66. The literature on this point is voluminous. For a summary, along with some statistical findings relating to state and local taxation as it relates to economic growth, see Richard Vedder, *State and Local Taxation and Economic Growth: Lesson for Federal Tax Reform* (Washington, D.C.: Joint Economic Committee of Congress Staff Report), December 1995. Web: <http://www.senate.gov/~jec/sta&loc.html>.

67. *Oregon QEM*, pp 48-49.

References

Anderson, Gary M., William F. Shughart and Robert D. Tollison. 1991. "Educational Achievement and the Cost of Bureaucracy." *Journal of Economic Behavior and Organization*. 15(1), January, pp. 29-45.

Betts, Julian R. 1995. "Does School Quality Matter? Evidence From the National Longitudinal Survey of Youth." *Review of Economics and Statistics*. 77(2), May, pp. 231-247.

_____. 1996. "Is There a Link Between School Inputs and Earnings? Fresh Scrutiny of an Old Literature." In Gary Burtless, ed., *Does Money Matter: The Effects of School Resources on Student Achievement and Adult Success*. Washington, D.C.: Brookings Institution Press.

Bishop, John. 1991. "Achievement, Test Scores, and Relative Wages." In Marvin H. Koster, ed., *Workers and Their Wages*. Washington, D.C.: AEI Press.

Boskin, Michael J. et al. 1998. "Consumer Prices, the Consumer Price Index, and the Cost of Living." *Journal of Economic Perspectives*. 12(1), Winter, pp. 2-26.

Card, David and Alan B. Krueger. 1992. "Does School Quality Matter? Returns to Education and the Characteristics of Public Schools in the United States." *Journal of Political Economy*. 100(1), February, pp. 1-40.

_____. 1992. "School Quality and Black-White Earnings: A Direct Assessment." *Quarterly Journal of Economics*. 107(1), February, pp. 151-200.

Chubb, John E. and Terry M. Moe. 1990. *Politics, Markets and America's Schools*. Washington, D.C. : Brookings Institution.

- Coleman, James S. et al. 1966. *Equality of Educational Opportunity*. Washington, D.C.: Government Printing Office.
- _____, Thomas Hoffer and Sally Kilgore. 1982. *High School Achievement: Public, Private and Catholic Schools Compared*. New York: Basic Books.
- Conley, David T. 1993. *Roadmap to Restructuring: Policies, Practices and the Emerging Visions of Schooling*. Eugene, OR: ERIC Clearinghouse on Educational Management.
- Finn, Chester E., Jr. 1991. *We Must Take Charge: Our Schools and Our Future*. New York: Free Press.
- Fowler, William J., Jr., and Herbert J. Walberg. 1991. "School Size, Characteristics, and Outcomes." *Educational Evaluation and Policy Analysis*. 13(2), Summer, pp. 189-202.
- Franke, Dena E. 1991. "The Alternate Route: Testimonial From a Texas Teacher." *Educational Leadership*. 49(3), November. pp. 34-35.
- Garrett, Richard. 2000. "Look Beyond Classrooms When Examining 'Crisis.'" *The Oregonian*, June 6. Online at: <http://www.oregonlive.com/oped/index.ssf/?oped/00/06/ed060602.frame>.
- Goldstein, Harvey and Peter Blatchford. 1998. "Class Size and Educational Achievement: A Review of Methodology with Particular Reference to Study Design." *British Educational Research Journal*. 24(3), pp. 255-268.
- Graves, Bill. 2000. "1 in 3 Misses Graduation." *The Oregonian*, June 25. Web: http://www.oregonlive.com/news/oregonian/index.ssf/?news/oregonian/00/06/lc_12drop25x.frame.
- Greene, Jay P., Paul E. Peterson and Jiangtao Du. 1997. "Effectiveness of School Choice: The Milwaukee Experiment." Program on Education Policy and Governance, Kennedy School of Government, Harvard University. Occasional Paper 97, March. Web: <http://data.fas.harvard.edu/pepg/mil.htm>.
- Grissmer, David W. et al. 2000. *Improving Student Achievement: What NAEP State Test Scores Tell Us*. Santa Monica, CA.: Rand Corporation.
- Hanushek, Eric. 1986. "The Economics of Schooling." *Journal of Economic Literature*. 24(3), September, pp. 1141-1177.
- _____. 1992. "The Trade-Off Between Child Quantity and Quality." *Journal of Political Economy*. 100(1), January/February, pp. 84-117.
- _____. 1997. "Assessing the Effects of School Resources on Student Performance: An Update." *Educational Evaluation and Policy Analysis*. 19(2), Summer, pp. 141-164.
- _____. 1999. "The Evidence on Class Size." In Susan E. Mayer and Paul E. Peterson, eds., *Earnings and Learning: How Schools Matter*. Washington, D.C.: Brookings Institution Press.
- _____. 1999. "Some Findings from an Independent Investigation of the Tennessee STAR Experiment and from Other Investigations of Class Size Effects." *Educational Evaluation and Policy Analysis*. 21(2), Summer, pp. 143-163.
- Heinbuch, Susan E. and Judith A. Samuels. 1995. "Getting More Bang for the Educational Buck: A Microfinancing Approach." *Public Productivity & Management Review*. Spring, 18(3), Spring, pp. 233-242.

- Hirsch, E.D., Jr. 1987. *Cultural Literacy: What Every American Needs to Know*. Boston: Houghton Mifflin.
- _____. 1996. *The Schools We Need and Why We Don't Have Them*. New York: Doubleday.
- Hoxby, Caroline. M. 1994. "Does Competition Among Public Schools Benefit Students and Taxpayers?" National Bureau of Economic Research Working Paper 4979. Cambridge, MA: NBER, December. Available on the Web via <http://www.nber.org>.
- Krueger, Alan B. 1998. "Experimental Estimates of Education Production Function." National Bureau of Economic Research Working Paper 6051. Cambridge, MA: NBER, June. Web: <http://www.nber.org>.
- _____ and Diane Whitmore. 2000. "The Effect of Attending a Small Class in the Early Grades on College-Test Taking and Middle School Test Results: Evidence from Project STAR." National Bureau of Economic Research. Working Paper 7656. Cambridge, MA: NBER, April. Web: <http://www.nber.org>.
- Lankford, Hamilton and James Wyckoff. 1997. "The Changing Structure of Teacher Compensation, 1970-94." *Economics of Education Review*. 16(4), pp. 371-384.
- Lieberman, Myron. 1993. *Public Education: An Autopsy*. Cambridge, MA: Harvard University Press.
- Levin, Tamar. 2000. "Educators Are Bypassed as School System Leaders." *New York Times*, June 8, p. A1. Archived for premium subscribers via <http://www.nyt.com>.
- Mosteller, Frederick. 1995. "The Tennessee Study of Class Size in the Early School Grades." *The Future of Children*. 5(2), Summer/Fall, pp. 113-127.
- Murnane, Richard J., J.B. Willet, and Frank Levy. 1995. "The Growing Importance of Cognitive Skills in Wage Determination." *Review of Economics and Statistics*. 77(2), pp. 252-266.
- Nappi, Chiara R. 1999. *Why Charter Schools: The Princeton Story*. Washington, D.C.: Thomas B. Fordham Foundation, October. Web site: <http://www.edexcellence.net/library/wcs/wcs/html>.
- National Assessment of Educational Progress. Various dates. Home page: <http://nces.ed.gov/nationsreportcard/site/home.asp>.
- National Center for Education Statistics. Various dates. *Digest of Education Statistics*. Washington, D.C.: Government Printing Office. Web: <http://www.nces.ed.gov>.
- National Commission on Excellence in Education. 1983. *A Nation at Risk: The Imperative for Educational Reform: A Report to the Nation and the Secretary of Education*. Washington, D.C.: Government Printing Office. Web: <http://www.ed.gov/pubs/NatAtRisk/index.html>.
- Oregon Department of Education. 2000. Financial statistics. Online at: <http://www.ode.state.or.us/stats/schoolFinance/BUDsum9900.xls>.
- Oregon Legislative Assembly. 1999. *The Oregon Quality Education Model*. Salem, OR, June. Web: <http://dbi.ode.state.or.us/qualityed/>.
- "Oregon's just-average Schools." 2000. *The Oregonian*, July 27.

- Peterson, Paul E., William G. Howell, and Jay P. Greene. 1999. "An Evaluation of the Cleveland Voucher Program After Two Years." Harvard University, June. Web: <http://www-vdc.fas.harvard.edu/PEPG/clev2rpt.pdf>.
- Ravitch, Diane and Chester E. Finn, Jr. 1987. *What Do Our 17-Year Olds Know? A Report on the First National Assessment of History and Literature*. New York: Harper & Row.
- Rees, Nina Shokraii. 2000. *School Choice 2000*. Washington, D.C. Heritage Foundation, June. Available on the Web at <http://www.heritage.org>.
- Rouse, Cecilia E. 1998. "Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program." *Quarterly Journal of Economics*. 113(2), May, pp. 553-602. Web: <http://www.nber.org>.
- Stevens, Carla J. and Micah Dial. 1993. "A Qualitative Study of Alternatively Certified Teachers." *Education and Urban Society*. 26(1), November, pp. 63-77.
- Stevenson, Harold W. 1992. *The Learning Gap: Why Our Schools Are Failing and What We Can Learn from Japanese and Chinese Education*. New York: Summit Books.
- U.S. Bureau of Economic Analysis. 2000. "Regional Income Statistics." Web: <http://www.bea.doc.gov>.
- U. S. Bureau of the Census. 1975. *Historical Statistics of the United States, Colonial Times to 1970*. Washington, D.C.: Government Printing Office.
- _____. Various years. *Statistical Abstract of the United States*. Washington, D.C.: Government Printing Office. Web: <http://www.census.gov/www/statistical-abstract-us.html>.
- U.S. Department of Education, Office of Educational Research and Improvement. 2000. *The State of Charter Schools 2000*. Washington, D.C.: U.S. Department of Education. Web site: <http://www.uscharterschools.org>.
- Vedder, Richard. 1995. *State and Local Taxation and Economic Growth: Lessons for Federal Tax Reform*. Washington, D.C.: Joint Economic Committee of Congress. Web: <http://www.senate.gov/~jec/sta&loc.html>.
- _____ and Joshua Hall. 2000. "Private School Competition and Public School Salaries." *Journal of Labor Research*. 21(1), Winter, pp. 161-168.
- Wolf, Patrick J., William G. Howell, and Paul E. Peterson. 2000. "School Choice in Washington, D.C.: An Evaluation After One Year." Harvard University, February. Web: <http://www-vdc.fas.harvard.edu/PEPG/dc00x.pdf>.

CASCADE POLICY INSTITUTE

813 SW Alder, Suite 450
Portland, Oregon 97205
(503) 242-0900



Info@CascadePolicy.org
www.CascadePolicy.org
fax 242-3822