



Educational Vouchers: A Review of the Research

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Historical Background

In the early 1870s, demoralized by their crushing defeat in the Franco-Prussian War, many French citizens angrily blamed the public school system for their woes. They declared that it was “the Prussian teacher [who] has won the war.”¹

To improve the schools, and presumably France’s prospects in the next war, a French parliamentary commission in 1872 recommended a religious school voucher plan remarkably similar to the ones currently being proposed in the United States. In 19th century France, however, hostility to the idea of providing public money to church schools was so widespread that the French Assembly never took up the plan.

Just over 100 years later, with the U.S. trade deficit at record levels, the authors of *A Nation at Risk* declared that America was headed for a disastrous defeat in a global economic war.² As in nineteenth-century France, the public schools were called to account. *A Nation at Risk* helped make the belief that the U.S. system of public education is a catastrophic failure an article of faith in the nation’s school reform deliberations. In so doing it helped set the stage for school voucher proposals in the late 1980s and 1990s.

Until the 1980s, the constitutional prohibition against church-state entanglements, public opposition to the use of tax funds for religious schools, and a lack of a generally available alternatives to public schools kept voucher proposals on the fringes of American school reform.

Educational vouchers were first proposed in the United States in 1955 by economist Milton Friedman.³ Friedman argued for providing parents with vouchers and allowing them to choose any school, public or private, for their children to attend. In his view, an educational market would be more efficient at allocating educational resources than a system of government-run schools. Friedman’s idea initially drew scant attention and little support.

The private school choice plans proposed in the United States in the late 1950s and early 1960s were not motivated by a desire to create competition and an educational market. These plans grew out of opposition to court-ordered desegregation in the wake of the 1954 U.S. Supreme Court’s *Brown v. Board of Education* decision.⁴ The Virginia legislature in 1956 passed a “tuition-grant” program and in 1960 a “scholarship” plan that provided students with tax dollars to pay the tuition at any qualified non-sectarian school in their district. The Virginia laws and other “freedom of choice” plans passed by southern legislatures expressly sought to help maintain segregated school systems.

Since the late 1950s, private school choice has moved into the mainstream school reform debate. Private school vouchers have found support among three groups:

- 1) Catholics who see taxpayer-financed vouchers as a fiscal life line for their cash poor schools (some Catholics remained opposed to vouchers because they feared that public funding would increase public regulation of religious schools);
- 2) Free-market advocates who regard vouchers as a way of increasing efficiency in the provision of public education;
- 3) People of all political persuasions who, for various reasons, are dissatisfied with the short-comings of what David Tyack, an historian of public education, has labeled “the one best system.”⁵

In the late 1960s, the Democratic administration of President Lyndon Johnson embraced the idea of vouchers. At the time, the voucher constituency included not only some political conservatives and segments of the business community, but also “de-schoolers” influenced by the writing of Ivan Illich,⁶ progressive and black nationalist “free schoolers,”⁷

social critics of the public education bureaucracy such as Paul Goodman,⁸ and liberal academics like Christopher Jencks.⁹ The chance to craft “regulated” voucher plans -- ensuring that the poorest recipients got the largest vouchers -- appealed to many liberals.

The administration of President Richard Nixon subsequently advanced the Johnson proposal. However, little local enthusiasm emerged for the idea. Minneapolis, Rochester, Kansas City, Milwaukee, Gary, and Seattle all rejected the opportunity to participate. Only Alum Rock, California, tried the voucher plan, implementing it in the public school system with disappointing results and subsequently abandoning it.¹⁰

In 1971, the Panel on Non-Public Education of the Nixon administration’s Presidential Commission on School Finance proposed “Parochiaid,” which would have provided public money to religious schools. In the same year, the Supreme Court raised the legal barriers to government support for church schools. It held 8–0 in *Lemon v. Kurtzman* that distribution of tax dollars to private schools had to meet all of the following three tests to be constitutional: its purpose is secular; its main effect is to neither advance nor inhibit religion; and it does not excessively entangle the state with religion.^{11,12}

Although “Parochiaid” died for lack of sufficient political support and the threat that it would be ruled unconstitutional, the idea of spending tax dollars on education at church-affiliated private schools remained alive. Indeed, the “Parochiaid” debate rehearsed many of the current arguments over private school vouchers and their use to pay tuition at religious schools.¹³

In 1983, 1985, and 1986, the Reagan administration tried unsuccessfully to move voucher legislation through Congress. By turning the federal government’s means-tested Chapter 1 program into an individual voucher program, the 1985 effort sought to re-establish the link between vouchers and “empowering” the poor, which had attracted liberals in the 1960s and 1970s.

Educational Choice Enters the Mainstream

According to George Washington University Professor Jeffrey Henig, with free-market arguments for private school vouchers meeting with no success, the administration of President Reagan shifted the discussion to public school choice.¹⁵ This new emphasis broadened support for school “choice,” which many now saw as a strategy to reform rather than to dismantle the public school system. Furthermore, supporters often associated choice with educational excellence and racial equity through its link to the popular magnet school concept. Many school districts had established magnet schools to promote school integration and as an alternative to court-ordered busing. Magnet schools offered a diverse array of innovative curricula to attract voluntary transfers to integrated schools. By shifting the focus from private school vouchers to public school choice, President Reagan successfully separated educational choice from its racist and sectarian roots.¹⁶

Over the next eight years, beginning with Minnesota in 1988, 14 states enacted public school choice laws.¹⁷ These laws allowed students to choose to attend any public school in the state that had room for them.

The idea of private school vouchers took the national stage again during the presidency of George Bush. Between 1990 and 1992, President Bush sent Vice President Dan Quayle to Oregon to speak on behalf of a voucher ballot initiative there. Bush expressed strong (and well-publicized) support for Wisconsin’s 1990 private school voucher law, included “parental choice” in his 1991 “America 2000” reform initiative, and, in 1992, proposed a voucher plan he called a “G.I. Bill for Children.”¹⁸ Bush’s Democratic challenger, Bill Clinton, took over the Reagan administration’s “public school choice” position during the 1992 presidential campaign.

At the state level, private school vouchers have been vigorously debated for 20 years. Since 1978, four states have held referenda on voucher plans: Michigan (1978), Oregon (1990), Colorado (1992) and California (1993). Each of these

efforts failed by an approximately 2 to 1 margin. California voters also rejected “regulated” voucher plans in 1980 and 1982 ballot initiatives.¹⁹

In 1993, Puerto Rico passed legislation that provided vouchers worth \$1,500 per child that low-income families could use to send their children to any school, public or private (including religious schools that would accept them). The Puerto Rico Supreme Court struck down the private school portion of the bill in 1994.

In 1995 and 1996, voucher legislation was introduced in Arizona, California, Colorado, Connecticut, Delaware, Florida, Illinois, Indiana, Minnesota, North Carolina, Ohio, Oregon, Pennsylvania, and Vermont. In addition, constitutional amendments were proposed in Michigan and Missouri to permit the creation of voucher plans.

At the federal level, a number of voucher proposals were recently introduced in Congress, including, in 1997, S.1 (the Safe and Affordable Schools Act), HR 1031 (the American Community Renewal Act), HR 2746 (the HELP Low-income Parents Act), and HR 1797 (the District of Columbia Student Opportunity Scholarships Act; the Senate companion bill is S. 847). The Washington D.C. appropriations bill for fiscal 1998 contained \$7 million to establish a voucher experiment in the nation’s capitol. As part of an agreement that led to the removal of voucher language from the D.C. appropriations bill, the Senate voice-voted its approval of a new voucher bill, S1502. S1502 would also appropriate \$7 million for a voucher experiment. The House may vote on this bill as early as February or March 1998.

The Battle Over Vouchers Today

Proponents of vouchers today base their position on three widely held views about public education: that educational outcomes have deteriorated, that American public education costs have accelerated unreasonably, and that the public schools cannot reform themselves because of bureaucratic and political constraints.

Notwithstanding the conventional wisdom, educational outcomes have actually improved. Between the 1970s and 1990, according to a 1994 RAND study, reading and math scores rose significantly for Hispanics and African-Americans.²⁰

The best available evidence also shows that resources for regular classrooms at public schools have increased only modestly. In a survey of nine school districts, Richard Rothstein found that real spending for regular education climbed by only 28 percent from 1967 to 1991.²¹ In Los Angeles, real per-pupil spending on regular education declined 3.5 percent over the same period. As Rothstein points out, if this decline typifies developments in urban areas generally, that may help explain frustration with academic outcomes.

Of course, national statistics about gradually improving performance, and the stagnation of funds to urban school districts, are of little comfort to parents convinced that their own children will not get the lift they need from the local public school. Parents who want better schools for their kids now have been a receptive audience for the third widely held view behind support for vouchers today: that public schools are incapable of reforming themselves because of bureaucratic and political constraints. This argument gained intellectual legitimacy with the publication of *Politics, Markets, and America’s Schools* by John Chubb and Terry Moe, in 1990.²² In their book, Chubb and Moe argue that the failure to improve school performance, despite a series of reforms instituted after the publication of *A Nation at Risk*, plus evidence of the superior performance of private schools, demonstrate the need for vouchers.²³ (For a summary of the public vs. private school literature, see Box 3.)

The steep decline in the wages of male minority workers since the late 1970s has increased the urgency of demands to improve urban school quality and made many African-Americans receptive to vouchers. In Pennsylvania since 1979, with manufacturing jobs declining and non-professional employment stagnating in high-wage “bureaucratic” service industries (e.g., utilities, the telephone industry, the public sector), the median wage of African-American male workers plummeted by \$3.59 from \$12.72 in 1979 to \$9.13 in 1996 in inflation-adjusted dollars.²⁴

Many proponents of private school vouchers, such as Democratic Wisconsin Assembly member Annette “Polly” Williams, author of the Milwaukee Parental Choice Program legislation, have linked vouchers to their desire to empower poor families and raise the academic achievement of poor children. They argue that vouchers will improve achievement levels by forcing the public schools to compete in an educational marketplace in which poor parents hold the power of the purse.

The Milwaukee Parental Choice Voucher Program

Until the Wisconsin state legislature passed Act 36 in 1990, establishing the nation’s first private school voucher program, the debate over vouchers took place wholly on the ideological and philosophical plane. Even today, the Milwaukee Parental Choice Program (MPCP) is the only voucher program for which large amounts of systematic data are available. For this reason, the Milwaukee program occupies a central place in any discussion of the merits of private school vouchers.

The MPCP initially allowed up to 1 percent (about 1,000) of low-income Milwaukee Public School students to attend participating private, non-sectarian schools within the city. The program defined “low-income” as below 175% of the official U.S. poverty line. Each child attending a private school in the program receives a voucher worth the per-pupil equalized state aide to the Milwaukee Public Schools, originally set at \$2,446.

Participating schools had to meet only one of four educational requirements:

- 1) at least 70 percent of pupils advance one a grade level each year,
- 2) attendance averages at least 90 percent,
- 3) at least 80 percent of students demonstrate significant academic progress, or
- 4) at least 70 percent of their families had to meet parental involvement criteria established by the private school.

Unlike public schools, teachers at Choice schools need not be certified, nor does the curriculum of the schools have to be reviewed or accredited by an outside agency. Choice schools do not have to meet the financial disclosure or other record keeping requirements placed on the public schools. After a lawsuit, participating private schools need not serve children with exceptional educational needs.

The Wisconsin legislature created Milwaukee’s Choice program as a five-year experiment and provided for yearly evaluations of the academic achievement of students attending Choice schools. Governor Thompson vetoed the five-year time limit on the program but left the requirement of annual program evaluations intact. The Wisconsin Supreme Court upheld the constitutionality of the Wisconsin law in 1992 reasoning that it affected a small number of children living in poverty, did not include religious schools, and what the state learned from the experience might benefit children elsewhere in Wisconsin.²⁵

In 1993, Act 16 modified the Milwaukee Parental Choice Program to raise (effective 1994–95) the number of students who could participate from 1 percent to 1.5 percent (about 1,500 students) of the Milwaukee Public School (MPS) population. The same Act allowed the maximum number of Choice students at participating schools to increase from 49 percent to 65 percent of the total student population.

Since 1990, there have been five official yearly evaluations of the Milwaukee voucher experiment (discussed at length in the next section) by University of Wisconsin political science Professor John Witte.²⁶ Witte found no statistically significant differences between the achievement of students attending Choice schools and the achievement of random

samples of students attending the Milwaukee Public Schools. He did, however, find a high degree of parental satisfaction with Choice schools.

A 1995 report by Harvard Professor Paul Peterson sharply criticized Witte and his statistical methods.²⁷ These methods, Peterson argued, understated the positive academic impact of the Milwaukee Parental Choice Program. Peterson's argument echoed a 1992 critique, "The Milwaukee Parental Choice Program," written by George Mitchell for the Wisconsin Policy Research Institute.²⁸

In February 1995, the Wisconsin Legislative Audit Bureau, the research arm of the legislature, released its own report on the Milwaukee program. The report did not find Witte's methods inappropriate. However, it contended that no conclusion -- not even Witte's finding of no significant difference -- could be drawn about academic performance under the voucher program compared to the Milwaukee Public Schools.²⁹

During the 1995 legislative debate over the expansion of the Choice program, the Peterson critique and Witte annual reviews enabled both advocates and opponents to claim that the data supported their position. Unfortunately, instead of attempting to strengthen and improve the evaluation requirements for the Milwaukee Parental Choice Program, voucher supporters lobbied successfully to eliminate the annual program evaluation requirement. As revised in 1995 (Act 27), the evaluation components of the MPCP consisted of a requirement that the Legislative Audit Bureau report on the finances and performance of the program after five years (January 15, 2001) and a provision requiring that each voucher school provide the Wisconsin Department of Public Instruction with an annual independent financial audit. The 1995 revision of the MPCP did not, however, require that the schools participating in the program gather the achievement data necessary for a rigorous evaluation.

The 1995 legislation allowed religious schools to participate in the program, and raised the number of students who could participate to 7 percent of the Milwaukee Public School enrollment in 1995–96 and 15 percent in 1996–97. The new legislation also allowed up to 100 percent of the students attending a Choice school to be voucher students.

On August 25, 1995, the Wisconsin Supreme Court enjoined all of the 1995 modifications to the Milwaukee Parental Choice Program. On March 29, 1996, the supreme court deadlocked 3–3 on the constitutionality of 1995 modifications and sent the case back to circuit court for trial. On August 15, 1996, the circuit court retained the injunction barring implementation of religious school participation in the program but lifted the injunction on other parts of the 1995 legislation. The Dane County Circuit Court ruled the entire 1995 Act unconstitutional on January 15, 1997. An appeal is currently before the Wisconsin Supreme Court. As of the 1997–98 school year, the 1993 modification to the 1990 law again governs the MPCP.

As a result of the changes enacted in 1995 and subsequent court actions, no achievement data on the MPCP were collected during the 1995–96 or 1996–97 school years. During 1997–98, the evaluation requirements built into the original law govern the program. This may change when the Wisconsin Supreme Court issues its ruling in the spring of 1998.

The Debate Over the Achievement Effect of the Milwaukee Voucher Program

Three research teams have analyzed the data collected during the first four years of the Milwaukee voucher program.

- University of Wisconsin-Madison political science professor John Witte is the principal author of each of the first four annual evaluations of the program.³⁰ He and his team are the only researchers to have analyzed fifth-year data on the pro-gram.³¹ In a January 1997 paper, Witte summarized the findings of his first four evaluations and presented a reanalysis of some of his data in light of criticisms of his methods and findings.³²

- In August 1996 and March 1997, Professors Jay Greene (University of Houston), Paul Peterson (Harvard) and Jiangtao Du (Harvard) issued two re-analyses of Witte’s data on the first four years of the program.³³
- In September 1997, Princeton Professor Cecilia Rouse released a paper, accepted for publication in the *Quarterly Journal of Economics*, that analyzes the achievement data from the Choice program’s first four years.³⁴ In December 1997, Rouse published a subsequent paper comparing performance in three categories of schools within the MPS system, both to each other and to the Choice schools.

In considering the research designs and findings of Witte, Greene, Peterson, and Du, and Rouse it is useful to understand the Milwaukee Parental Choice Program’s scope and character. The program has never involved a large number of students and has never reached the total enrollment authorized by law. Some students have nonetheless been turned away because the school they wished to attend had no space at their grade level. According to the Wisconsin Legislative Audit Bureau’s 1995 report, 30.3 percent of the children enrolled in the program one year do not return the next year.³⁵

**Table 1: Milwaukee Parental Choice Program Profile
1990-1998**

Milwaukee Parental Choice Program Profile 1990-1999						
School Year	Number of Schools	Number of Applications	Average # of Voucher Students*	Voucher Amount	Total Cost of Vouchers (millions)	Annual Attrition Rate
1990-1991	7	577	300	\$2,446	\$0.73	0.46
1991-1992	6	689	512	\$2,643	\$1.35	0.35
1992-1993	11	998	594	\$2,745	\$1.63	0.31
1993-1994	12	1049	704	\$2,985	\$2.10	0.27
1994-1995	12	1046	771	\$3,209	\$2.47	0.28
1995-1996	17		1288	\$3,667	\$4.61	
1996-1997	20		1616**	\$4,373	\$7.07**	
1997-1998	23			\$4,696	\$7.03	

*Includes summer school.

**Unaudited figures.

Sources: State of Wisconsin Department of Public Instruction web page, <http://www.dpi.state.wi.us/dpi/dfm/sms/histmem.html>; and John F. Witte, Troy D. Sterr, and Christopher A. Thorn, *Fifth-Year Report: Milwaukee Parental Choice Program* (Madison, WI: The Robert M. La Follette Institute of Public Affairs, University of Wisconsin-Madison, December 1995).

The MPCP overwhelmingly supports elementary school students. According to the 1995 Legislative Audit Bureau Report, 23.2 percent of the participants in the Milwaukee voucher program in 1994–95 enrolled in kindergarten, 61.1 percent in kindergarten through third grade, and 76 percent in kindergarten through fifth grade.³⁶

For 1997–98, a MPCP voucher equals \$4,696.³⁷ The Milwaukee Public Schools also provide transportation for those voucher students who require it. The voucher compares with a per-pupil expenditure in the Milwaukee Public Schools of \$7,869 for 1997–98. (As well as the state support that sets the voucher amount, MPS total spending per pupil includes funding from local tax revenues, federal aid, and private sources.) Of the \$7,869 total, on average, elementary

(K-6) schools directly received \$3,875 per-pupil, K-8 schools received \$4,234, middle schools \$4,831, and high schools \$4,659 per pupil. Over and above these amounts, schools also receive money for special education. Money not distributed directly to the schools is used for capital improvements, the recreation program, alternative education programs, food service, building maintenance, transportation, and other central support services. Central administration costs account for approximately 5 percent or less of the Milwaukee budget.³⁸

In sum, while Brent Staples in *The New York Times* claimed on January 4, 1998, that vouchers are limited to \$3,000 and are less than half what public schools spend per pupil, neither statement is true.³⁹ Indeed, since Choice students fall primarily in the relatively inexpensive primary grades, vouchers usually exceed what most MPS schools receive directly for pupils in the same grades. It is impossible to judge whether voucher or public schools have more resources in Milwaukee at this juncture, because information is lacking on what participating private schools receive from private sources, and because the range of services offered by private and public schools differs (private schools, for example, need not provide special education).

Three schools, Bruce Guadalupe, Harambee, and Urban Day, enroll a substantial majority (over 80 percent according to Greene, Peterson, and Du⁴⁰) of all voucher students. Each of these schools had a long history and established reputation prior to the passage of the Milwaukee voucher program. The fact that three schools, with unique histories, enroll such a large proportion of Milwaukee's voucher students makes it difficult to generalize to large-scale voucher programs that would require many new schools. Finally, none of the evaluations of the Milwaukee program contain data on high school students because so few voucher students attend high school.

In his evaluations, John Witte found that, when compared to Milwaukee Public School parents, parents who send their children to voucher schools are better educated and more involved in their children's education, have higher academic expectations, and are more critical of the Milwaukee Public Schools than are Milwaukee Public School parents.⁴¹ These findings have not been disputed. This suggests that MPCP parents are so-called high-voice parents. Since only a small number of students apply to Choice schools each year (see Table 1) relative to the number of eligible students (about 60,000), the program may be attracting a small subset of low-income parents with distinct characteristics. This makes it difficult to use the Milwaukee experience to predict the effectiveness of large-scale voucher programs.

To determine the academic impact of the Milwaukee voucher program, all of the researchers whose work is described here use test data from the Iowa Test of Basic Skills in reading and math.

BOX 3: PUBLIC VS. PRIVATE SCHOOLS

Both Rouse and Greene, Peterson, and Du locate their Milwaukee voucher program research within the literature on private vs. public school performance. Much of this literature begins from the premise that private schools are better at responding to competition than public schools and are therefore likely to be more efficient at producing desirable educational outcomes.

Studies both support and refute the premise that private schools are better at producing high achieving students. Evans and Schwab,⁴² for example, found overall positive effects from attending Catholic schools, while Goldhaber found no advantage of private school attendance.⁴³ One of the most contentious issues in this research literature is the issue of selection bias, i.e., whether differences in achievement are explained on the basis of who attends private schools. The unrepresentative set of private schools in one widely used data base (High School and Beyond) is also of concern.

In a recent study, David Figlio and Joe Stone of the University of Oregon drew on the National Education Longitudinal Survey and a Dun and Bradstreet directory of private schools to analyze public and private school performance in 8th-12th grade math and science.⁴⁴ Their research attempts to simulate the placement of otherwise equivalent students into different school environments, and thereby to isolate the achievement effect of attendance at a public vs. private school. Figlio and Stone caution that their results on the performance of low-income and low-achievement students are based on very small numbers (47 low-income students and 39 low-achieving students).

Figlio and Stone's study reveals the complexity of the issue of private vs. public school performance and the danger of drawing simplistic, sweeping conclusions about the relative performance of public and private schools. Figlio and Stone estimate either no achievement effect or negative effects overall for attendance at a religious school. They find, however, that African-American and Hispanic students who attend religious schools outperform their public school counterparts, especially in urban areas. According to Figlio and Stone, non-religious private schools have a positive effect on math and science achievement primarily for low-income and initially low-achieving students. High-achieving students may do less well in science in private non-religious schools.

Figlio and Stone advise that their findings should be used very carefully if deployed in the debate about vouchers. As they explain, their estimated effects only simulate what would happen if a few students moved from private to public school. In this situation, when low-income and initially low-achieving students attend private schools, these students may benefit from changes in who is in school with them, "peer group composition." What Figlio and Stone cannot estimate is the effect on achievement that would occur if larger numbers of students moved from public to private schools. This would cause large changes in peer group relationships at both sending and receiving schools. Large-scale implementation of vouchers could have negative achievement effects in both public and private schools because of the changes in student body composition it could produce.

On the whole, the research literature gives no clear guidance as to whether or not private schools are better at producing desired educational outcomes than public schools. Since most of the studies use data for secondary schools, they are of limited value in understanding the impact of voucher programs that involve elementary schools.

Why Different Researchers Reach Different Conclusions

When researchers in ideologically polarized debates disagree, general readers who want to weigh the "facts" for themselves can end up confused and not knowing what to think. To avoid this problem, this section walks the reader through the findings of the three efforts to analyze the Milwaukee experience. It seeks to explain in everyday language how essentially the same underlying data can lead different analysts to different conclusions.⁴⁵

There is actually less disagreement than meets the eye between the findings of the three Milwaukee evaluations. When researchers of the MPCP program use similar methods, they come to the same basic conclusions.

Researchers of the Milwaukee voucher program arrive at conflicting results for two basic reasons: (1) they use different definitions of the reference or control group to which the performance of voucher program participants should be compared, and (2) they use different methods to control for family background and student ability. All of the researchers must contend with the relatively small samples of students in the data bases analyzed. All must address the shrinkage (or "attrition") of their sample due to student mobility and missing data. All of them also lack any model of what actually goes on in schools or of the educational features (such as small class size or an innovative curriculum) that may generate good outcomes.

Table 2
Findings of Three Studies of the Milwaukee Parental Choice Program

	Witte	Greene, Peterson, and Du	Rouse
Main Comparison ⁴⁶	Compares voucher students' achievement with that of a random sample of Milwaukee Public School (MPS) students, controlling for observed individual and family characteristics.	Compares voucher students' achievement with that of unsuccessful applicants who returned to the Milwaukee Public Schools.	Compares achievement of successful applicants for vouchers with that of a random sample of Milwaukee Public School students, controlling for an estimate of innate ability and family influences.
Reading Findings	No significant difference between voucher students' achievement and that of the MPS comparison group.	In their 1997 "main analysis": 2-3 percentile rank advantage for voucher students in year four. Conventional levels of statistical significance approached only when 3 rd and 4 th years are jointly estimated. When background characteristics are controlled for, voucher students' advantage in 1 st and 3 rd years approaches significance.	Similar to Witte: no statistically significant difference between successful voucher applicants' achievement and that of the MPS comparison group.
Math Findings	No significant difference between Choice students and MPS sample.	5-11 percentile rank advantage for voucher students over unsuccessful choice applicants in years 3 and 4. Conventional levels of statistical significance achieved in 4 th year and in joint estimate of 3 rd and 4 th years.	Similar to GPD: statistically significant advantage in years 3 and 4 for students selected for Choice schools. Effect size of 0.08-0.12 per year.
Main Statistical Limitations	<ul style="list-style-type: none"> • Does not control for unobserved individual differences. • Voucher students who remain in program may be a non-random high-scoring group. • Does not include school variables (e.g., class size, curricula). 	<ul style="list-style-type: none"> • Control group of unsuccessful voucher applicants who return to MPS is a small and shrinking sample (26 in year 4). • Control group may be a non-random, low-scoring group. • Voucher students who remain in program may be a non-random, high-scoring group. • Does not include school variables (e.g., class size, curricula) that may explain observed differences. 	<ul style="list-style-type: none"> • Successful voucher applicants have more educated parents with high expectations: improvement in math scores over time might take place without voucher program. • Does not include school variables (e.g., class size, curricula) that may explain observed differences.

The Witte Evaluations

In his five evaluations of the Milwaukee program, Witte compares voucher students' average test scores and changes in test scores to the same figures for two other groups: a random sample of Milwaukee Public School students and a random sample of low-income Milwaukee Public School students. Since neither of these two groups are genuine "control" groups for Choice students, Witte also combines the Choice and non-Choice students into a single sample and uses statistical controls to take account of the impact of family and individual differences (e.g., prior test performance, family income, race, and gender) on test scores.

BOX 4: SORTING THROUGH CONFLICTING VOUCHER RESULTS

To help you avoid getting lost in the technical summary of voucher research on Milwaukee, the list below summarizes this report's distillation of what the research tells us.

- Disagreement exists about whether the voucher program generates outcomes compared to the Milwaukee Public School (MPS) system. Two of three research teams think no positive outcomes result in reading. Two of three teams think that positive outcomes result in math.
 - The evaluations all deal with small samples. Many students drop out of the experiment, possibly on a non-random basis. These data deficiencies should be kept in mind when interpreting the results.⁴⁷
 - The parents of voucher applicants have more education and higher expectations than parents of most Milwaukee Public School students. Wherever they attend school, the children of such parents may improve over time compared to other students.
 - Students in a group of public schools with small classes outperform Choice students (according to the only analysis that looks at different groups within the MPS system).
 - Lacking the necessary data, the evaluations cannot look at the educational process inside the Choice schools. They cannot explain what lies behind any differences in performance between Choice and MPS schools or among the Choice schools.
 - Over 80 percent of Milwaukee voucher students attended three schools with established reputations. At best, the experiment tells us something about how these particular private schools compare with Milwaukee public schools, as a group. It indicates nothing about the impact of larger-scale voucher programs.
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Taking account of these differences requires including in the analysis only students for whom there are complete data, which exacerbates the problem of sample size. Witte's overall conclusion: there is no academic advantage for students attending Choice schools. He finds a small, non-significant advantage for Milwaukee Public Schools in reading.⁴⁸

The Greene, Peterson, and Du Evaluation

Greene, Peterson, and Du (GPD) argue that, when Witte compares Choice and MPS students, his controls for family and individual characteristics are inadequate.⁴⁹ Therefore, GPD choose a method different from Witte's.⁵⁰ They compare Choice students to students who applied to but did not get into Choice schools. The Milwaukee voucher law required that each participating school randomly select its successful voucher applicants. GPD therefore consider a comparison of successful and unsuccessful applicants to be akin to a natural experiment comparing two other wise

identical groups. In their view, differences that may exist between students do not have to be controlled for because random assignment assures that differences will be evenly distributed across the groups being compared.

Several factors mar their natural experiment, however:

- First, no one has examined whether Choice schools actually selected randomly. (In response to this point, GPD show the prior test scores and family characteristics of the two groups to be similar “in essential respects.”⁵¹)
- Second, siblings of children already enrolled in Choice schools were guaranteed places without going through the lottery.
- Third, since lotteries took place at the school level, each school’s group of Choice students has its own control group of rejected applicants.

The available data, however, does not indicate the particular Choice school to which unsuccessful applicants sought admission. To model the lottery process, GPD therefore assume that Hispanic students applied to the predominantly Hispanic school and that African-Americans applied to one of the two other schools with large numbers of voucher recipients. This technique leads GPD to leave white students out of the analysis.

Aside from questions about the randomness of the original selection process and the difficulties of modeling it, a number of other problems result from GPD’s reliance on unsuccessful Choice applicants as a comparison group. First, only a relatively small number of applicants failed to get into the voucher program each year (see Table 1). Moreover, many of these applicants dropped out of the Milwaukee Public Schools by the third or fourth year of the program, aggravating GPD’s sample size problems. The largest number of Choice students analyzed by GPD in the third year is 310, with only 86 in the control group. By the fourth year, the largest number of Choice students analyzed by GPD is 110, with only 26 in the control group. This makes the estimated effects unusually sensitive to a few very high or low scores.

As Witte and Rouse note, moreover, unsuccessful Choice applicants who returned to the Milwaukee Public Schools are not only a smaller group over time, they may also be progressively less representative. In part because of the availability of a privately funded voucher program (see the discussion of PAVE below), many unsuccessful applicants found the resources to leave MPS. Those remaining in MPS may constitute an atypical, low-performance sub-group, particularly in years three and four. Consistent with this possibility, after four years, the family income of unsuccessful Choice applicants remaining in the MPS system is over \$6,500 below that of unsuccessful applicants who leave MPS. The parental education of those still in MPS also falls slightly below that of the group who left.⁵²

While unsuccessful applicants may be a low-performance group, the opposite may be true of those left in Choice schools in later years. (This problem plagues Witte’s analysis as well as GPD’s.) GPD themselves report evidence that voucher students who remain in the program are an unrepresentative, high-performance group (see the last part of Box 5). University of California-Berkeley Professor Bruce Fuller suggests that drawing a conclusion from looking at students left in Choice schools would be like determining the effects of smoking by only tracking smokers who didn’t die.⁵³

Comparing Choice students to unsuccessful Choice applicants, GPD report that, after three or four years in the Choice program, students begin to show higher levels of performance. In math, GPD report 5 and 11 percentile rank differences in the third and fourth years.⁵⁴ Reading scores of Choice students exceed those of unsuccessful applicants by 2 to 5 percentile ranks. GPD say that the delay before math and reading scores improve may result from the time it takes students to accustom themselves to a new school and its academic program.

When GPD take account of students’ individual characteristics on which they have data, their results achieve conventional levels of statistical significance once and approach significance six other times. GPD maintain, as noted earlier, that random selection of voucher recipients from each school’s applicant pool means that there is no need to

control for individual characteristics. While random assignment does mean that individual characteristics should not make much difference, it does not justify excluding them. GPD counter that the lack of statistical significance of their results (once they include background characteristics) results not from any reduction in the positive impact of Choice schools, but rather from a reduction in the sample size because the data do not contain complete information on individual characteristics for all students.

In 1997, following GPD's analysis, Witte himself looked at the performance of unsuccessful Choice applicants.⁵⁵ In reading, he finds, Choice students perform no differently than unsuccessful applicants. In math, like GPD, Witte finds that Choice students do better than unsuccessful applicants, especially in the third and fourth years in the program. Witte, however, discounts the value of these results because 52 percent of unsuccessful applicants did not return to MPS, so no test scores are available for them. He argues that the remaining unsuccessful applicants do not constitute a random sample of unsuccessful applicants. Witte also suspects his math results because his total sample for this comparison includes only 85 students who had been in the Choice program four years, and only 27 unsuccessful applicants. Moreover, the achievement difference can be accounted for by the scores of only five unsuccessful applicants who did not appear to answer any of the test questions. When Witte eliminates the scores of the lowest scoring group of students (five unsuccessful applicants and two Choice students), he finds that the math effect was no longer statistically significant. Moreover, the unsuccessful applicants did even more poorly against a random group of MPS students than against Choice students.

Based on their results, Greene, Peterson, and Du speculate that vouchers, if generalized and extrapolated to all white and minority students in the United States, would eliminate most of the achievement gap between white and minority students in reading and erase it altogether in math. It is not clear on what grounds GPD base this speculation because they exclude all white students from their analyses.

Greene, Peterson, and Du's overall conclusion: participation in the Milwaukee Parental Choice Program confers academic achievement advantages in reading and in math that are cumulative and that first appear after three years in the program.

BOX 5: WHEN ARE SIGNIFICANT RESULTS NOT SO SIGNIFICANT?

In statistical analysis, social scientists need to know how to distinguish findings that could be the result of random chance from findings that indicate strong confirmation of a hypothesis' such as the hypothesis that Choice schools improve student performance. By convention, social scientists most commonly consider a result "statistically significant" when the probability of it occurring by chance is .05 (i.e. 5 chances out of a 100) or less. In their March 1997 paper, however, Greene, Peterson, and Du report a result as significant when there is a 1 in 10 (or .10) probability or less of it occurring by chance.

GPD further increase the number of "significant" findings that they report by evaluating results using a "one-tailed" test of significance rather than a more common "two-tailed" test.

One-tailed tests are usually used when there are strong theoretical reasons for believing that change in the independent variable (in this case attendance at Choice schools) is likely to produce a change in the dependent variable (test scores) in only one direction. GPD's theory is that Choice students could not perform worse on tests than those who applied to the program but were rejected. GPD justify this by reference to the literature suggesting that private schools perform better than public schools. It is a questionable assumption because, as we saw in Box 3, the literature on private vs. public school achievement is drawn primarily from secondary school data, shows mixed results, and is very

controversial. Rose's finding that students in a sub-group of Milwaukee public schools outperform those in Choice schools raises further questions about the one-tailed assumption.

The important point here is that by using both a .10 standard of significance and a one-tailed test in their March 1997 paper, GPD are four times more likely to find significant results than if they had applied a .05 standard using a two-tailed test. This allows them to report almost eight times as many statistically significant findings in Tables 3, 4, 5, and 7 of their March paper than they would have been able to report using a .05 level with a two-tailed test. In other words, they report 23 significant findings instead of 3.

GPD might respond that "statistical significance is not a cliff" and that results slightly below a customary threshold for significance are still unlikely to occur by chance and are therefore worthy of note. GPD, however, are not consistent in this view. In one important case, they fail to point out some significant findings (at the .10 level) that reduce confidence in their main finding about the performance advantage of voucher students. This case comes up when GPD respond to the claim that lower-performing students more often leave the voucher program, making their sample of students still in the Choice schools unrepresentative. In their August 29, 1996 paper, GPD directly test for such attrition bias by comparing (a) the scores of students who continued in the voucher program with (b) the scores of students who withdrew from the program (i.e., the last score of these students before they left the voucher program). GPD summarize their findings as follows:

In only two comparisons were differences statistically significant. In one the students leaving the study had the higher test scores; in the other, continuing students had higher test scores. In the other six cases, the two groups did not differ significantly.

When you look in their table reporting these results (Table 7 in their paper), you find that two of the "insignificant" differences between Choice stayers and leavers are nearly significant (they could have occurred by chance with only a .06 and a .09 probability). These differences meet the .10 standard that GPD earlier used as a threshold for significance. In both these cases, the math scores of continuing choice students exceed the math scores of those who drop out of the program. Perhaps adding to the inconsistency, GPD may have used a two-tailed test in their examination of Choice student attrition bias. If one accepts the theory that more successful students in Choice schools would not leave the voucher program, then a one-tailed test would be more appropriate. Under a one-tailed test, the math advantage of continuing Choice students over those who quit in 1993 and 1994 would be significant at a .05 level.

The Rouse Evaluation

The most recent analysis of the Milwaukee Parental Choice Program data has been done by Professor Cecilia Rouse of Princeton. Rouse analyzes the performance of all students selected to attend Choice schools (including those who never attended -- a small group -- and those who subsequently left). She compares this group's performance to that of applicants not admitted to the Choice program and to a random sample of MPS students. By comparison with GPD's main method, this approach has the advantage of avoiding non-random attrition from the Choice sample. It also increases the number of students in the "Choice" sample. Rouse sees including all those awarded vouchers in the Choice group as a better way of assessing the overall impact of the MPCP program than restricting the sample to those currently receiving vouchers. According to GPD, who use the same method in part of their March 1997 paper, Rouse's approach better captures what would happen if the Choice experiment were generalized and students migrated back and forth between private and public schools.

In addition to her analysis of successful applicants for vouchers, Rouse does a more familiar comparison between students who actually attended Choice schools and her MPS sample. Whichever way she defines program participants

-- as those selected or those actually attending -- Rouse's estimate of their test scores relative to those of Milwaukee Public School students turns out to be similar.

Like Witte, Rouse finds no significant advantage for the Choice groups in reading. She describes the Greene, Peterson, and Du results for reading as "fragile."⁵⁶ In math, Rouse finds that students admitted to the voucher program, and the sub-sample still participating in it, both had faster math gains than her random sample of MPS students. She estimates that the math scores of successful applicants and of program participants rise each year by 1.5–2.4 percentile points more than MPS student test scores. This amounts to an effect size of 0.32–0.48 over four years (see box 2 for a definition of effect size).

Rouse argues that the difference between her and Witte's comparison of the math scores of MPS and voucher students results from a highly technical difference in the statistical models used. (She supports this claim by making her model similar to Witte's and showing that she gets results comparable to his.) While Witte's model includes prior test scores (and other individual characteristics) as controls, Rouse uses an individual "fixed effects" model that controls for all student characteristics that do not change over time (e.g., parental education and "innate" ability).⁵⁷ Rouse's approach enables her to include in her sample individuals that Witte excludes because of missing some prior year test scores.

Rouse cautions that there are several caveats to bear in mind when considering her results.⁵⁸

- First, a large number of students in the data set do not have total math scores. (This is a problem for all three research teams.) For 1993, Rouse had to impute the total math score (from scores on the components of the test) for 40 percent of the unsuccessful Choice applicants and 34 percent of the students in her Milwaukee Public Schools sample. For 1994, she had to impute 69 percent of the total math scores for the unsuccessful Choice applicants and 67 percent of the Milwaukee Public School sample.
- Second, Rouse's method assumes that, in the absence of the voucher program, the two comparison groups would have improved their scores over time at the same rate. If, however, the test scores of children with high-voice parents tend to improve faster than the test scores of other students -- even when the high-voice offspring start off poorly -- then Rouse's model would wrongly attribute this improvement to the voucher program.
- Third, the data sets on the Milwaukee voucher experiment include no school variables, such as social and economic profile of the school, class size, school size, or spending per student. Therefore, neither Rouse nor the other analysts have any way of knowing whether differences between the achievement of Choice students and that of Milwaukee Public School students are attributable to these variables. Since there is clear evidence that class size, for example, has a significant effect on student achievement, Rouse's results may have nothing to do with participation in the Choice program per se. In her most recent paper, analyzed at length in the class-size section of this report, Rouse takes a first step towards addressing the lack of school variables. She presents evidence that class size in public schools exceeds that in Choice schools. Moreover, she finds that students in the one sub-group of the Milwaukee Public Schools that have a class size comparable to Choice schools have better overall test scores than Choice schools.
- Finally, Rouse points out that the average effects she reports say nothing about the performance of individual Choice schools, i.e., they do not suggest that all Choice schools are "better" than the Milwaukee Public Schools.

Rouse's overall conclusion: allowing low-income children to attend private schools might raise the math achievement of those who participate. However, the Milwaukee data do not answer the question of whether vouchers give public schools an incentive to improve, nor do these data provide an adequate basis for making decisions about the widespread implementation of voucher programs.

Rouse ends her December 1997 paper by noting:

If we really want to “fix” our educational system, then we need a better understanding of what makes a school successful, and not simply assume that market forces explain sectoral differences and are therefore the magic solution for public education.⁵⁹

Milwaukee’s Private Voucher Program -- PAVE

Voucher programs supported by private sources provide another potential source of information on the educational consequences of vouchers. Perhaps the country’s largest private program operates in Milwaukee. Partners Advancing Values in Education (PAVE), formerly the Milwaukee Archdiocesan Education Foundation, was founded in 1992. PAVE provides low-income families with scholarships worth half of the tuition charged by a private religious or non-sectarian school up to a maximum of \$1,000 for elementary and middle school students and \$1,500 for high school students. PAVE’s overhead is about 7 percent of its annual costs.⁶⁰

BOX 6: MILWAUKEE – A CASE EXAMPLE OF THE RELATIVE COST AND PERFORMANCE OF PUBLIC AND PRIVATE SCHOOLS

Milwaukee provides a case example on both the relative performance and the relative cost of public vs. private schools. In 1991, the Catholic archdiocese of Milwaukee released the test scores of children in its schools. The results showed that when the performance of children from similar social and economic backgrounds were compared, the Catholic schools in the Milwaukee archdiocese did no better and perhaps a bit worse at educating minority children than the Milwaukee Public Schools.⁶¹

The picture looks about the same with the issue of cost. In 1994, when the archdiocese began closing its four central-city elementary schools, the Catholic school system had a per-pupil cost of approximately \$4,000 at the four schools.⁶² By comparison, in the 1992-93 school year, when excluding centrally budgeted items such as fringe benefits and transportation, each elementary school in Milwaukee received, on average, \$2,958. Even including all centrally budgeted items the public schools spent \$4,645 per student.⁶³ The Milwaukee public schools also provide many more services and a more complete educational program than the private Catholic schools, according to an independent Milwaukee-based research institution.⁶⁴

PAVE awards about half of its scholarships to students who already attended private school. Approximately 95 percent of PAVE-supported students attend religious schools, with more than half (about 60 percent) enrolled in Catholic schools. Unlike the Milwaukee Parental Choice Program, PAVE enrolls a higher percentage of white students than the Milwaukee Public Schools. Also, unlike MPCP, schools participating in PAVE may reject applicants.⁶⁵

PAVE has for the most part shied away from assessing student achievement gains preferring to focus on other issues such as parental satisfaction, parents’ reasons for participating in PAVE, and the extent to which they assist with their children’s school activities.⁶⁶ The most recent (1996) evaluation, for example, examined discipline in participating schools, the residential mobility of participating families, and the reasons eligible families did not participate.⁶⁷ The evaluations commissioned by PAVE have found that people who participate in the program are well satisfied and that there are relatively few serious discipline problems at PAVE schools.

Of the four evaluations of the PAVE program, only the 1994 report made a serious effort to determine the program's effect on student achievement. The 1994 evaluation suggested that students who attended private schools for their entire school career achieved at higher levels than students who transferred from a public school into a private school participating in the PAVE program. Further, the evaluation suggested that the longer transfer students stayed in participating private schools the greater their achievement.

Unfortunately, since the data gathered depended entirely on the voluntary cooperation of parents, the findings are suspect and no conclusion can be drawn from the evaluation's results.

The Cleveland Scholarship and Tutoring Program (CSTP)

Ohio enacted the Cleveland Scholarship and Tutoring Program (CSTP) legislation into law in March 1995.⁶⁸ It allowed the Ohio Superintendent of Public Instruction to create a pilot voucher program in Cleveland. It was expected that the \$6.4 million appropriated for the program's first year would be enough for 1,500 scholarships. The Cleveland program is largely supported by \$5.25 million from Ohio's Disadvantaged Pupil Impact Aid Program previously earmarked for the Cleveland Public Schools.

For families whose income is less than double the Federal poverty level, CSTP provides vouchers of up to 90 percent of a private school's (including religious schools) tuition, up to a maximum of \$2,250. If a family's income is more than twice the Federal poverty level, the state pays up to 75 percent of a participating school's tuition to a maximum of \$1,875. Up to 25 percent of the new scholarships each year may be awarded to children previously enrolled in a private school.

Scholarship applicants are selected by lottery with priority going to applicants whose income is less than the Federal poverty level. Second priority goes to families whose income is less than twice the poverty level. Within these guidelines there is no income cap on participation.

The approximately 30,000 K-3 students who reside within the Cleveland School District are eligible to apply to the program. Once admitted to the program, students may receive scholarships through 8th grade. In the first year, 6,246 applications were received for the 1,500 slots assigned by lottery in January 1996. Over the next several months, the state increased the number of vouchers that could be awarded to 1,801 because it more accurately calculated the actual tuition amounts involved. Ultimately, all public school applicants were offered a voucher. However, there was a waiting list of students previously enrolled in private schools. At the start of the 1997-98 school year, the total number of participants increased to 3,000.

In 1996-97, about 35 percent of the participants were kindergartners with no previous enrollment history, another 35 percent were formerly enrolled in the Cleveland Public Schools, and about 29 percent (up from 25 percent because of lower attrition among students already in a private school) were previously enrolled in private schools. Since some kindergarten students would have enrolled in private school even without the program, the 29 percent figure is probably a conservative estimate of the share of voucher recipients that would be in private schools anyway.

In 1996-97, about 77 percent of the scholarship students attended one of 46 religious schools, 35 of which are Catholic. The other 23 percent attended non-sectarian private schools, with over three quarters of them attending two schools. Although the law allows program participants to attend suburban public schools, none did. The vast majority of participants in the program are low-income African-Americans.

The actual cost of Cleveland scholarships to taxpayers is somewhat controversial. The Ohio Office of Management and Budget sets the average voucher payment for 1996-97 at \$1,763. An analysis by the American Federation of

Teachers estimates the cost of transportation at \$629 per scholarship recipient, the cost of administering the program at \$257 per student, and the additional state aid the program generates for each scholarship student enrolled in a private school at \$543. Using these figures, the AFT estimates the total scholarship cost at \$3,192 per recipient.⁶⁹

The Cleveland program is a scholarship and tutoring program. By law, the number of Cleveland public school tutorial-grant recipients may not exceed the number of students who receive vouchers. The value of tutorial grants is based on an income-related sliding scale up to a maximum of 20 percent of the average scholarship amount (i.e., the tutorial grant ceiling equals \$450 for families with income below twice the poverty line and so on). In 1996–97, 542 students received tutorial assistance and there was a waiting list of 201 students who were unable to find a qualified tutor.

Since, unlike the Milwaukee Parental Choice Program, the Cleveland voucher program allows religious schools to participate, its constitutionality was immediately challenged. On July 31, 1996, the Franklin County Court of Common Pleas held the program constitutional and allowed it to be implemented. On May 1, 1997, an Ohio appeals court ruled the program unconstitutional. The Ohio Supreme Court allowed the program to go forward while it considers an appeal. Its ruling is expected early in 1998.

The Cleveland Scholarship and Tutoring Program legislation requires the state superintendent to contract with an independent research entity to conduct an evaluation of the program's impact on student performance, parental involvement, public schools, and the market supply of alternative education. The contract to evaluate the program was awarded to an Indiana University research team headed by Professor Kim Metcalf. An evaluation report on the program's first year is expected in early 1998.

There has been some confusion surrounding the Cleveland evaluation because of the publicity associated with the analysis of test score data from the two largest non-religious private schools in the program. On June 24, 1997, Professor Paul Peterson of Harvard issued a press release describing his team's analysis of test results from these two schools and explaining that "a more extensive examination of the Cleveland School Choice Program is underway to determine if the gains witnessed here are being produced by the entire scholarship program. Results from this evaluation should be available by the fall." Professor Peterson's press release was interpreted by some to mean that his research team was officially evaluating the Cleveland program.

In September 1997, the Harvard Program on Education Policy and Governance (PEPG) report, "An Evaluation of the Cleveland Scholarship Program" was released and drew wide publicity from a *New York Times* article and a *Wall Street Journal* article under Professor Peterson's byline. The report itself was co-authored by Jay Greene (University of Texas, Austin), William Howell (Stanford University), and Paul Peterson (Harvard University).⁷⁰

On December 27, 1997, a front page story in the *New York Times* reported that reading and math scores had improved in both the Cleveland and Milwaukee voucher programs. The only available source of information on test score results in Cleveland was the PEPG report. The *Times* story shows the degree to which the PEPG report is wrongly considered to be the official evaluation of the Cleveland program. In fact, the PEPG report is a privately funded effort that was not commissioned by the Ohio Department of Education.

Although it is titled "An Evaluation of the Cleveland Scholarship Program," the PEPG report describes test score results only from Hope Central Academy and Hope Ohio City Academy. The test results reported are expressed as percentile gains on fall-to-spring testing. It reports overall K-3 percentile gains of 5.6 (reading), -4.5 (language), 11.6 (math total), and 12.8 (math concepts).

The testing regimen whose results are described in the PEPG report was rejected as unsound practice years ago for Federal Chapter I evaluations.⁷¹ Most schools gain every spring and fall back the next autumn. For fall-to-spring changes in test scores to be meaningful, a carefully chosen comparison group must also be tested. The PEPG analysis has no such comparison group. Instead, it makes a comparison to low-income Milwaukee voucher applicants (whose

results are not from the same test used by the Hope schools). Therefore, the results reported contribute little to an understanding of how voucher programs might affect student achievement.

Most of the PEPG report details the results of a telephone survey of program applicants. The survey results reported are generally consistent with Witte's findings in Milwaukee that voucher program participants are well satisfied with the program. In the Cleveland survey, parents listed academic quality as their most important reason for participating.

Vouchers, Values, and Educational Equity

While no strong evidence exists that voucher programs improve student achievement, all parties to the voucher debate at least agree that improving achievement is a desirable goal. But achievement is not the only issue in the debate. People favor or oppose vouchers in part because they hold different social and political values. Professor Peter Cookson (Teacher's College, Columbia University) calls the battle over school choice a struggle over the "soul" of American public education.⁷² Jeffrey Henig sees in the struggle a conflict over the type of society Americans want to call into being.⁷³ Some observers perceive public schools to have symbolic value as a community institution. In smaller towns, for example, the public high school's athletic teams are community institutions whose support extends beyond the school's students and alumni. In addition, the public character of the school, as expressed, for example, in its availability as a place for meetings, local theater groups, or adult-education programs, contributes to the school's value to the broader community. Private schools may have considerable symbolic value for their students, parents, and alumni, but rarely for others. By increasing the number and enrollment of private schools, while decreasing those of public schools, large-scale voucher programs would diminish the symbolic value of public schools. In so doing, they could reinforce social fragmentation of the American community along ethnic and racial lines. (This possibility is hinted at by the fact that most Hispanics in Milwaukee went to just one Choice school.) Large-scale voucher programs may also have the potential to increase inequality and the stratification of students by family income as well as social background. This concern is supported both by theoretical arguments and by empirical evidence on large-scale school-choice programs. (Programs the size of the one in Milwaukee are too small to have much effect on inequality.) To see how a large-scale voucher program could make school quality and student achievement more unequal, suppose that public schools were replaced by a voucher program.⁷⁴ If total spending remained the same as in the public school system, the voucher would be less than the amount formerly spent per student in the public schools because students in private schools who formerly received no public support would now receive a share of this money. For the families of students who previously attended a high-quality private school, the voucher would be equivalent to an increase in income. These families would be likely to spend some of that extra income on better schooling. At the other extreme, students with the lowest level of academic achievement -- and whose parents tend to place less priority on education -- would receive a voucher lower than the per-student investment within the public school system. The parents of these students would be unlikely to supplement the voucher amount with their own money. If money strongly predicts school quality, these students would, under a voucher system, attend schools inferior to current public schools.

There are two ways to escape the conclusion that vouchers will increase the polarization of educational opportunity. First, if the total investment in public schools increased enough to more than compensate for the spending on students who now attend private school, low-income students might benefit. This seems an unlikely scenario and no current proposal recommends vouchers this large. Second, vouchers might not increase polarization if private schools operated more efficiently than public schools. As we have seen (Box 3), no clear evidence exists that private schools operate more efficiently. Of course, the current public school system stratifies students by family income and educational background. One of the most important means by which this stratification occurs is residential choice. The more affluent, educated, and committed to education seek to live where their children can attend good schools. The children of the poor are then often left behind to struggle in substandard, underfunded schools. In his 1995 book, *Private Vouchers*, Terry Moe, one of the most prominent voucher advocates, argues that vouchers are a force for greater educational equity because they provide poor students with a choice of schools.⁷⁵ In a voucher system, however, families would sort themselves among schools on the basis of income, educational preferences, and knowledge about

schooling. Under the current system, families who send their children to public schools sort themselves among residential locations (and, therefore, school districts) on the basis not only of these factors, but also others, such as the cost and quality of housing, distance to work, and availability of recreational opportunities. For this reason, private schools under a large-scale voucher program are likely to be more internally homogenous (with respect to students' socioeconomic background) than are public schools under the current system. With public schools, some of the poor get a chance to attend the same schools as their middle- and upper-income peers. With large-scale voucher programs, fewer of the poor are likely to have this opportunity. Vouchers would then be a force for educational inequity.

Although not inherent in voucher systems, there are additional features of most voucher proposals that would worsen educational inequity. Most voucher proposals propose considerably lower levels of funding than would result from giving students a per capita share of current spending on education. With this funding, children of affluent parents already in private schools could still spend more than they do currently on education. Children of poor parents would have an even smaller amount to spend on their education. Second, most proposals, including the Milwaukee program, in effect allow private schools to exclude some special needs students, because the schools need not provide services on which those students depend. Some proposals, unlike Milwaukee, would allow schools complete authority over who to admit, and who to exclude. Terry Moe acknowledges the danger that this poses. He argues that it can be addressed through careful attention to the design of voucher programs.⁷⁶

The available empirical evidence supports the contention that vouchers may reduce educational equity. In 1992, the Carnegie Foundation released *School Choice*.⁷⁷ Carnegie researchers visited choice programs around the country, surveyed more than 1,000 parents, and reviewed other studies of school choice. Except for Milwaukee's private voucher program, all of the programs in the Carnegie study were public school choice programs. The Carnegie report concluded that:

- (1) To the extent that choice programs benefit children at all, they benefit the children of better educated parents,
- (2) That the choice programs require additional money to operate,
- (3) That choice programs have the potential to widen the gap between rich and poor school districts, and
- (4) That school choice does not necessarily improve student achievement.

Bruce Fuller, in a 1995 review of the data available on selected choice programs around the country for the National Conference of State Legislatures, drew conclusions similar to those contained in the Carnegie report.⁷⁸

After a review of the research on school choice in three countries (the U.S., Great Britain, and New Zealand), Geoff Whitty finds little evidence to support the contention that the creation of educational markets increases student achievement. He does, however, find that educational markets make existing inequalities in the provision of education worse.⁷⁹ Carnoy draws a similar conclusion based on an analysis of the effects of school privatization in Chile and other countries.⁸⁰

In conclusion, the evidence from Milwaukee and Cleveland reviewed earlier suggests that vouchers have, at best, an uncertain upside. If vouchers could increase educational inequity and social fragmentation, they have a potentially large downside.

BOX 7: DOES MONEY MATTER? SCHOOL SPENDING AND SCHOOL OUTCOMES

Debates about vouchers and class size both touch on a controversial recent debate about whether higher spending improves performance in schools. The holy grail for voucher advocates is improved performance without spending more money. Evidence that money doesn't matter points them to the public education bureaucracy as the problem and to vouchers as a way of achieving better outcomes without necessarily spending more in the long run. Smaller class size, by contrast, would cost more money. The question is whether the performance improvement that results is worth the cost.

University of Rochester Professor Eric Hanushek launched the debate about whether money matters by claiming, based on an extensive analysis of the literature, that "there is no strong or systematic relationship between school expenditures and student performance."⁸¹ The studies Hanushek analyzed attempt to determine the relationship between resource inputs, especially money, and school outcomes. Hanushek's conclusion has been challenged by Hedges, Laine and Greenwald (University of Chicago) based on a meta-analysis of the same studies as Hanushek.⁸² Hedges, Laine, and Greenwald find that there is a systematic and educationally important relationship between resources and student achievement. The studies on which both Hanushek and Hedges, Laine, and Greenwald rely have been criticized for being poorly designed, based on non-representative samples, and focused on funding-related characteristics instead of funding as such.⁸³

Two other recent strands of literature shed light on the "money matters" debate. While Hanushek's research takes off from the premise that spending on public education has increased rapidly but test scores have not, as noted above, Richard Rothstein's work shows that spending on public education has increased less quickly than generally believed.⁸⁴ Moreover, Rothstein estimates that special education spending accounted for 38 percent of net new K-12 spending from 1967 to 1991. The ability of voucher schools in Milwaukee to reject students with exceptional educational needs not only enables the private schools to focus on regular education; it also requires the Milwaukee Public Schools to spend a higher share of funds on special education.

Bruce Biddle (University of Missouri) takes up the question of money in two ways.⁸⁵ He uses child poverty data and data on the educational spending of states to study the effects of these two factors on 8th grade math performance. He finds that school funding and child poverty account for 55 percent of the variation in average math achievement among states.

Biddle's findings are in line with results of an earlier study by Ronald Ferguson.⁸⁶ Using data from 1986–1990 on 90 percent of the school districts in Texas, Ferguson found that average class size, teacher experience, and the academic ability of teachers accounted for between one quarter and one third of the variation in the reading achievement levels of Texas school districts. He also found that smaller class size and more qualified teachers were more likely to be found in districts that had higher levels of funding.

In a more recent study of fourth and eighth grade math achievement, Harold Wenglinsky (Educational Testing Service) considered how money matters when applied to the funding of school districts.⁸⁷ He found that school districts with more students from the least affluent backgrounds have the largest class sizes and are, therefore, least able to raise student achievement. These districts also have the least to spend on central administration. In his analysis, under-funded central administrations ordinarily spend less money on reducing class size and more money on projects with little academic payoff.

Wenglinsky's conclusion that a low pupil-teacher ratio creates a positive classroom social environment and increases math achievement affirms what many parents already appear to know.

According to David Figlio and Joe Stone, the higher the public school student-teacher ratio in an area, the more likely that parents will send their children to private schools (especially private non-religious schools). Conversely, the

higher the private school student–teacher ratio, the more likely parents are to send their children to public schools.⁸⁸ This finding suggests much of the debate over the relative merits of public vs. private schools per se may be beside the point.

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³³ Jay P. Greene, Paul E. Peterson, and Jiangtao Du with Jeesa Boeger and Curtis L. Frazier, "The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation," August 14, 1996, Occasional Paper, Program in Education Policy and Governance, Center for American Political Studies, Department of Government, Harvard University; Jay P. Greene, Paul E. Peterson, and Jiangtao Du, "Effectiveness of School Choice: The Milwaukee Experiment," Occasional Paper 97-1, Program in Education Policy and Governance, Center for American Political Studies, Department of Government, Harvard University March, 1997.

³⁴ Rouse, "Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program," *Quarterly Journal of Economics*, forthcoming.

³⁵ Milwaukee Parental Choice Program, Wisconsin Legislative Audit Bureau Audit Summary Report 95-3.

³⁶ Milwaukee Parental Choice Program, Wisconsin Legislative Audit Bureau Audit Summary Report 95-3.

³⁷ The value of a MPCP voucher went up largely because the state has, since 1995, assumed a larger share of local education costs, leading to a large increase in per-pupil state aid to Milwaukee.

³⁸ Ken Black, Milwaukee Public Schools Senior Budget Analyst, telephone interview December 19, 1997.

³⁹ Brent Staples, "Schoolyard Brawl: The New Politics of Education Casts Blacks in a Starring Role," *The New York Times*, Section 4A (Education Life), January 4, 1998, p. 49.

⁴⁰ Greene, Peterson, and Du, "The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation," p. 6.

⁴¹ Witte, Thorn, Pritchard, and Clairborn, Fourth-Year Report.

⁴² William N. Evans and Robert M. Schwab, "Finishing High School and Starting College: Do Catholic Schools Make a Difference?" *Quarterly Journal of Economics* 110 (November 1995): 941-74. See also James S. Coleman, Thomas Hoffer, and Sally Kilgore, *High School Achievement: Public, Catholic, and Private Schools Compared*. (New York: Basic Books, 1982.)

⁴³ Dan D. Goldhaber, "Public and Private High School: Is School Choice an Answer to the Productivity Problem?" *Economics of Education Review*, pp. 93-109.

⁴⁴ David N. Figlio and Joe A. Stone, "School Choice and Student Performance: Are Private Schools Really Better?" Madison: Institute for Research on Poverty, Discussion Paper 1141-97, September 1997.

⁴⁵ Cecilia Elena Rouse, "Schools and Student Achievement: More Evidence from the Milwaukee Parental Choice Program," Princeton and NBER, December 1997 (forthcoming, *The Economic Policy Review*.)

⁴⁶ As the text indicates, each of the three research teams does other comparisons besides the one listed, in part because they have sometimes borrowed each other's methods as the debate over vouchers has proceeded.

⁴⁷ Rouse, "Schools and Student Achievement: More Evidence from the Milwaukee Parental Choice Program," p. 11.

⁴⁸ Witte, Sterr, and Thorn, Fifth-Year Report.

⁴⁹ Greene, Peterson, and Du, "The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation," p. 15.

⁵⁰ In addition to critiquing Witte's regression analysis for the reason we give in the next, GPD attacked a wide variety of aspects of Witte's reports. Rather than reviewing each point, the text of the present paper emphasizes the key issues remaining after the dust had settled—and after the researchers had modified their approaches in response to criticism. For the caustic back and forth between

Greene, Peterson, and Du and Witte, see, in addition to sources already cited: Paul E. Peterson, "A Critique of the Witte Evaluation of Milwaukee's School Choice Program," Center for American Political Studies Occasional Paper 95-2, Department of Government, Harvard University, 1995; John F. Witte, "A Reply to Paul Peterson's 'A Critique of the Witte Evaluation of Milwaukee's School Choice Program,'" University of Wisconsin, Department of Political Science, February 10, 1995; Paul E. Peterson, "The Milwaukee School Choice Plan: Ten Comments on the Witte Reply," Center for American Political Studies Occasional Paper 95-3, Department of Government, Harvard University, March 1995; John F. Witte, "Reply to Greene, Peterson, and Du: 'The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation,'" University of Wisconsin, Department of Political Science, August 23, 1996; and Jay P. Greene and Paul E. Peterson, "Methodological Issues in Evaluation Research: The Milwaukee School Choice Plan," paper prepared for the Program in Education Policy and Governance, Department of Government and Kennedy School of Government, Harvard University, August 29, 1996.

⁵¹ Greene and Peterson, "Methodological Issues in Evaluation Research," p. 3 and Table 1.

⁵² Witte, "Achievement Effects of The Milwaukee Voucher Program"; and Rouse, "Private School Vouchers and Student Achievement." pp. 10-11.

⁵³ Bruce Fuller, "It's Still Too Early to Judge School Vouchers," Letter to the editor *The New York Times*, May 17, 1997.

⁵⁴ Greene, Paul E. Peterson, and Jiangtao Du, "Effectiveness of School Choice: The Milwaukee Experiment," Table 3. See also Greene, Peterson, and Du, "The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation," p. 8 and, p. 19, table 4.

⁵⁵ Witte, "Achievement Effects of The Milwaukee Voucher Program." In 1994, Witte had also done his own analysis of students who applied unsuccessfully to Choice schools and found no significant differences in the performance of Choice students and unsuccessful applicants. Witte, Thorn, Pritchard, and Clairborn, Fourth-Year Report, p. 25.

⁵⁶ Rouse, "Private School Vouchers and Student Achievement," p. 23.

⁵⁷ Rouse gives an unusually clear explanation of her fixed effects approach in Cecilia Elena Rouse, "Schools and Student Achievement," pp. 8-9 and Figure 1.

⁵⁸ For her discussion of these, see especially Rouse, "Private School Vouchers and Student Achievement," p. 33 and p. 19.

⁵⁹ Rouse, "Schools and Student Achievement," p. 17.

⁶⁰ Terry Moe, ed., *Private Vouchers*. (Stanford, CA: Hoover Institution Press, 1995), p. 45.

⁶¹ Marie Rohde, "Minority Test Scores at Catholic Schools Mirror Lag in City," *Milwaukee Journal*, August 1, 1991.

⁶² Ernst-Ulrich Franzen, "Archdiocese Abolishes School System," *Milwaukee Sentinel*, January 27, 1994.

⁶³ Milwaukee Public Schools Governmental Relations Office, correspondence to the author, December 1 and 6, 1995.

⁶⁴ Emily Koczela, Timothy J. McElhatton, and Jean B. Tyler, *Public and Private School Costs: A Local Analysis* (Milwaukee: Public Policy Forum, 1994).

⁶⁵ Janet R. Beales and Maureen Wahl, "Private Vouchers in Milwaukee: The PAVE Program," in Terry Moe, ed., *Private Vouchers*, Stanford, California: Hoover Institution Press, 1995.

⁶⁶ Maureen Wahl, First-year Report of the Partners Advancing Values in Education Scholarship Program (Milwaukee: Family Service America, 1993); Maureen Wahl, Second-year Report of the Partners Advancing Values in Education Scholarship Program

(Milwaukee: Family Service America, 1994); Maureen Wahl, Third-year Report of the Partners Advancing Values in Education Scholarship Program (Milwaukee: Family Service America, 1995).

⁶⁷ Sammis B. White, Peter Maier, and Christine Cramer, Fourth-Year Report of the Partners Advancing Values in Education Scholarship Program, (Milwaukee: Urban Research Center, University of Wisconsin-Milwaukee, 1996).

⁶⁸ The description of the Cleveland Scholarship and Tutoring Program is based on documents provided by the Ohio Department of Education, discussions with Francis Rogers of the Ohio Department of Education, and Bert Holt of the Cleveland Scholarship and Tutoring Program, and Dan Murphy, F. Howard Nelson, Bella Rosenberg, The Cleveland Voucher Program: Who Chooses? Who Gets Chosen? Who Pays?, American Federation of Teachers, 1997.

⁶⁹ Murphy, Nelson, and Rosenberg, The Cleveland Voucher Program: Who Chooses? Who Gets Chosen? Who Pays?

⁷⁰ Jay P. Greene, William G. Howell, Paul E. Peterson, An Evaluation of the Cleveland Scholarship Program, Harvard University, Program on Education Policy and Governance, September 1997.

⁷¹ For a discussion of the problems posed by fall-to-spring testing in Chapter I programs see: Robert L. Linn, Stephen B. Dunbar, Delwyn L. Harnish, and C. Nicholas Hastings, "The Validity of the Title I Evaluation and Reporting System," in Ernest R. House, Sandra Mathison, James A. Pearsol, Hallie Preskill, ed., Evaluation Studies Review Annual, 7 (Beverly Hills: Sage Publications, 1982).

⁷² P.W. Cookson, School Choice: The Struggle for the Soul of American Education (New Haven: Yale University Press, 1994).

⁷³ Henig, Rethinking School Choice.

⁷⁴ Geoffrey Schneider, Bucknell University Department of Economics, unpublished notes and conversations with Keystone Research Center staff. The argument given in the text draws on Schneider's analysis but is not identical to it.

⁷⁵ Moe, ed., Private Vouchers.

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⁷⁷ School Choice (Princeton: The Carnegie Foundation for the Advancement of Teaching, 1992).

⁷⁸ Bruce Fuller, "Who Gains, Who Loses from School Choice: A Research Summary," policy brief, National Conference of State Legislatures, Denver: 1995.

⁷⁹ Geoff Whitty, "Creating Quasi-Markets in Education: A Review of Recent Research on Parental Choice and School Autonomy in Three Countries," in Michael W. Apple, ed., Review of Research in Education, 22 (Washington, D.C.: American Educational Research Association, 1997).

⁸⁰ Martin Carnoy, "Is School Privatization the Answer? Data from the Experience of Other Countries Suggest Not." Education Week, July 12, 1995.

⁸¹ Eric A. Hanushek, "The Impact of Differential Expenditures on School Performance," Educational Researcher, 18, (May 1989): 45-65.

⁸² Larry V. Hedges, Richard D. Laine, and Rob Greenwald, "Does Money Matter? A Meta-Analysis of Studies of the Effects of Differential School Inputs on Student Outcomes," Educational Researcher, 2,3 (April 1994): 5-14. For the continuing back and forth between Hanushek and his critics, see Eric A. Hanushek, "School Resources and Student Performance," in Gary A. Burtless (ed.). Does Money Matter? (Washington, D.C.: Brookings Institution, 1996); Erik A Hanushek, "Assessing the Effects of School Resources on Student Performance; An Update," Educational Evaluation and

Policy Analysis, 1962 (1997): 141–164; and Robert Greenwald, Larry V. Hedges, and Richard D. Laire, “The Effect of School Resources on Student Achievement,” *Review of Educational Research*, 66 (3) (1996): 391–396.

⁸³ Bruce J. Biddle, “Foolishness, Dangerous Nonsense, and Real Correlates of State Differences in Achievement,” *Phi Delta Kappan*, 79 (September 1997): 9-13.

⁸⁴ Rothstein, *Where’s the Money Gone? Changes in the Level of Education Spending*.

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[END OF EXCERPT 1]

The Argument Over Vouchers

Proponents of vouchers tend to base their position on three widely held beliefs about public education:

1. that educational outcomes have deteriorated,
2. that American public education costs have accelerated unreasonably, and
3. that the public schools cannot reform themselves because of bureaucratic and political constraints.

Each of these beliefs is subject to serious challenge. There is considerable evidence that educational outcomes have actually improved over the last 20 years. A 1993 report written by scientists at the Sandia National Laboratories found that U.S. public education performance was improving.² Between the 1970s and 1990, according to a 1994 RAND study, reading and math scores rose significantly for Hispanics and African-Americans.³ In a March 1998 article, Princeton University economist Alan Krueger reported that National Assessment of Education Progress (NAEP) exams reveal rising American public school performance over the past 20 years.⁴ For example, a student scoring in the 50th percentile today performs as well as the 56th-percentile student 25 years ago.⁵ The most disadvantaged students have made the greatest gains. Moreover, between the early 1970s and 1990, the black-white NAEP test-score gap for 17-year-olds decreased by almost half (before increasing slightly in the 1990s).⁶

Contrary to the second widely held perception driving support for vouchers, Richard Rothstein found that resources for regular classrooms at public schools have increased only modestly over the last several decades.⁷ Rothstein reached this conclusion by identifying expenditures on special education, transportation, and other activities outside the regular classroom. In a survey of nine school districts, he found that inflation-adjusted per-pupil spending for regular education rose by only 28 percent from 1967 to 1991. In Los Angeles, inflation-adjusted per-pupil spending on regular education declined by 3.5 percent over the same period. If this decline in spending for regular education typifies developments in urban areas, it may help explain worsening relative academic outcomes in some urban public schools. Rothstein's research also suggests that carefully targeted increases in spending on regular classroom instruction in urban areas may increase both parental satisfaction and student achievement.

Of course, national statistics about gradually improving performance and the stagnation of funds flowing to regular classrooms in urban school districts are of little comfort to parents convinced that their own children will not get the lift they need from the local public school.

Parents who want better schools for their kids now have been a receptive audience for the third widely held belief that underlies support for vouchers today: that public schools are incapable of reforming themselves because of bureaucratic and political constraints. This argument gained intellectual legitimacy with the 1990 publication of *Politics, Markets, and America's Schools* by John Chubb and Terry Moe.⁸ In their book, Chubb and Moe argued that private school vouchers are needed because private schools exhibit superior academic performance and because public school performance has not improved despite reforms instituted during the 1980's.⁹

Chubb and Moe's claims notwithstanding, the research literature contains no clear evidence that private schools are better than public schools. Moreover, since most of the studies in the literature on public versus private schools use data for secondary schools, they are of limited value in predicting the impact of voucher programs that, for the most part, involve private elementary schools.¹⁰

Many proponents of private school vouchers, such as Wisconsin Assembly member Annette "Polly" Williams, author of the Milwaukee Parental Choice Program legislation, link vouchers to their desire to empower poor families and raise the academic achievement of poor children. They argue that vouchers may improve achievement by forcing the

public schools to compete in an educational marketplace in which poor parents hold the power of the purse. What does the research evidence show?

The Milwaukee Parental Choice Voucher Program

Private school vouchers have been debated at the state level for over 20 years. However, voucher legislation has become law in only three states, Wisconsin (1990), Ohio (1995), and now Florida (1999).

Wisconsin established the country's first publicly funded private school voucher program in Milwaukee. Today, the Milwaukee Parental Choice Program (MPCP) is the voucher program for which the greatest volume of systematic data is available.

The MPCP initially allowed up to 1 percent of low-income Milwaukee Public School students (about 1,000 students) to attend participating private, non-sectarian schools within the city (Table 1). The program defined "low-income" as below 175 percent of the official U.S. poverty line. Each child attending a private school in the program receives a voucher worth the per-pupil equalized state aid to the Milwaukee Public Schools, originally set at \$2,446 and currently \$4,894 (in 1998-99). The Wisconsin legislation that created Milwaukee's Choice program provided for yearly evaluations of the academic achievement of students attending Choice schools.

**Table 1: Milwaukee Parental Choice Program Profile
1990-1999**

Milwaukee Parental Choice Program Profile 1990-1999						
School Year	Number of Schools	Number of Applications	Average # of Voucher Students*	Voucher Amount	Total Cost of Vouchers (millions)	Annual Attrition Rate
1990-1991	7	577	300	\$2,446	\$0.73	0.46
1991-1992	6	689	512	\$2,643	\$1.35	0.35
1992-1993	11	998	594	\$2,745	\$1.63	0.31
1993-1994	12	1049	704	\$2,985	\$2.10	0.27
1994-1995	12	1046	771	\$3,209	\$2.47	0.28
1995-1996	17		1288	\$3,667	\$4.61	
1996-1997	20		1616	\$4,373	\$7.07	
1997-1998	23		1497	\$4,696	\$7.03	
1998-1999	88‡		5806**	\$4,894	\$28.41**	

*Calculated as the average of September and January memberships, plus summer school membership.

**Estimate.

‡There are three schools within one organization: Seeds of Health.

Sources: State of Wisconsin Department of Public Instruction web page, <http://www.dpi.state.wi.us/dpi/dfm/sms/histmem.html>; and John F. Witte, Troy D. Sterr, and Christopher A. Thorn, *Fifth-Year Report: Milwaukee Parental Choice Program* (Madison, WI: The Robert M. La Follette Institute of Public Affairs, University of Wisconsin-Madison, December 1995).

In 1993, the Milwaukee Parental Choice Program was modified to raise (effective 1994-95) the number of students who could participate from 1 percent to 1.5 percent of the Milwaukee Public School population (i.e., to about 1,500 students). A 1995 change allowed religious schools to participate in the MPCP and raised the eligibility ceiling to 7 percent of the Milwaukee Public School enrollment in 1995-96 and 15 percent in 1996-97.

The 1995 revision of the MPCP, deemed constitutional by the Wisconsin Supreme Court on June 10, 1998, does not require that the schools participating in the program gather the achievement data necessary for a comprehensive evaluation. Because the necessary data are unavailable, no evaluation of the achievement impact of the program since 1995 has been conducted. Although the Wisconsin Legislative Audit Bureau is required to issue a report in the year 2000, no meaningful evaluation of the achievement impact of the program since 1995 is likely in the future.

The Achievement Effects of the Milwaukee Voucher Program

The 1998 Keystone report contained an extended discussion, summarized only briefly below, of the findings of research on the Milwaukee voucher program.¹¹ Since the release of that report, no new research has been published on the program (although the head of the official evaluation team, John Witte, did publish a new synthesis of his prior work).¹²

In considering the Milwaukee voucher program's achievement effects, three features should be kept in mind that make the program difficult to evaluate.

1. During each of the evaluation years (1990-95), the program enrolled less than 800 students (Table 1).
2. The parents of the 300-800 students in the program during the evaluation years had more education and higher academic expectations than the parents of most of the other 60,000 eligible Milwaukee Public School students. It is possible that students of parents with more education and higher expectations would achieve faster whether in public schools or voucher schools.
3. More than 80 percent of Milwaukee voucher students in the evaluation years attended three schools with established reputations. At best, the Milwaukee voucher experiment tells us something about how these particular private schools compare with the Milwaukee public schools as a group. It indicates nothing about the impact of a larger-scale voucher program in which some students attend new private schools.

Keeping these program characteristics in mind, the following conclusions about the achievement consequences of the MPCP can be drawn from the results of the three research teams that analyzed the Milwaukee data.

1. Disagreement exists about whether the voucher program generates positive achievement outcomes compared to the Milwaukee Public School system. Two of three research teams, including the methodologically most sophisticated (Cecilia Rouse of Princeton University), found no positive outcomes for the voucher students in reading. Two of three research teams, including Rouse, found positive outcomes for voucher students in math.
2. Rouse found that a group of Milwaukee public schools that have small classes and serve low-income students perform as well as voucher schools in math and better than voucher schools in reading. Rouse also discovered that voucher schools appear to have smaller classes than any of three sub-groups of Milwaukee public schools. Thus, any achievement benefit of voucher schools compared to the Milwaukee Public School system overall may be a result of smaller classes rather than any inherent advantage of private over public schools. Rouse's final word on the Milwaukee voucher program is:

If we really want to “fix” our educational system, we need a better understanding of what makes a school successful, and we should not simply assume that market forces explain sectoral [i.e., public-private] differences and are therefore the magic solution for public education.¹³

The Cleveland Scholarship and Tutoring Program (CSTP)

Ohio enacted the Cleveland Scholarship and Tutoring Program (CSTP) legislation in March 1995 (Table 2 profiles the program).¹⁴ The CSTP legislation allowed the Ohio Superintendent of Public Instruction to create a pilot voucher program in Cleveland. The Cleveland program is largely supported by money from Ohio’s Disadvantaged Pupil Impact Aid Program, previously earmarked for the Cleveland Public Schools.

Scholarship recipients are selected by lottery with priority going to applicants whose family income is less than the Federal poverty level. Second priority goes to families whose income is less than twice the poverty level. There is no income cap on participation.

The approximately 30,000 K-3 students who reside within the Cleveland School District are eligible to apply to the program. Once admitted to the program, students may receive scholarships through eighth grade.

Since the Cleveland voucher program allows religious schools to participate, its constitutionality was immediately challenged. On July 31, 1996, the Franklin County Court of Common Pleas held the program constitutional and allowed it to be implemented. On May 1, 1997, an Ohio appeals court ruled the program unconstitutional. The Ohio Supreme Court allowed the program to go forward while it considers an appeal. It has not yet issued a ruling.

**Table 2: Cleveland Scholarship and Tutoring Program Profile
1996-1999**

Cleveland Scholarship and Tutoring Program Profile* 1996-1999						
School Year	Number of Schools	Number of Applications	Number of Voucher Students**	Average Value of Voucher	Total Cost of Vouchers (millions)	Annual Attrition Rate
1996-1997	56	6,244	1,994	\$1,750	\$3.18	17%
1997-1998	57	6,811	1,289	\$1,776	\$4.74	14%
1998-1999	60	4,429	1,320	Not available	Not available	Not available

*Includes figures only for the voucher component of the program, not the tutoring component.

**As of June for each school year.

Source: Ohio Department of Education.

On June 24, 1997, Professor Paul Peterson of Harvard issued a press release that some observers interpreted to mean that his research team was conducting the official evaluation of the Cleveland program. In fact, his study was privately funded, not commissioned by the Ohio Department of Education.

Three months later, in September, Peterson and co-authors Jay Greene and William Howell (PGH) released a report that analyzed test scores from two private schools, Hope Central Academy and Hope Ohio City Academy. The achievement results were expressed as percentile-rank changes on fall (1996)-to-spring (1997) testing. PGH report overall K-3 percentile-rank changes of +5.6 (reading), -4.5 (language), +11.6 (math total), and +12.8 (math concepts). Most schools, however, gain every spring and fall back the next autumn. Indeed, as PGH report in a subsequent paper, by fall 1997 no significant gains for Hope students were observed in math concepts and no gains were observed in language. (Significant gains were still observed in total math and reading scores.¹⁵) More important, for changes in test scores to be meaningful, a carefully chosen comparison group must also be tested. The September 1997 PGH analysis had no such comparison group. Instead, it made a comparison to low-income Milwaukee voucher applicants whose results were not from the same test used by the Hope schools. The September 1997 PGH evaluation is so flawed that it contributes little if anything to an understanding of how voucher programs might affect student achievement.

Official Evaluation Results for Cleveland Scholarship and Tutoring Program

The legislatively mandated independent evaluation of the Cleveland Scholarship and Tutoring Program is being conducted by an Indiana University research team headed by Professor Kim Metcalf. This team published reports on the program's first year (1996-97) in March 1998 and second year (1997-98) in November 1998.¹⁶

To evaluate the Cleveland voucher program, Metcalf's team compared the test scores of third-grade voucher recipients with those of Cleveland Public School students, controlling for prior test scores and family characteristics. In 1996-97, the Metcalf evaluation examined third grade performance because that was the lowest grade for which usable test data (from second grade) existed to measure student ability prior to the voucher experiment.

The first-year official evaluation report found that, after controlling for background characteristics, third-graders participating in the voucher program in 1996-97 did not achieve at a higher level (on reading, language, mathematics, science, and social studies tests) than students who remained in the Cleveland Public Schools. The second-year report (1997-98) found that fourth-grade students in the voucher program achieved significantly better than their public school counterparts in science and language. When classroom variables (e.g., class size, teacher experience, and teacher level of education) are accounted for, the voucher students achieved significantly higher scores only in language.

The Peterson team criticized the Metcalf team's first-year report for several reasons.¹⁷ PGH argued against the use of second grade test data as a control for student performance prior to the voucher program on the grounds that these test results "lack plausibility." PGH deemed these test scores implausible because the scores showed low-income, largely single-parent families performing close to the national average in the second grade and then scoring at substantially lower levels the next year. PGH also maintained that the second-grade test scores have implausibly weak correlations with family background characteristics. Leaving out the second-grade test scores, however, means that any comparison of voucher student achievement with that of public school students takes no account of differences in student performance prior to the program. Moreover, if the second-grade test scores were uniformly inflated for both voucher students and those who remained in the Cleveland Public Schools (e.g., because second-grade public schools "teach to the test"), they would still be a good control measure.

PGH also maintained that the Metcalf evaluation team should have included student scores from the Hope schools, since 25 percent of voucher students went to these newly created schools. Metcalf's team had excluded the Hope schools because their students took a different test than the public school students and students at other voucher schools. An additional problem with including Hope students is that approximately 58 of the 155 Hope students tested in the spring of 1996 appear not to have been tested in the fall of 1997, an unusually high attrition rate. Without information on the characteristics of these students it cannot be known what impact their absence may have had on the results reported.

When PGH reanalyzed the official data excluding the second-grade test scores and including the Hope students with converted scores, they found that voucher students scored significantly higher in language and science, but not significantly higher in math, reading, or social studies. When the second-grade test scores were included, the Peterson team found results consistent with those of the official evaluation team: voucher students did not score significantly higher than their public school counterparts at conventional levels of statistical significance. Using a lower statistical significance threshold than conventional (the .10 level, a 10 percent chance that the results could have occurred by chance), PGH found that voucher students did better in language and science, but not in reading, math, and social studies.

The second-year (1997-98) Metcalf team evaluation also found that not all schools participating in the voucher program had similar achievement results. Students attending established private schools were responsible for the voucher student achievement advantage in science and language. Students in the newly established private Hope schools scored significantly lower than their public school counterparts in all tested areas.

The finding that student performance in the new voucher schools is significantly worse than student performance in public schools raises serious questions about the viability of voucher programs as a large-scale education reform. Existing private schools may produce benefits for low-income students by placing them with a majority of students from more privileged or more academically oriented backgrounds. The adoption of large-scale voucher programs may, however, alter the social context that produces whatever achievement benefit there may be for low-income minority students in attending private schools.¹⁸

Private Voucher Programs

Voucher programs supported by private sources provide another potential source of information on the educational consequences of vouchers. In 1998-99 there were 41 privately funded voucher programs in the United States, according to Troy Williamson of the CEO America Foundation (interview, March 29, 1999). There have been few systematic efforts to study the impact these programs are having on student achievement. This section describes those programs for which achievement data exist or for which an evaluation plan that will provide achievement information has been adopted.

Milwaukee: Partners Advancing Values in Education (PAVE)

Perhaps the country's largest private program operates in Milwaukee. Partners Advancing Values in Education (PAVE) -- formerly the Milwaukee Archdiocesan Education Foundation -- was founded in 1992. PAVE provides low-income families with scholarships worth half of the tuition charged by a private religious or non-sectarian school up to a maximum of \$1,000 for elementary and middle school students and \$1,500 for high school students. PAVE's major donors include the Lynde and Harry Bradley Foundation, TREK Corporation, CEO America, Johnson Controls, Northwestern Mutual Life Insurance Co., Siebert Lutheran Foundation, and Wisconsin Electric Power.

Of the five evaluations of the PAVE program, only the 1994 report made a serious effort to determine the program's effect on student achievement.¹⁹ The 1994 evaluation suggested that students who attended private schools for their entire school career achieved at higher levels than students who transferred from a public school into a private school participating in the PAVE program. Further, the evaluation suggested that the longer transfer students stayed in participating private schools the greater their achievement.

Unfortunately, since the data gathered depended entirely on the voluntary cooperation of parents, the findings are suspect and no conclusion can be drawn from the evaluation's results.

Indianapolis: The Educational Choice Charitable Trust

The Educational Choice Charitable Trust was established in 1991 with a \$1.2 million grant from J. Patrick Rooney, Chairman and CEO of Golden Rule Insurance Company. The Trust provides educational vouchers worth half the cost of private school tuition up to a maximum of \$800. Families with children who qualify for the free or reduced-price lunch program and live in the Indianapolis school district are eligible. Half the money in the program was reserved for families whose children were in private schools prior to the creation of the program.

In March 1996 the Hudson Institute issued a report by David Weinschrott and Sally Kilgore assessing the impact of the program.²⁰ Public school students, but not voucher students, showed a drop-off in reading, language, and math scores in sixth and eighth grade.

Weinschrott and Kilgore described their evaluation framework as "informal." It was based on a small number of voucher students enrolled in a handful of voucher schools. The analysis did not control for differences in student characteristics, test scores prior to the voucher program, or other potentially significant variables that may have influenced the findings.

The New York School Choice Program

The New York City School Choice Scholarships Foundation (SCSF) was established in 1997 with \$5 million of its \$7 million commitment coming from New York businesspeople. SCSF offers tuition vouchers worth up to \$1,400 to students whose family income makes them eligible for the free school lunch program. Eighty-five percent of the scholarships are reserved for public school students whose test scores are below the citywide median. In its first year (1997-98), the program offered scholarships for up to 1,300 students and actually placed about 1,200 students in private schools. In 1998-99, an additional 1,000 students participated in the program. SCSF has made four-year commitments to the current participants and will add more students as funding permits.

Of parents expressing interest in the program, a randomly selected group were interviewed to determine their eligibility, while their children (except for kindergartners) were administered the Iowa Test of Basic Skills in reading and math. A lottery determined which eligible students would be offered vouchers.

In the spring of 1997, Mathematica Policy Research and Paul Peterson of the Harvard Program on Education Policy and Governance began a three-year evaluation of the performance of students entering the New York SCSF Program in 1997-98.²¹ The evaluation examines two issues. (1) It compares the achievement of about 750 students who used vouchers with that of 960 students whose families sought but did not receive a scholarship. (Ten percent of the non-voucher students ultimately attended private school anyway.) (2) The evaluation also compares the achievement of 1,000 students offered a voucher, including some students that did not use one, with that of the same control group of 960 students.

A limitation of the first comparison is that although a random group of students received scholarship offers, a non-random group appears to have accepted offers. According to Peterson, Myers, and Howell (PMH), families that used scholarships had higher incomes and more education than families that did not use scholarships.²² PMH used standard statistical procedures to control for differences between voucher users and students not offered a scholarship. However, they did not provide enough information about these procedures to permit a complete evaluation of them.

The second comparison gets around the non-random nature of the group that actually used scholarships by taking advantage of the “natural experiment” resulting from the use of a random lottery to select those offered vouchers. As a result of this lottery, the background characteristics of those offered scholarships and of those not offered scholarships may be assumed to be, on average, the same. Any differences between the two groups can be attributed to the “offer” of a scholarship. This comparison, however, is somewhat difficult to interpret. Why would the offer of a scholarship be expected to make a difference to the performance of students who do not actually accept the scholarship?

In November, 1998, PMH released first-year evaluation results. They found that being offered a voucher raised performance significantly in math in second, third, and fifth grades, and in reading in fifth grade. In third grade, being offered a voucher was negatively correlated with math and reading achievement but not significantly so. The effect on achievement of actually receiving a voucher was statistically significant in math in second, fourth, and fifth grade, and in reading in fifth grade. In third grade, receiving a voucher was negatively correlated with math and reading achievement but not significantly so. PMH increased the number of so-called significant results by using a statistical method that requires assuming vouchers can increase but not decrease student achievement.²³ The conflicting results reported in the literature on vouchers and public versus private schools make this assumption questionable. Without this assumption, only the results for fourth-grade math, fifth-grade reading, and combined fourth- and fifth-grade math are significant. In addition, the differences between the results across grade levels are hard to interpret. This suggests that the results should be treated with caution until more data are available. Since the PMH evaluation of the New York SCSF program constructs comparison groups, it is more informative than the PGH analysis of the two Hope Schools in Cleveland. However, as PMH acknowledge, their SCSF evaluation involved a small number of students and the impact of a much larger program could have quite different program outcomes. A number of characteristics of the schools attended by voucher students in the New York experiment might not exist in a large-scale experiment. For example, compared to the schools attended by the control group, the voucher schools had small classes and were somewhat more racially integrated. Parents perceived that voucher schools had fewer problems with safety, fighting, cheating, missing classes, being late for school, and destroying property. The frailty of positive findings from participation in voucher programs is suggested by the ad hoc and inconsistent ways that Peterson and co-authors explained findings from New York and from Milwaukee. In their analysis of the Milwaukee Parental Choice Program, Greene, Peterson, and Du found significant achievement effects only for students who had been in the program for three or four years.²⁴ They hypothesized that participation in a voucher program has a cumulative effect, with positive results only appearing in the third and fourth years, after students have been socialized in their new setting. In discussing the New York program, Peterson, Myers, and Howell hypothesized that they found significant results only for fourth- and fifth-grade students because vouchers are a more potent intervention for older students. They added that smaller classes may be more potent for younger students -- an explanation at odds with the fact that students at voucher schools in the New York program attended smaller classes than students in the control group.

In discussing their first year New York results, PMH argued that the magnitudes of the positive achievement effects observed “do not differ materially from those observed in” the Tennessee class-size reduction program.²⁵ This comparison is problematic because of the instability of most of the SCSF findings compared with the Tennessee results. Charles Achilles, one of the Tennessee experiment principal investigators, pointed out that since the students in the SCSF evaluation are about 95 percent minority, it might be more appropriate to compare SCSF effect sizes with the effect sizes observed for Tennessee minority students.²⁶ When this comparison is made, the Tennessee effect sizes (between .30 and .40) are much larger and much more stable than the effect sizes reported by PMH (-.09 to .27).

The Washington (D.C.) Scholarship Fund

The Washington Scholarship Fund (WSF) was established in 1993 to provide vouchers to low-income students. Its funding comes from a variety of individuals including John Walton and Ted Forstmann and foundations such as the Lynde and Harry Bradley Foundation. In the fall of 1997, 460 WSF participants were attending 72 private schools. Beginning with the 1998-99 school year, the program planned to offer vouchers worth up to \$2,200 to more than 1,000 students in grades K-8. No family with an income higher than 2.5 times the poverty level may participate. Families with incomes that fall below the poverty line are eligible for vouchers worth up to 60 percent of the cost of private school tuition.

Parents Advancing Choice in Education (Dayton, Ohio)

For the 1998-99 school year, the Parents Advancing Choice in Education (PACE) program in Dayton, Ohio, offered vouchers to 530 students previously enrolled in public schools and 250 students previously enrolled in private schools. The program pays up to 60 percent of the tuition at one of 20 private schools participating in the program, up to a maximum of \$1,200. The program is funded by the Thomas B. Fordham Foundation and a consortium of Dayton community leaders.

The WSF and PACE programs are being evaluated by the Harvard Program on Education Policy and Governance, the Northern Illinois University Social Science Research Unit, and (for the PACE program only) the University of Dayton.²⁷ In each program, a randomized design similar to that used to evaluate the New York School Choice Scholarship program is being implemented. At this point, no achievement data are available for either program.

San Antonio Private Voucher Programs

San Antonio has two private voucher programs, both of which are funded by the CEO America Foundation. The first began in 1992 and offers a voucher worth up to half the cost of tuition (to a maximum of \$800) to any K-8 student eligible for free or reduced-price lunches who resides in Bexar County, Texas. Students may attend public or private schools. Godwin, Kemerer, and Martinez compared the effects of public school choice and private voucher programs in San Antonio.²⁸ The small number of students (85) for whom baseline (1991-92) and final-year (1995-96) test score data were available and the limited nature of the results make their achievement findings of little value.

In April 1998 the CEO America Foundation and James Leininger committed \$50 million over a period of 10 years to launch the Horizon Program. It is the first private voucher program in the country to offer a voucher to every low-income student within a single school district (the Edgewood Independent School District in San Antonio, Texas). Any K-12 student who is eligible for a free or reduced-price lunch and who resides in the district may participate. Vouchers may pay up to 100 percent of a participating school's tuition, to a maximum of \$3,600 (grades K-8) for schools in the district and a maximum of \$2,000 (grades K-8) for schools outside the district. For grades 9-12 the program pays up to \$4,000 for schools in the district and up to \$3,500 for schools outside the district.²⁹

The evaluation of the Horizon Program is to be conducted by David Myers (Mathematica Policy Research), Paul Peterson (Harvard University), Jay Greene (University of Texas), and Rodolfo de la Garza (Thomas Rivera Policy Institute). Beginning with the 1998-99 school year, the evaluation will compare the Edgewood School District to three similar school districts on a number of dimensions including student achievement. The first evaluation is due to be issued in 1999. When this report went to press, no detailed information on the evaluation design was available.

Vouchers and Educational Equity

The gap in funding between affluent and low-income districts in Pennsylvania already exceeds that in most other states. As of 1991-92, the last year for which comparable data have been collected for all 50 states, Pennsylvania had the 11th-largest gap in state and local funding per pupil between high-income and poor districts.³⁰ A major concern with vouchers is that they could further increase funding inequities and the stratification of students by income, race, and social background.

Vouchers could increase inequity by diverting money from students currently served by the public schools to students who already go to private schools. For example, rather than providing Milwaukee Public School children with choice, the expansion of the Milwaukee voucher and charter school programs appears to be diverting money from children in the public schools and subsidizing families who were already sending their children to private schools. According to Henry Levin (Stanford University), the 5,902 students enrolled in either charter or voucher schools cost the Milwaukee Public Schools \$29,214,900 in revenue in 1997-98. Of the 5,902 voucher and charter school students, only 1,379 had attended the Milwaukee Public Schools the previous year.³¹

Levin estimated that a national voucher program that included all current private school students and that offered the full range of services provided by public schools would cost \$33 billion annually. The costs of accommodating additional students in private schools, record-keeping and monitoring, and providing transportation would add another \$40 billion, bringing the total to \$73 billion, about 25 percent of the current cost of public education nationally.

New evidence from Arizona corroborates the fear that a large-scale school choice program may increase stratification in the schools based on income, race, and ethnicity. Casey D. Cobb and Gene V. Glass found that Arizona charter schools are increasing racial segregation in public education. Minority students are disproportionately enrolled in charter schools with non-college-preparatory curricula.³² Large-scale voucher programs would share many of the characteristics of Arizona's largely unregulated charter school program and may, therefore, similarly reduce educational equity.

There is evidence that all school choice programs, public school choice as well as voucher and charter school programs, increase student stratification by income and other family background characteristics but do not necessarily produce academic gains.

Godwin, Kemerer, and Martinez, in their analysis of the characteristics of families that chose to participate in either public or private school choice programs in San Antonio, found significant differences between choosing and non-choosing families. Choosing families had more education, higher incomes, higher employment levels, and fewer children, and were less likely to be on welfare, less likely to be African-American, and more likely to be two-parent families. Choosing families also had higher educational expectations and were more active in their children's education. In addition, their children had higher standardized test scores.³³

A 1992 Carnegie Foundation report evaluated choice programs around the country and reached the following conclusions: (1) To the extent that choice programs benefit children at all, they benefit the children of better educated parents. (2) Choice programs require additional money to operate. (3) Choice programs have the potential to widen the gap between rich and poor school districts. (4) School choice does not necessarily improve student achievement.³⁴ Bruce Fuller, in a 1995 review, drew conclusions similar to those of the Carnegie report.³⁵

In a review of the research on school choice in three countries (the U.S., Great Britain, and New Zealand), Geoff Whitty found little evidence to support the contention that the creation of educational "markets" increases student achievement. He did, however, find that educational "markets" make existing inequalities in the provision of education

worse.³⁶ Martin Carnoy drew a similar conclusion based on an analysis of the effects of school privatization in Chile and other countries.³⁷

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[END OF EXCERPT 2]

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Both documents are available on the website of the Center for Education Research, Analysis, and Innovation at www.uwm.edu/Dept/CERAI