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Report to the Honorable Judd Gregg, U.S. Senate

August 2001

SCHOOL VOUCHERS

Publicly Funded Programs in Cleveland and Milwaukee

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Abbreviations

GED General Education Development

GAO
Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

August 31, 2001

The Honorable Judd Gregg
United States Senate

Dear Senator Gregg:

School voucher programs have generated considerable debate nationwide. Only three states—Florida, Ohio, and Wisconsin—have initiated programs within the last decade to provide public funding that allows families to send their children to private elementary and secondary schools. These states created their voucher programs largely in reaction to state and parental dissatisfaction with the quality of public schools. Opinions vary widely about whether voucher programs are a viable solution to public school problems. Some advocates have claimed that voucher programs will provide poor families with educational choices like those available to affluent families and will promote greater competition among schools, forcing them to become more effective in order to remain viable. Opponents have stressed that voucher programs will hurt public school funding by steering tax dollars to private schools, and that evidence of student achievement gains is inconclusive. Opponents have also warned of the potential for increased segregation by race and income as voucher schools may attract the best students from the traditional public schools.

You indicated your interest in both publicly and privately funded school voucher programs. For this report you requested that we provide information on the publicly funded school voucher programs in Cleveland and Milwaukee, primarily based on research conducted on these programs.[1] As of the 1999–2000 school year, the Cleveland program had about 3,400 voucher students enrolled in 52 private schools, and the Milwaukee program had about 7,600 students enrolled in 91 private schools. We focused our work on answering the following questions:

[1]We were asked to focus on the publicly funded Ohio and Wisconsin voucher programs because the Florida voucher program, with first-year implementation in the 1999–2000 school year, was too new for our review. In addition, we did not include the publicly funded voucher programs in Maine and Vermont because those programs primarily focus on rural communities without adequate public school capacity. While this review was not intended to include privately funded voucher programs, such as those in the District of Columbia, New York City, Dayton, and San Antonio, we do plan to review such programs. We are aware that several studies of these privately funded voucher programs have been conducted.

- What are the key eligibility criteria for student and private school participation in the Cleveland and Milwaukee voucher programs?
- How does research characterize students and private schools participating in these voucher programs compared to public schools and their students in the two cities?
- What is known about the racial composition of public school and voucher students and whether this composition has changed as a result of the voucher programs?
- What is known about how these voucher programs are funded and the amount spent on public school students compared to the amount spent on voucher students?
- What is known about student academic achievement within these voucher programs?

Most of the data we used to address these questions were collected from studies of the Cleveland and Milwaukee voucher programs. We selected studies for review that met two or more of the following criteria: (1) were performed under contract to Ohio or Wisconsin state departments of education; (2) had been published in a peer-reviewed journal; (3) had been issued by a research institution that reviews work prior to release; or (4) employed quantitative analysis to examine student academic achievement. The studies we selected included assessments of the student and school characteristics, racial and ethnic composition of public school and voucher students, and evaluations of Cleveland and Milwaukee students' academic achievement. We examined the studies to determine if the data they contained met criteria for reliability and completeness and if analyses of the voucher programs' effects employed impact evaluation methods, such as the use of comparison groups and multivariate analysis procedures. We did not include data in our analyses from studies that did not meet our criteria. In addition to these studies, we reviewed state laws and regulations, school district and voucher program office records, state budget data, and a variety of school voucher-related reports and articles. We conducted site visits to Ohio and Wisconsin and interviewed officials from the state departments of education, the administering program offices, the public school districts, and several private schools. Appendix I further describes our scope and methodology. A list of the studies we reviewed is provided in the bibliography to this report. We conducted our review between February and July 2001 in accordance with generally accepted government auditing standards.

Results in Brief

State laws and regulations govern the participation of students and schools in the Cleveland and Milwaukee programs. Both programs were primarily designed to provide educational opportunity for students of low-

income families residing within the Cleveland school district or the city of Milwaukee and are similar in their design. In Cleveland, priority is given to students from families whose income is less than 200 percent of federal poverty guidelines. However, if low-income Cleveland students do not use all available vouchers, students above the low-income guidelines may use the remaining vouchers. For Milwaukee, all students must come from families whose incomes do not exceed 175 percent of federal poverty guidelines. Both programs require participating private schools to be located within the city or the city's school district and to adhere to state standards for private schools, such as those covering health and safety. These schools must also agree to use random selection processes to determine voucher student enrollment when student applications exceed available slots at specific schools.

Among the research reports addressing student characteristics, the most commonly reported data (excluding race) focused on family income, the family's living arrangement, and parents' education. In both Cleveland and Milwaukee, voucher students were more likely than public school students to come from families that had less income and were headed by a parent who was single or not married to the person he or she were living with.[2] Voucher students' parents in Cleveland and mothers in Milwaukee were also more likely to have completed at least high school than were public school students' parents. Some research for Milwaukee also provided reliable information on students' academic achievement prior to their participation in a voucher program. Researchers found that voucher schools in Milwaukee were attracting lower-performing public school students. Data that addressed school characteristics showed that Cleveland voucher schools, compared to public schools, had less-experienced teachers and smaller class sizes. No comparable school characteristics data were collected by the contract researchers for the Milwaukee program. Other data indicate that the majority of participating voucher schools were religious in Cleveland since the program's inception, whereas the majority have been religious in Milwaukee since the 1998–99 school year, when religious schools were first admitted to the program.

Some information about the racial and ethnic composition of Cleveland's and Milwaukee's public school and voucher students is available, but

[2]In Cleveland, a sample of voucher and public school student families was surveyed, whereas in Milwaukee, all voucher and a sample of public school student families were surveyed. The survey of Cleveland families during the 1998–1999 school year met our criteria for data reliability, but the 1991 survey of Milwaukee families did not. See our report of findings for a discussion of why the data are included.

whether the composition changed as a result of the voucher programs is unclear. During school year 1998–99, well over two-thirds of the students enrolled in Cleveland's and Milwaukee's voucher programs and public schools were minority group members. Most of the minority students were African-American. Although the racial and ethnic composition data for the 1998–99 school year are reliable, developing trend data is difficult for a variety of reasons. For example, data available from the existing research for the first 2 years of Cleveland's program were unreliable or did not fully represent the voucher and public school student population. Prior to 1998–99, reliable racial and ethnic composition data for Milwaukee's voucher students were available only for intermittent school years: school years 1990–91 to 1992–93 and the 1994–95 school year. In addition, studies that have analyzed changes in the racial and ethnic composition of voucher and public schools did not develop complete explanations of the changes. They reached conclusions about the voucher programs' effect on racial composition within voucher schools without considering the full range of factors that could account for changes in the composition.

Ohio and Wisconsin use different methods to provide state funds for the Cleveland and Milwaukee voucher programs and spend less on voucher students than on public school students. The Cleveland voucher program is funded with Disadvantaged Pupil Impact Aid funds up to a limit established by the Ohio Legislature. These funds are deducted from the Cleveland school district's share of Disadvantaged Pupil Impact Aid. In the 1999–2000 school year, the cost of the voucher program was $6.2 million. Wisconsin funds the Milwaukee voucher program with general state aid funds ($38.9 million in 1999–2000) based on the number of students participating in the program in a given year. One-half of this amount is deducted from the Milwaukee school district's state revenues; the remainder is deducted from all other school districts' state revenues in proportion to the total state revenues authorized for each district. The full impact of these funding methods on the public schools is unknown. The per-pupil amount expended for the voucher program in Cleveland for the 1999–2000 school year was $1,832, which included the cost of voucher payments and program administration; for Milwaukee, just the cost of voucher payments amounted to $5,106. Both these amounts were less than the total respective per-pupil state aid that was provided to the Cleveland ($4,910) and Milwaukee ($6,011) public school districts.

The contracted evaluations of voucher students' academic achievement in Cleveland and Milwaukee found little or no difference in voucher and public school students' performance, but studies by other investigators found that voucher students did better in some of the subject areas tested. None of the findings can be considered definitive because the researchers

obtained different results when they used different methods to compensate for weaknesses in the data. All of the studies satisfied most of the basic criteria for research quality, such as using study designs and data analysis methods that isolate the program's effect, but they suffered from missing test score data, low survey response rates, and the loss of students from program groups and comparison groups over time. The researchers' different findings likely were due to the different study designs, comparison groups and statistical tests they used, and the extent of missing data on student characteristics. Additional research will be needed to develop findings that are conclusive and generalizable.

Background

The Cleveland voucher program is officially called the Cleveland Scholarship and Tutoring Program and provides state funding to help primarily low-income children in kindergarten through the eighth grade attend private schools in Cleveland or to attend public schools in districts adjacent to the Cleveland school district.[3] The voucher program was implemented in the 1996–97 school year, and only private schools have participated in it. Students new to the program generally start in kindergarten through the third grade and may have previously attended a public or a private school or never attended school. In June 2000, the Cleveland program had about 3,400 voucher students enrolled in 52 private schools, which received about $5.2 million in publicly funded voucher payments for the 1999–2000 school year.[4] By comparison, the Cleveland school district in 1999–2000 had about 76,000 students enrolled in its 121 schools supported by $712 million in total revenues. [5]

In Cleveland, actual voucher payments follow the student to the school attended, even when he or she changes schools. Voucher checks are made out to the student's parent or guardian and require endorsement before the school can use the funds. These funds are sent to the participating schools in two payments. Prior to payment, a voucher payment report is generated for each participating school listing all current voucher students. Each school verifies this report as accurate or updates it before it is sent to the

[3]In addition to vouchers, the Cleveland program has a tutoring component designed to provide additional academic assistance to children who continue to attend Cleveland public schools.

[4]The $5.2 million in voucher payments to students does not include about $1 million for the cost of voucher program administration.

[5]Of the $712 million in total revenues for the Cleveland school district, $371.9 million was from the state of Ohio.

Ohio Department of Education's School Finance Division to be processed for payment. For low-income voucher students, the voucher amount is limited to 90 percent of school tuition up to a maximum of $2,250. For those voucher students who do not come from low-income families, the voucher amount is limited to 75 percent of school tuition up to a maximum of $1,875. Any payments sent to a voucher school are proportionately reduced if a student is not enrolled in the school for the entire period covered by the scheduled voucher payment.

About 90 percent of the Cleveland voucher schools are religious schools. The constitutionality of providing state-funded vouchers for attendance at religious schools has been challenged in the courts since the program's inception. In December 2000, the U.S. Court of Appeals for the Sixth Circuit ruled that the program is unconstitutional because it has the effect of advancing religion, and that the program constitutes an endorsement of religion and sectarian education in violation of the first amendment. Subsequently, the court of appeals decided that the program could continue operating while interested parties seek U.S. Supreme Court review of the court of appeals' ruling.

Two teams have conducted research on the academic achievement of students in Cleveland's voucher program. The first was the contract researcher, a team from Indiana University, which was contracted by the Ohio Department of Education to conduct a multiyear evaluation of the program. The second team, supported by Harvard University's Program on Education Policy and Governance (Harvard researchers), conducted its own studies. The contract research team analyzed students' academic achievement in school years 1996–97 and 1997–98, the first 2 years of the voucher program. The Harvard team reanalyzed the contract researcher team's data for the first year and 1996–97 data from two additional private schools participating in the voucher program.

The Milwaukee voucher program, officially called the Milwaukee Parental Choice Program, provides state funding exclusively for low-income children in Milwaukee to attend private schools and was first implemented in the 1990–91 school year. Wisconsin initially limited participation to nonsectarian private schools, but amended the program to include religious schools in 1995. For the 1994–95 school year, 771 full-time equivalent voucher students attended 12 nonreligious schools. Following legal challenges to the 1995 program revision permitting religious school participation, the Wisconsin Supreme Court upheld the revision in 1998, and program enrollment tripled when Milwaukee voucher students began attending religious schools in 1998–99 school year. Subsequently, the U.S. Supreme Court chose not to hear an appeal of the Wisconsin Supreme

Court decision that the program did not violate the First Amendment of the United States Constitution. In school year 1998–99, nearly three-quarters of the participating schools were religious.

Currently, students new to the program may start in kindergarten through the 12th grade if, in the year prior to enrolling, they attended a Milwaukee public school; a Milwaukee private school in kindergarten, first, second, or third grade; or never attended school anywhere. In the 1999–2000 school year, the Milwaukee program had 7,621 voucher students enrolled in 91 schools, which received about $38.9 million in publicly funded voucher payments.[6] The Milwaukee school district in 1999–2000 had about 105,000 students enrolled in 165 schools supported by $917 million in total revenues.[7]

The Wisconsin Department of Public Instruction makes voucher payments in four installments during the school year. Similar to Ohio's program, the voucher check is payable to the voucher family. The Department mails the checks to the schools where the parent or guardian endorses them to the schools. If the school cannot obtain a signature because, for example, the student is no longer enrolled, it returns the check to the Department. The school keeps the lesser of the voucher amount or an amount equal to their per-pupil operating and debt service costs as determined by an independent financial audit. Because a school's actual costs may be less than the maximum allowable payment, and because of other factors that may require adjustments to payments—such as audited enrollment reports—the Department makes adjustments after the completion of the school year. Schools with lower costs must return excess payments, and schools that gain students receive an additional amount.

Wisconsin has required the Department of Public Instruction and the Legislative Audit Bureau to evaluate the voucher program. The Department contracted with an independent researcher to conduct an evaluation over the first 5 years of the program. The evaluation focused on students' academic achievement, at a time when student and private school participation was limited to less than one-tenth of what it was in 1999–2000 and was limited to nonreligious schools. The evaluation was terminated at the end of school year 1994–95, and data on students'

[6]The Milwaukee voucher program has not reached its statutory participation limit of 15 percent of the Milwaukee school district's enrollment.

[7]Of the $917 million in total revenues for the Milwaukee school district, $634.1 million was from the state of Wisconsin.

characteristics have not been collected for an evaluation since then, nor has student academic achievement been evaluated. Three teams conducted research on Milwaukee's voucher program during its early years: (1) the contract researchers, a group of investigators affiliated with the Department of Political Science and the Robert M. La Follette Institute of Public Affairs, University of Wisconsin–Madison; (2) the Harvard team that also conducted research on the Cleveland program; and (3) a researcher affiliated with Princeton University. All three teams used the data set on Milwaukee voucher and public school students and parents created by the contract researcher team. All three teams also analyzed students' academic achievement as measured by scores on the Iowa Test of Basic Skills administered by the Milwaukee school district in school years 1990–91 to 1993–94.[8]

In addition to the Cleveland and Milwaukee voucher programs, state-funded voucher programs operate in Florida, Maine, and Vermont. Although not an integral part of this review, some information on these three additional state programs is provided to help put the Cleveland and Milwaukee programs in a more complete context of publicly funded voucher programs. The Florida voucher program began operating in the 1999–2000 school year. The program provides a private school choice to students whose public schools have been judged by the state as failing. The Maine and Vermont programs have been operating for more than 100 years and provide for the private, secular education of students whose public school districts do not have sufficient school capacity. More detail on the Florida, Maine, and Vermont voucher programs is provided in appendix II.

Although not a direct sponsor of voucher programs, the federal government in the past has sponsored research into alternative educational programs, including a voucher program operated in a public school system. The National Institute of Education sponsored research on an education voucher demonstration program begun during the 1972–73 school year in six schools of the Alum Rock Union Elementary School District of San Jose, California. In this demonstration, parents could choose from among these six public schools and receive a voucher equal to the cost of the child's education at that school. The voucher amount was paid to the chosen school when the child enrolled. After a 5-year

[8]Because the state Department of Public Instruction required that new tests be introduced, test scores for school year 1994–95 were not comparable to Iowa Test of Basic Skills scores for the previous 4 years. Thus, the teams' analyses focused on the 4 years for which scores were comparable.

implementation period, an evaluation found little difference in the benefits to students of the voucher and regular school programs. The U.S. Department of Education is considering funding a grant to study Florida's school accountability system, which may include the voucher program and its effect on improving school quality.

Cleveland and Milwaukee Voucher Programs Have Similar Student and Private School Eligibility Criteria

In accordance with state laws and regulations for student and school participation in the Cleveland and Milwaukee voucher programs, both programs target students from low-income families residing within the city or school district. Income eligibility is determined by comparing applicant family income to federal poverty guidelines. Participating private schools must be located within the city or school district, comply with state requirements for private schools—such as those covering health and safety—and randomly select students when applications exceed available slots.

Voucher Programs Have Similar Residency and Income Requirements for Students

In the Cleveland voucher program, an eligible student must reside within the Cleveland school district. Generally, first-time program enrollees must be in kindergarten or grades one, two, or three. Priority for a voucher award is given to students from families whose income is less than 200 percent of federal poverty guidelines.[9] However, the state determines the number of new vouchers that will be awarded each year within the limitations of the amount of annual program funds appropriated. Any student who has received a voucher in the preceding year may continue to receive one until the student has completed grade eight. Assuming students' residency requirements are maintained, school admission priority is given to students who were enrolled in the school during the preceding year and to siblings of these students, at the school's discretion. A student's family income is also a key eligibility criterion for determining the monetary size of the voucher award offered each student. Students who meet the low-income definition qualify for a voucher amount equal to

[9]Federal poverty guidelines are issued each year in the *Federal Register* by the U.S. Department of Health and Human Services and are used in determining financial eligibility for certain federal programs. Some state and local governments have chosen to use the federal poverty guidelines in some of their own programs and activities. The poverty guidelines are a simplification of the poverty thresholds, a statistical version of the federal poverty measure issued by the Census Bureau. In 1999, for example, the poverty guideline was $16,700 for a four-person family.

90 percent of school tuition,[10] not to exceed $2,250. This voucher amount has not changed over time. Students not meeting the low-income definition qualify for 75 percent of the tuition amount, not to exceed $1,875.[11]

For the Milwaukee voucher program, all students must reside within the city of Milwaukee and come from families whose incomes do not exceed 175 percent of the federal poverty guidelines. In addition, in the year prior to entering the program, the student must have been enrolled in either a Milwaukee public school or in kindergarten, first, second, or third grade in a Milwaukee private school; or not enrolled in any school. The number of students allowed to participate in the voucher program cannot exceed 15 percent of the public school district's enrollment. Voucher students may attend a voucher school at no charge for tuition up to an amount equal to the lesser of the school's per-pupil operating and debt service costs or a state-determined maximum voucher amount.[12] For 1999–2000, the Milwaukee maximum voucher amount was set at $5,106.

Voucher Programs Require Private Schools To Be Located Within the City or City's School District, Meet State Standards, and Use Random Selection

Cleveland private schools participating in the voucher program must be physically located within the Cleveland school district. However, the state also allows public schools located in any school district adjacent to the Cleveland school district to participate in the voucher program. No public schools have chosen to participate. Participating private schools must be registered with the Ohio State Superintendent of Public Instruction. Registered schools must adhere to a variety of requirements such as (1) not discriminating on the basis of race, religion, or ethnic background; (2) agreeing not to charge tuition to low-income voucher families in excess of 10 percent of the maximum voucher amount or the established school tuition, if lower; and (3) permitting any such tuition over the voucher amount, at the discretion of the parent, to be satisfied by the low-income family's provision of in-kind contributions or services. In addition, registered schools must generally meet all of the state of Ohio's minimum

[10]Cleveland voucher parents may pay the remaining 10 percent of school tuition in cash or in-kind services; Milwaukee voucher parents do not have a similar co-pay requirement for tuition.

[11]The Cleveland voucher program makes provision for an increased voucher amount for students with special education needs, whereas the Milwaukee voucher program has no similar provision.

[12]The maximum voucher amount is based upon average per-pupil state aid provided to the Milwaukee school district in 1998–1999 and the annual increase provided to public school districts statewide.

standards for nonpublic schools that have been chartered by the state board of education—which are essentially the same school standards, with some modifications, as for public schools. These standards provide guidance and direction on such things as a school's educational goals, curriculum and instruction, teacher qualifications, instructional materials and equipment, and the quantity and quality of facilities. In addition, schools' educational programs must be evaluated at least once every 5 years in accordance with professionally recognized criteria and procedures. For the 1999–2000 school year, 51 of the 52 private schools participating in the Cleveland voucher program were chartered by the state.

Random selection of voucher students can be implemented by both the state program office or by a school that enrolls students. For example, if the number of Cleveland vouchers to be awarded to first-time voucher applicants in any school year is less than the number of eligible applicants, the state program office uses a random selection process in which low-income applicants are given priority. The director of the Cleveland voucher program stated that random selection has generally been used at some point during each year's selection process. However, if the number of available vouchers exceeds the number of low-income applicants, applicants above the low-income threshold may be awarded the remaining vouchers. Once first-time voucher applicants have been awarded a voucher, they seek enrollment in a voucher-participating school. After enrolling voucher students who attended a voucher school during the preceding year or siblings of those students, schools must admit low-income, first-time voucher students by random selection if potential enrollees exceed the number of spaces in the school. The school is to admit such students to kindergarten, first, second, and third grades up to 20 percent of the total number of students enrolled in the school during the preceding year for those grades. The extent to which schools have used random selection for their enrollments is unknown because the voucher program office has not monitored its use.

In the Milwaukee voucher program, participating schools must be located within the city of Milwaukee. They must also be private schools as defined in Wisconsin statute, which requires them to provide at least 875 hours of instruction each school year and to have a sequentially progressive curriculum of instruction in subjects such as mathematics and reading. Schools must also meet applicable health and safety codes; meet at least one of the state performance standards, such as for academic progress or attendance; and comply with federal antidiscrimination laws. Participating schools are subject to uniform financial accounting standards and must submit an annual independent financial audit to the state. Similar to the

Cleveland program, a key provision is the use of a random selection process when the number of eligible applicants exceeds the number of spaces a school has designated for students. Each school has discretion in setting the number of voucher students it will accommodate in each grade and must specify this number at the time it notifies the state of its intent to participate in the program. Each school must also submit an annual written plan describing its intended method for randomly selecting voucher students when the number of applicant voucher students exceeds the number of available spaces allocated for them. As in Cleveland, the extent to which schools have used random selection is unknown because schools are not required to report on its use. The school must accept all eligible applicants if space is available. In addition, schools cannot select students on the basis of race, religion, gender, prior achievement, or prior behavioral records. Continuing students and their siblings are exempt from the random selection requirement.

Voucher Family Characteristics, as Well as Voucher School Attributes, Differ From Those of Public School Families and Their Schools

Compared to public school students, voucher students in both Cleveland and Milwaukee came from families with less income and that were more likely to be headed by parents who were single or not married to the person they were living with. Voucher students' parents were also more likely to have completed at least high school than were public school students' parents. Some research for Milwaukee also provided reliable information on students' academic achievement prior to their participation in a voucher program. The contract research team for Wisconsin found that voucher schools in Milwaukee were attracting lower-performing public school students as evidenced by their prior achievement test results.[13] We used the student characteristic data presented by the Cleveland contract research team because their data were more reliable than that of other researchers. With the exception of achievement test score data, data on Milwaukee student characteristics collected by the contract research team were less reliable, but we corroborated some of the information on public school students. Data that addressed school characteristics showed that in Cleveland, voucher schools had less-experienced teachers and smaller class sizes than public schools. No comparable school data were collected by the contract research team for the Milwaukee program. Other data indicate that the majority of participating voucher schools have been religious in Cleveland since the program's inception, whereas the majority have been religious in

[13]The results reported were for the last achievement test taken while the student was enrolled in the Milwaukee school district.

Milwaukee since the 1998–99 school year (when religious schools were admitted to the program).

Voucher Families Had Less Income, Were Headed More Frequently by Single Parents, and Usually Had More Parental Education Than Public School Families

Student characteristics most commonly reported by the contract researchers (excluding race) were family income, the family's living arrangement, and parents' education. In Cleveland, these data came from a 1999 survey, while in Milwaukee the data came from annual surveys conducted between 1990 and 1994.[14] The Milwaukee surveys went to parents of all voucher student applicants each year but only to parents of a random sample of public school students—the comparison group—in 1991.[15] Since Wisconsin ended such surveys in 1995, the number of voucher students and participating schools has grown significantly (roughly tenfold and ninefold, respectively), thereby potentially changing the character of the program since it was evaluated in earlier years.

In Cleveland, average family income for voucher students was $18,750 compared to $19,814 for families of students attending public schools. These average incomes fall within the definition of low income under the Cleveland voucher program for a family of two or more members. For example, under Cleveland's criterion for a low-income family—less than 200 percent of the federal poverty guideline—a two-person family in 1999 would have qualified with an annual income under $22,120. The research

[14]For Cleveland, we relied on the student and school characteristics presented by the contract research team for school year 1998–99 because these data met a higher quality standard than that of other researchers. However, we did not report findings from the contract research team for the first 2 years of the Cleveland voucher program because the data collected did not fully represent the voucher and public student populations. The data for voucher students were limited to third grade in school year 1996–97 and fourth grade in school year 1997–98. For the same years, the data for public school students were limited to classmates of students who applied for tutoring grants in the third and fourth grade.

[15]The Milwaukee contract research team collected survey data for public school students only in 1991, during the first year of the program, due to the expense that would be incurred (given the large sample size) updating the survey each year. Although the contract research team sent surveys to both voucher and public school parents twice, they achieved very low response rates, ranging from 30 to 50 percent—substantially below the 70- to75-percent response rate required for data reliability. (See app. I.) We reported the data on voucher students because the contract research team's surveys were the only data source available. We corroborated their data on family composition and income for public school students with Bureau of the Census data reported in John F. Witte and others, *The Milwaukee Parental Choice Program—Private And Public Education in Wisconsin: Implications for the Choice Debate* (Madison, Wisc.: Robert M. La Follette Institute of Public Affairs, University of Wisconsin–Madison, 1995). We were unable to corroborate information on parental educational attainment because available Census data did not contain comparable measures of educational status.

team reported that 70 percent of voucher families were headed by a single mother, compared to 62–65 percent for public school families. Despite lower incomes and a higher rate of single-mother households for voucher students, voucher student parents had a higher level of education than did the parents of public school students. For example, 91.6 percent of voucher student mothers had completed high school compared to 78.1 percent for mothers of public school students. In addition, 14.2 percent of voucher mothers had a 4-year postsecondary degree compared to 7.8 percent of public school mothers (see table 1).

Table 1: Characteristics of Cleveland Families With Students in the Voucher Program or in the Public Schools

Student family characteristics	Voucher families[a] (1998–1999)	Public school families[b] (1998–1999)
Families headed by a single mother	70%	62-65%
Mean family income	$18,750	$19,814
Mother completed high school	91.6%	78.1%
Father completed high school	89.2%	77.7%
Mother completed 4-yr postsecondary degree	14.2%	7.8%
Father completed 4-yr postsecondary degree	12.1%	8.1%

[a]Greene, Howell, and Peterson also collected reliable data, in the summer and fall of 1998, for a random sample of Cleveland voucher students for the same family characteristics with the exception of father's education. See Jay P. Greene, William G. Howell, and Paul E. Peterson, *An Evaluation of the Cleveland Voucher Program After Two Years* (Harvard University, 1999).

[b]This data comes from a random sample of families identified across grades kindergarten through five for public school students that had not applied for a school voucher.

Source: Kim K. Metcalf, *Evaluation of the Cleveland Scholarship and Tutoring Grant Program 1996-1999* (Bloomington: Indiana University, 1999).

In Milwaukee, the average voucher family annual income was $11,340 in the first 5 years of the program. The comparison group, 1991 public school students, had a family income that averaged $22,000 in 1991. Average voucher family incomes were less than the program's low-income requirement for a family of two or more members. For example, under Milwaukee's criterion for a low-income family, 175 percent of the federal poverty guideline, a two-person family in 1990 would have qualified with an annual income under $14,735.[16] Voucher families were also more likely

[16]Since the contract research team obtained family income statistics for years 1990 to1994, we provided the voucher program's low-income threshold for a two-person family in 1990 ($14,735) as a conservative comparison to the $11,340 average voucher family income for the 5-year period. The program's low-income threshold for a two-person family over the 1990 to 1994 period averaged $16,016.

to be headed by a nonmarried parent (76.5 percent) than public school families (49 percent). As shown in table 2, 84.9 percent of voucher students' mothers reported at least a high school degree or General Education Development (GED) diploma as compared to 75 percent of mothers of public school students (see table 2). However, fewer voucher students' fathers completed high school or a GED (73.1 percent) than did public school students' fathers (76 percent).

Table 2: Characteristics of Milwaukee Families With Students in the Voucher Program or in the Public Schools

Student family characteristics	Voucher families (1990–91 to 1994–95)[a]	Public school families (1990–91)[b]
Families headed by a nonmarried parent	76.5%	49%
Mean family income	$11,340	$22,000
Mother completed at least high school or GED	84.9%	75%[c]
Father completed at least high school or GED	73.1%	76%[c]
Mother completed 4–year postsecondary degree	8.9%	11%[c]
Father completed 4–year postsecondary degree	9.4%	15%[c]

[a]The voucher family data are averages for the 5 school years 1990–1991 to 1994–1995.

[b]The data comes from a random sample of families with students in grades kindergarten through eight that did not apply for a voucher.

[c]Data for these categories were only available from a survey conducted by the contract research team. The available Census data did not contain comparable measures of educational status to allow us to corroborate the information.

Source: GAO analysis based on John F. Witte and others, *Fifth-Year Report Milwaukee Parental Choice Program* (University of Wisconsin–Madison, 1995).

Research indicates that Milwaukee voucher students already had low academic achievement when they entered the voucher program. During the first 5 years of the program, voucher students had lower prior achievement test results—as measured by the Iowa Test of Basic Skills, a standardized math and reading test given in first through eighth grade—than the average public school student.

Cleveland Voucher Schools Had Smaller Enrollments and Class Sizes and Less-Experienced Teachers Than Public Schools

Only the contract research team of the Cleveland voucher program compared private school characteristics to those of public schools for overall school enrollment, numbers of teachers employed, average number of students per classroom, and average years of teacher classroom experience. These data were obtained from teacher and principal surveys conducted during the 1997–98 and the 1998–99 school years, respectively. One of the contract researchers for the Milwaukee program conducted case studies from 1991 to 1993 as the basis for comments on staffing and

curriculum, but the data were limited to voucher schools, thereby precluding comparison to public school characteristics.

The Cleveland data showed that private voucher schools were smaller on average than public schools in terms of student enrollments and numbers of teachers employed. For example, voucher schools had average student enrollments of 201 to 300 students compared to 401 to 500 for public schools. The average class size was somewhat smaller for voucher schools at 20.6 students compared to 23.6 for public schools. The amount of classroom experience reported by public school teachers was significantly higher than the classroom experience reported by their voucher school peers (14.2 years versus 8.6 years). (See table 3.)

Table 3: Comparison of Cleveland Private Voucher and Public School Characteristics

School characteristics	Voucher schools	Public schools
Average number of students enrolled—1998–99	201 to 300	401 to 500
Range of student enrollments—1998–99	51 to over 500	150 to over 500
Average number of full-time teachers—1998–99	6 to 10	21 to 25
Average number of students per classroom—1997–98	20.6	23.6
Average years of teacher classroom experience—1997–98	8.6	14.2

Source: Kim K. Metcalf, *Evaluation of the Cleveland Scholarship and Tutoring Grant Program 1996-1999* (Bloomington: Indiana University, 1999).

Other data indicate that the majority of participating voucher schools in Cleveland since the program's inception were religious, whereas the majority have been religious in Milwaukee since the 1998–99 school year (when religious schools were admitted to the program).

Minority Group Members Predominate in School Populations, but Whether Voucher Programs Have Changed Schools' Racial Composition is Unclear

Some information about the racial and ethnic composition of Cleveland's and Milwaukee's public school and voucher student populations is available, but whether the composition has changed as a result of the voucher programs is unclear. During school year 1998–99, well over two-thirds of the students enrolled in Cleveland's and Milwaukee's voucher programs and public schools were minority group members. Most of the minority students were African-American. The 1998–99 school year data are reliable, but examining changes in racial and ethnic composition since the voucher programs' inception is difficult for a variety of reasons. For example, data available from existing research for the first 2 years of Cleveland's program were unreliable[17] or did not fully represent the voucher and public school student population. Further, studies that have analyzed changes in the racial and ethnic composition of voucher and public schools in both Cleveland and Milwaukee did not examine factors other than the voucher program, such as birth rates, that may have influenced the changes.

Research on Cleveland's voucher program provides information on the racial and ethnic composition of Cleveland's public school and voucher student populations in school year 1998–99, the most recent year for which reliable information is available. As shown in table 4, of Cleveland students in kindergarten through fifth grade, most of the public school students and students enrolled in the voucher program in school year 1998–99 were minority group members.

Table 4: Racial and Ethnic Composition of Cleveland Public School and Voucher Students, School Year 1998–99

Racial and ethnic group	Public school students (percent)	Voucher students (percent)
Minority	79[a]	73.4
White	21	26.6

[a]Among applicants who did not receive a voucher, 77 percent were minority group members and 23 percent were white. Some of these students may have attended private school prior to applying for the voucher program.

Source: Kim K. Metcalf, *Evaluation of the Cleveland Scholarship and Tutoring Grant Program 1996-1999* (Bloomington: Indiana University, 1999).

[17]We determined the reliability of data sources we considered for analysis by assessing the response rate of survey data and the completeness of administrative data. The criteria we used for assessing data quality are discussed in app. I.

However, data available for the first 2 years of the Cleveland program that would indicate whether the racial and ethnic composition of public school and voucher students has changed over the course of the Cleveland voucher program were unreliable or did not fully represent the voucher and public student populations. For example, data collected by the contracted Cleveland evaluation for voucher students were limited to third graders in school year 1996–97 and fourth graders in school year 1997–98.[18] For the same years, the data collected for public school students were limited to classmates of students who applied for tutoring grants in the third and fourth grade.[19] Although the evaluator reported the proportion of all voucher students who were minority group members, and that, over the first 3 years, 60 percent were African-American, he did not report the composition of other minority groups. However, a survey conducted by another research team provided racial and ethnic composition data for voucher students in school year 1996–97.[20] This team reported that of the voucher students, 61.3 percent were African-American, 4.4 percent were Hispanic, 1.4 percent were some other minority group, 4 percent were multiracial, and 28.9 percent were white. [21]

Of Milwaukee public school and voucher students, African-American students were the majority, but the proportion of African-American students in both the public school and voucher program student body has changed over the course of the voucher program. Research on the Milwaukee voucher program provided reliable data about Milwaukee public school students during two time periods: the beginning of the

[18]These data were collected to analyze the effect of the Cleveland voucher program on students' academic achievement. According to the evaluator, complete administrative records on students' test scores in the previous grade, which were needed for the analysis, were available only for third–grade students. The same group of students was evaluated in the second year. See app. IV for a detailed description of the research.

[19]The limitation of public school students to classmates of students who applied for tutoring grants is discussed in app. IV.

[20]These data were collected for a survey that gathered information on race and other demographic characteristics. The survey was partially funded by the Ohio Department of Education. See Jay P. Greene, William G. Howell and Paul E. Peterson, *Lessons from the Cleveland Scholarship Program*, Program on Education Policy and Governance, Taubman Center on State and Local Government and Center for American Political Studies, Harvard University, October 15, 1997.

[21]The Cleveland Municipal School District provided additional data on public school students' racial and ethnic composition for school years 1996–97 and 1999–2000. The Cleveland Scholarship and Tutoring Program Office provided similar data for 1999–2000 voucher students. See app. III.

program and school year 1998–99. Of public school students, about 71 percent were minority group members in school year 1990–91, the first year of the voucher program. African-American students represented 55 percent of the total. By school year 1998–99, minority group members represented almost 80 percent of public school students and African-American students represented 61.4 percent of the total. The detailed racial and ethnic composition of Milwaukee public school students for these years, including minority subgroup composition, is shown in table 5. Data for the intervening years were not reported in the voucher program research.

Somewhat more information was available on the racial and ethnic composition of Milwaukee voucher students. Table 5 shows the average racial and ethnic composition of enrolled voucher students for school years 1990–91 to 1992–93, the composition in school year 1994–95—before the program was changed to permit religious school participation—and the composition in school year 1998–99, the first school year the court allowed voucher students to attend religious schools. These data, and the data on Milwaukee public school students, describe the racial and ethnic composition of Milwaukee students at different stages of the voucher program and indicate that some changes in the composition have occurred. For example, of voucher students, 96.5 percent were minority group members in school year 1994–95. By school year 1998–99, after religious schools were admitted to the program, 79 percent of voucher students were minority group members. However, the data do not explain why the changes occurred. Table 5 does show that, of both public school and voucher students, African-Americans were the largest minority group in all time periods.

Table 5: Racial and Ethnic Composition of Milwaukee Public School and Voucher Students

	Public school students		Voucher students		
Racial and ethnic group	School year 1990–91[a] (percent)	School year 1998–99 (percent)	School years 1991–93[b] (percent)	School year 1994–95 (percent)	School year 1998–99[c] (percent)
African-American	55	61.4	72	72.2	62.4
Asian	4	4.1	0	Not reported	2.4
Hispanic	10	13.3	20	23.6	13.2
Native American	1	1.0	1	Not reported	0.7
Other	1	Not reported	1	0.7	0.3
Subtotal—minority groups	71	79.8	94	96.5	79
White	29	20.2	6	3.5	18.8

[a]The percentages for school year 1990–1991 are for public school students in first through eighth grades.

[b]These data report the average racial and ethnic composition of Milwaukee voucher students during school years 1990–1991 through 1992–1993.

[c]The 1998–99 percentages for voucher students were based on a head count of the total number of students for whom ethnicity was reported in response to the Wisconsin Legislative Audit Bureau's survey. These computations excluded 134 students—representing 2.2 percent of all voucher students—for whom racial and ethnic composition was unknown because nine voucher schools did not report these data in the survey conducted by the Bureau. Therefore, the percentages do not sum to 100.

Sources: John F. Witte and others, table 5b, *Fourth-Year Report: Milwaukee Parental Choice Program* (University of Wisconsin–Madison, Dec. 1994); Wisconsin Legislative Audit Bureau, *An Evaluation of Milwaukee Parental Choice Program, Report 95-3* (Madison, Wisc.: Feb. 1995); Wisconsin Legislative Audit Bureau, *An Evaluation: Milwaukee Parental Choice Program, Report 00-2 (Madison, Wisc.*: Feb. 2000).

None of the contract research teams' studies addressed changes in the racial and ethnic composition of voucher and public school students over the course of the voucher program. However, three other studies of the Cleveland and Milwaukee voucher programs have examined changes in the racial composition of students at voucher and public schools but have not developed complete explanations of the changes. They reached conclusions about the voucher programs' effect on racial composition within voucher schools without considering the full range of factors that could account for changes in the composition.[22] These studies identified the proportion of white and minority students in public schools and in voucher programs in terms of a standard for racial isolation. A school was

[22]See, for example, Charles T. Clotfelter, "Are Whites Still Fleeing? Racial Patterns and Enrollment Shifts in Urban Public Schools, 1987-1996", Journal of Policy Analysis and Management (Spring 2001), pp.199-221, for a discussion of additional demographic factors to be considered.

defined as racially isolated when 90 percent or more of the enrolled students were members of a minority group or white.

One study of the Cleveland voucher program identified the proportion of students attending racially isolated public schools in Cleveland and its suburbs, and in private schools participating in the voucher program. For example, at the beginning of the 1999–2000 school year, two-fifths of Cleveland public school students attended schools that had fewer than 10 percent white students and more than three-fifths of suburban public school students attended schools in which the student body was more than 90 percent white. When the researcher combined the public schools in these metropolitan areas, he found that 60.5 percent of the students attended schools that either had more than 90 percent or fewer than 10 percent white students. On the other hand, among Cleveland's voucher students, fewer than two-fifths attended a private school that had fewer than 10 percent white students and less than one-fifth attended a private school that had more than 90 percent white students. On the basis of such comparisons, the researcher concluded that school choice helps promote integration. However, factors other than the Cleveland voucher program—such as all population groups' moves into and out of the city, their birth and death rates, and students' movement among schools and school systems—that contributed to the racial and ethnic composition of Cleveland's public and private schools were not identified or isolated in the analysis.

Two studies of the Milwaukee voucher program examined the proportion of public school students and voucher students who attended racially isolated schools and reached conclusions about the effect of the Milwaukee voucher program on voucher students' racial isolation. One study examined the proportion of students attending racially isolated schools in the 1998–99 school year and found that approximately 20 percent more Milwaukee public school students attended racially isolated schools than did voucher students who attended 26 Catholic elementary schools. The authors concluded that the Milwaukee voucher program appeared to have increased racial and ethnic enrollment balance for students participating in the program and for students at participating private schools. However, the 26 Catholic elementary schools examined in this study were not selected randomly and represented only 41 percent of the 63 religious schools participating in the voucher program in the 1998–99 school year.

The second study, which examined the proportion of Milwaukee students who attended racially isolated schools in the 1999–2000 school year, found that 50.3 percent of Milwaukee public school students attended schools

that were racially isolated. Among the 86 private schools participating in the voucher program that year, students attending religiously affiliated voucher schools had a different experience than students attending voucher schools with no religious affiliation. Among the 56 religiously affiliated voucher schools, 30.1 percent of the students attended racially isolated schools. Among the 30 private voucher schools with no religious affiliation, 83.1 percent of students attended racially isolated schools. The authors concluded that the addition of religiously affiliated schools had led to a lower level of racial isolation in private schools participating in the voucher program than in Milwaukee public schools. However, neither this study, nor the first study of Milwaukee students' racial isolation, ruled out routinely occurring demographic changes, such as births, deaths, moves into and out of the city, or students' movement among schools and school systems, as factors contributing to the proportion of racially isolated schools they identified.

States Fund Voucher Programs Differently and Spend Less on Each Voucher Student Than on Each Public School Student

Ohio and Wisconsin use different methods to fund their school voucher programs and spend less on each voucher student than on each public school student. Ohio funds the Cleveland voucher program with Disadvantaged Pupil Impact Aid moneys appropriated from the state's general revenue funds and reduces the Cleveland school district's state revenues by the amount of the voucher program appropriation. Wisconsin funds its voucher program with general state aid and reduces the Milwaukee school district's state revenues by half the amount of the program cost. The full impact of these funding methods on the public schools is unknown. In the 1999–2000 school year, Ohio spent $1,832 per voucher student compared to $4,910 for each student in the Cleveland school district. For the same year, Wisconsin spent $5,106 per voucher student compared to $6,011 for each student in the Milwaukee school district. Public school students in both Cleveland and Milwaukee receive additional support from local taxes and federal sources, which results in a larger difference in per pupil amounts between voucher and public school students than the states' figures indicate.

Ohio and Wisconsin Fund Voucher Programs From Different Sources

The Cleveland voucher program is funded from the Cleveland public school district's share of state Disadvantaged Pupil Impact Aid, based on an annual appropriation determined by the Ohio legislature. For the 1999–2000 school year, the legislature appropriated $11.2 million for the Cleveland voucher program. Based on this appropriation, the Cleveland school district's $80.5 million in Disadvantaged Pupil Impact Aid was reduced by $11.2 million to $69.3 million. In the context of the school district's revenues from all sources for 1999–2000, the $11.2 million

amounted to nearly 1.6 percent of the district's $712.1 million total. Actual voucher program expenditures were $6.2 million—only 55.4 percent of what was appropriated.[23] Voucher program expenditures are charged to a designated state account and the Cleveland school district does not monitor the program's expenditures. School district officials stated that the district has not obtained additional property tax levies for the purpose of recovering state revenue deductions from the district's Disadvantaged Pupil Impact Aid funds. According to these officials, the last major school levy for funding school operations was passed in 1996 and provided $67 million to the district annually over a period of 5 years.

The state of Wisconsin funds the Milwaukee voucher program from a separate general-purpose revenue appropriation. The state deducts the amount of the appropriation from general school aid payments to all 426 school districts statewide.[24] Once the state determines the total amount needed to fund the voucher program for the year, it reduces the aid payable to the Milwaukee public school district by half that amount. The other half of program funding is drawn from aid authorized for the remaining 425 school districts in proportion to the total state aid to which each district is entitled. The school districts have the option of increasing property tax levies to offset reductions in general state aid related to the voucher program.[25] According to a Milwaukee school district official, the district has generally levied taxes to the maximum extent possible under state school revenue limits. For the 1999–2000 school year, the Milwaukee school district absorbed half of the voucher program's $38.9 million cost.

[23]The $6.2 million cost of the voucher program excludes $476,243 that the Cleveland Scholarship and Tutoring Program Office paid for tutoring grants to students attending Cleveland public schools in 1999–2000. According to the Ohio Department of Education's Director of School Finance, the appropriated funds not spent on the voucher or tutoring programs were used for other state purposes.

[24]Until the 1999–2000 school year, the state funded the voucher program from equalization aid paid to the Milwaukee school district. Equalization aid is the largest state school aid program and is intended to even out the differences in property tax base per student among school districts.

[25]A May 2001 Wisconsin Legislative Fiscal Bureau report stated that, under current funding law for the program—which allows districts to levy to offset the aid reduction and which also increases state aid by two-thirds of the amount of the levy increase—could result in either increased or decreased equalization aid, after other state aid calculations are performed. However, the Fiscal Bureau report also explained that the overall effect of the increases or decreases on school district revenues would be zero because districts would find increases in state aid offset by matching reductions in their local school property tax levies. Conversely, districts with decreases in state aid would find them offset by matching increases in their local school levies.

That amount, $19.45 million, represented about 2.1 percent of the district's $917 million in total revenues.

Because there are no definitive studies, state and school district officials did not have definitive explanations as to what extent the voucher programs negatively or positively affected the Cleveland or Milwaukee public school districts. In Cleveland, with the exception of a public accounting firm's management study touching on this issue, state and school district officials were unaware of any studies addressing the financial impact of the voucher program.[26] Official and unofficial studies of the Milwaukee voucher program have described possible effects ranging from slightly negative to indeterminate. According to some of these studies, changing the assumptions of such studies could modify the results. Assumptions, for example, could include estimates of the number of voucher students who were formerly enrolled in the public school districts and where they might have been enrolled in the absence of a voucher program. In addition, the amount of funding that the Milwaukee public school district has received from state revenues and local property tax levies has been affected by policy decisions that have not necessarily been driven by the voucher programs. For example, the Milwaukee public school district has experienced an increase in total state aid, largely because of the state's policy of funding two-thirds of certain school costs beginning in the 1996–97 school year.[27] In Cleveland, local school revenues are not based on enrollments. Consequently, when students leave public schools to attend private schools, the public school retains the same amount of local revenue and thus has a higher expenditure of local funds per pupil. However, in Milwaukee, the amount that may be contributed from the local tax levy is determined by the difference between the school revenue cap and state school aid, which are based on the school district's enrollment.

[26]A September 1999 KMPG LLP management study on the Cleveland voucher program stated that the state funds allotted to the voucher program did not affect the Cleveland school district because the state aid cap limited the aid allotted to the Cleveland schools. The KMPG conclusion notwithstanding, state finance and school district officials said that they could not definitively say that any revenues lost to the school district due to the state aid cap were amounts that had been appropriated for the Cleveland voucher program.

[27]For a more complete discussion of the pattern of state aid and property tax revenue going to the Milwaukee school district between 1990 and 1999 see Howard L. Fuller and George A. Mitchell, The Fiscal Impact of School Choice on the Milwaukee Public Schools (Marquette University, Mar. 1999).

Both Ohio and Wisconsin Spend Less on Each Voucher Student Than on Each Public School Student

Ohio provides less state revenue for each voucher student than for each public school student in the Cleveland school district. For example, on a per-student basis, the state spent $1,832 on voucher payments for each voucher student and program administration, compared to $4,910 for each Cleveland school district student for the 1999–2000 school year. The $4,910 per public school student paid by the state does not include the per student amounts of $3,212 in local taxes and $745 in federal funds that were received by the Cleveland school district for the same year.

Two factors may help to explain why the amount spent by the state for voucher students was only about 37 percent of the amount the state spent for public school students in Cleveland. First, the private schools participating in the program generally have low tuition. For example, the estimated average voucher amount for low-income students at 33 Catholic schools was $1,592 in 1999–2000, which is well below the maximum voucher amount of $2,250.[28] Several representatives from participating religious schools stated that their schools' missions were to provide a private-school education to children in their communities, many of whom come from low-income families. The schools purposely subsidize the cost of educating all enrolled students to achieve this mission. Representatives from nonreligious schools with higher tuition (about $4,000) stated that they could afford to accommodate just a few voucher students because they must find corporate or other sponsors to subsidize the difference between the maximum voucher amount allowed and the tuition charged. Second, the maximum voucher amount ($2,250 for low-income students) established by the Ohio legislature at the beginning of the voucher program appears to have limited the program primarily to low-tuition religious schools. The 6th Circuit U.S. Court of Appeals stated in December 2000 that, practically speaking, the tuition restrictions mandated by the statute limit the ability of nonreligious private schools to participate in the program, since religious schools often have lower overhead costs, supplemental income from private donations, and consequently lower tuition needs. In the 1999–2000 school year, 90 percent of the participating schools were religious and 97 percent of the voucher students attended these schools.

[28]The $1,592 average voucher amount is a conservative estimate, based on the higher tuition fees charged to nonparish families. At 20 of the 33 Catholic schools in the voucher program, students of parish families pay tuition ranging from 16 to 51 percent lower than that of nonparish families. As a result, depending upon the number of voucher students who come from parish families, the estimated average voucher amount would be reduced.

Wisconsin also provides less state revenue for voucher students than for public school students in the Milwaukee school district. For 1999–2000, the estimated number of voucher students was 7,621—therefore the total budgeted amount for just the cost of voucher payments was about $38.9 million, or $5,106 per voucher student. By comparison, this per-student voucher amount is about 85 percent of the $6,011 per student in state aid received by the Milwaukee school district. The $6,011 per public school student paid by the state does not include the per student amounts of $1,573 in local taxes and $1,073 in federal funds that were received by the Milwaukee school district for the 1999–2000 school year.

The Wisconsin Department of Public Instruction, which administers the voucher program, establishes its budget for the voucher program in two steps. First, it computes a set amount per student—the amount paid in the previous school year to voucher schools plus the amount of per-student revenue increase provided to public school districts taking into account revenue limits in the current year. For example, the 1999–2000 per-student payment of $5,106 was based on the 1998–99 per-student payment of $4,894 plus $212, the statewide per-student increase. The second step is estimating the number of students who will participate in the voucher program. This estimate comes from participating schools' annual estimates of the number of voucher students they intend to admit in the next school year. The Department adjusts this estimate based on its experience with the accuracy of schools' projections in prior years.

Contract Researchers Found Little or No Significant Improvement in Voucher Students' Achievement, but Other Investigators Found Some Positive Effects

The contract researcher teams for Cleveland and Milwaukee found little or no statistically significant differences in voucher students' achievement test scores compared to public school students, but other investigators found that voucher students did better in some subject areas tested.[29] None of the findings can be considered definitive because the researchers obtained different results when they used different methods to compensate for weaknesses in the data. Most of the studies satisfied basic criteria for research quality, such as using study designs and data analysis methods that isolate the program's effect, but suffered from missing test score data and low survey response rates. For example, scores from incompatible tests limited the contracted Cleveland evaluation in the first year. In Milwaukee, the contracted evaluations had low response rates for survey data and missing test scores due to school policy changes. In addition, a substantial proportion of students left the voucher program or left the Milwaukee public school system when they were not selected for a voucher. The loss of these students made it difficult to design a rigorous evaluation. The researchers' different findings likely were due to the different study designs, comparison groups, and statistical tests they used to address these limitations.

Cleveland's Contract Research Team Found Little Improvement After 2 Years

The contract research team found no statistically significant difference in the academic achievement test scores of Cleveland voucher and public school students at the end of the first year of the program, school year 1996–97, when they controlled for differences in background—but not classroom—characteristics that might affect their performance.[30] At the end of the second year, school year 1997–98, the evaluator found that voucher students' scores in language achievement—one of six subject areas tested—were higher than those of public school students when previous academic achievement, background, and classroom characteristics were controlled. In contrast, the test scores of the voucher students in the two additional private schools, which the evaluator was

[29]A description of the contracted research teams and other teams who evaluated the Cleveland and Milwaukee voucher programs is included in the report's background section. All three teams that evaluated the Milwaukee program analyzed the data collected by the contract research team.

[30]The contract research team did not collect data on classroom characteristics the first year of the evaluation.

able to include in the second-year analyses, were lower than those of public school students in every area, at a statistically significant level.[31]

The Harvard team's reanalysis of the contract research team's data for the first year of the program did not control completely for influences on student achievement other than the voucher program. The team used a statistical analysis method that allowed them to isolate the effect of the voucher program, but they did not include all potential influences in the analysis. Two Harvard team analyses of Hope school students' achievement test scores in the first 2 years of the voucher program also identified changes in the scores. However, neither of these two studies ruled out any student or classroom characteristics that may have influenced the direction of those changes. Because these three studies did not meet our criteria for analyses of the effect of the voucher program, their findings are not reported here. The findings and the methodological strengths and weaknesses of the contract research team's and the Harvard team's research are described in greater detail in appendix IV.

[31]The two private schools, known as the Hope schools (Hope Ohio City School and Hope Central Academy), were established especially for the voucher program. Approximately 15 percent of the students in the Cleveland voucher program attended these schools. In the first year of the program, the contract research team had analyzed the Hope school voucher students' achievement separately because he did not consider the test scores available for this group compatible with those of the other voucher students. The Hope school students had taken a different test. In the second year, the contract research team was able to administer the same achievement test to all students being evaluated, including *students from the two Hope schools.

Alternative Research Approaches Result in Three Different Sets of Findings About Milwaukee Voucher Students' Academic Achievement

Milwaukee's contract research team concluded that there was no consistent evidence that Milwaukee's voucher program had positively or negatively affected student achievement.[32] The team used three comparison groups and multivariate analysis methods that controlled for prior student achievement and student and family characteristics to isolate the program's effect.[33] They adjusted the sample survey data on students' and families' background characteristics for low survey response rates, and estimated test scores in the fourth year of the program—when test score data were missing for about two-thirds of the sample—to improve the reliability of their estimates.[34] They also examined whether the substantial proportion of students who left the voucher program or who left the Milwaukee public school system when they were not selected for a voucher was affecting their analysis of achievement of students who remained in the voucher program and in Milwaukee public schools. They concluded that losing these students made it difficult to be certain about the differences between students' scores.

[32]As we discuss in the background section of the report, the Milwaukee voucher program evaluation covered only the first 4 years of the program, school years 1990–91 through 1993–94, when its size and the private schools participating were different than today.

[33]The contract research team did not collect data on classroom characteristics, such as class size, and thus did not rule out classroom characteristics as a contributing factor in the analysis of Milwaukee students' achievement. Because data on classroom characteristics were not included in the public use data base that the Harvard team and the Princeton researcher used, they were unable to examine classroom characteristics' contribution to Milwaukee students' achievement as well. However, in "Schools and Student Achievement: More Evidence from the Milwaukee Parental Choice Program", Economic Policy Review (March 1998), the Princeton researcher provides indirect evidence that class size may explain results.

[34]Although the contract research team sent its surveys to voucher and public school parents twice, they achieved very low response rates, ranging from 30 to 50 percent. Because the team had independent measures of race and qualification for free lunch (which they used as a surrogate measure for family income) from the Milwaukee Student Record Data Base for both voucher and public school students, they were able to assess sampling bias and construct weights to offset that bias. The contract researcher compensated for missing math scores by a different method. Milwaukee public school students take a number of tests required by the federal Title I program. The requirements include testing in every grade in reading and math using a standardized achievement test. In school year 1993–94, Title I regulations changed from requiring total math, consisting of three subtests, to the "problem-solving" test. As a result, the Milwaukee public school system stopped using all three subtests for some students. Because the correlation between the problem-solving component and the total math scores was high, the contract researcher was able to estimate the total math score for students who took only the problem-solving component.

The Harvard team found improvements in voucher students' language and math scores. This team was the first to use a study design and multivariate analysis procedure that reproduced the Milwaukee voucher program assignment process, assuming that it was random, and to use nonselected voucher applicants as a comparison group. Under this study design, the Harvard team isolated the effect of the voucher program by controlling for factors related to students' assignment to schools.[35] However, this design was unable to account precisely for departures from random assignment to the voucher program and the team did not test their assumption of random assignment completely by analyzing whether applicants not selected for the voucher program who left the public school system were different from the nonselected applicants who remained. To identify improvements in students' scores, they used a statistical test that assumed a change in voucher students' achievement would be more favorable than would a change in the comparison group's and, for some results, used confidence levels that were less stringent than conventional standards. Moreover, the analyses of students who left the voucher program and the Milwaukee public school system that the contract research team conducted, and additional analyses included in the Princeton researcher's evaluation, cast doubt on whether the students remaining in the study samples over the 4 years being analyzed could be considered randomly assigned. These findings also call into question the Harvard team's findings of improvements in students' test scores.

The Princeton researcher found positive effects of the Milwaukee voucher program on students' achievement in math but not in reading. Like the Harvard team's research, the Princeton researcher's study design focused on voucher program applicants, but did not assume that voucher recipients had been randomly selected for the voucher program.[36] The researcher used a multivariate analysis procedure that estimated differences in achievement between voucher students and students in two comparison groups after controlling for all observed and unobserved fixed student characteristics, including background characteristics and prior achievement. She used both nonselected voucher applicants and a random

[35]The Harvard team used an experimental design, which required random assignment of students to the group receiving program services and to the control group to isolate the program's effect. In the Harvard study, voucher students were the group that received the program and applicants not selected for a voucher were the control group.

[36]The Princeton researcher used a quasiexperimental design that did not require that the program or comparison group be selected randomly to isolate the program's effect, but did require statistical controls for factors other than the program that may have influenced students' achievement.

sample of Milwaukee public school students as comparison groups. The Princeton researcher estimated missing test scores, allowed for the dependence of later scores on earlier ones and analyzed whether the proportion of students who left the voucher program or who left the public school system because they were not selected for a voucher affected her estimates of student achievement. Her tests showed that there were systematic differences in the students in her analysis groups but that her statistical procedures had controlled for these differences to the extent possible with statistical methods. Her findings were consistent using either comparison group.

The student achievement research we reviewed for the Milwaukee voucher program was reported in four major studies. The findings and the methodological strengths and weaknesses of these studies are described in greater detail in appendix V.

Concluding Observations

From a national policy perspective, school choice has become a frequent topic of discussion as a way of delivering elementary and secondary education to the nation's youth and giving parents more control over their children's education. Although voucher programs represent a small segment of school choice options, interest in the academic achievement of voucher program students is likely to continue and new evaluations of voucher program initiatives may be undertaken in the future. The studies we reviewed offer some useful lessons on the difficulties in achieving definitive assessments of voucher programs and of other alternative education programs targeted to low-income or disadvantaged students.

First, reliance on administrative data for achievement test scores and student background information can conserve time and resources in data collection where school records are complete and the data system is automated, as in Milwaukee. However, even when complete and automated records are available, reliance on scores from school-administered tests can result in data gaps if the school district changes its testing policy, as did the Milwaukee system. On the other hand, when the evaluation team selects and administers the achievement tests, as in Cleveland, the cooperation of all schools in the study population must be negotiated. The separate analysis of Cleveland's Hope school results in the first-year evaluation, which the contract research team felt was required because the schools had not yet agreed to be tested, limited the applicability of the first-year findings.

Second, the Milwaukee team's experience with survey data collection from the program's low-income families confirms that special data

collection and followup procedures are needed to achieve survey response rates that meet minimum data quality standards when low-income households are members of the study population. For example, although the Milwaukee team sent its survey twice to voucher and public school parents, response rates were very low—from 30 to 50 percent. Additional strategies, such as offering respondents a cash incentive and conducting several rounds of follow-up by telephone with nonrespondents, may increase response rates further.

Finally, vital information about voucher program performance may be lost if adequate funding is not provided for program evaluations. For example, Wisconsin has not funded voucher student academic achievement evaluations since 1995, thereby losing data on program performance during the years when the program had grown the most. Because such school choice initiatives are of national interest, it would be useful to have more definitive research about their effect. Through its role as a sponsor of research on education programs, the Department of Education can encourage state departments of instruction and others interested in the outcomes of voucher programs to conduct additional research of a quality that leads to conclusive findings on emerging programs.

Agency and Other Comments

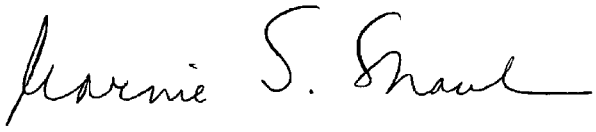
We obtained comments on a draft of this report from Education, the Ohio Department of Education, the Wisconsin Department of Public Instruction, and the Wisconsin Legislative Audit Bureau. These entities provided several technical clarifications, which we incorporated as appropriate. In addition, the Legislative Audit Bureau questioned our description of the use of local tax levies to offset the cost of the voucher program in Milwaukee. We obtained and added clarifying information from the Milwaukee school district. We also obtained comments from the researchers whose work we assessed. Both Education and the Harvard researchers commented that we did not mention research studies on privately funded voucher programs. We anticipate initiating a review of these programs shortly. The Harvard researchers also commented that we did not mention other research on the Cleveland and Milwaukee voucher programs covering subjects such as parental satisfaction and the effect of voucher schools' competition on public schools. While we recognize such research exists, we focused on those topics of greatest concern to our requestor.

Most of the researchers also provided technical comments that we incorporated as appropriate. The contracted researchers for Cleveland and Milwaukee generally agreed with the findings in the report. The Princeton researcher generally agreed with the findings, but questioned our

summary of the differences among the studies' findings. However, her analysis of differences focused only on the differences between her work and each of the other researchers, whereas our assessment included the comparisons she made as well as a comparison of the differences between the Milwaukee contract researchers' and the Harvard researchers' findings. She also pointed out that a published version of the working paper we originally analyzed better met our criteria for inclusion in the report. We reviewed and included information from this article. The Harvard researchers disagreed with our assessment of their studies and provided additional information to support their findings about the Cleveland and Milwaukee programs. After reviewing this information, we determined that the additional material they provided did not support their view of our assessment.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time we will send copies of this report to the Secretary of Education, appropriate congressional committees, representatives of the Ohio and Wisconsin Departments of Education, and other interested parties. If you or your staff have any questions or wish to discuss this material further, please call me or Diana Pietrowiak at (202) 512-7215.

Sincerely yours,



Marnie S. Shaul
Director, Education, Workforce,
and Income Security Issues

Appendix I: Scope and Methodology

Much of the public debate about the Cleveland and Milwaukee voucher programs has concerned research findings and the quality of the research available. In developing our report, we addressed this aspect of the debate in two ways. First, in our analyses of student characteristics and racial and ethnic composition, we used background data collected for studies of the voucher programs. These studies included assessments of the racial and ethnic composition of public school and voucher student populations and studies designed to evaluate Cleveland and Milwaukee students' academic achievement. Second, we included an assessment of the research on Cleveland and Milwaukee students' academic achievement, a major outcome of interest for the voucher programs. We selected studies for these analyses that met two or more of the following criteria:

- The study was performed under contract to the state in which the voucher program was implemented.
- The study was published in a peer-reviewed journal.
- The study was issued under the auspices of a research institution that reviews work prior to release.
- The study employed quantitative data analysis to examine student academic achievement.

We assessed both the quality of the data we used in our analyses of students' characteristics and racial and ethnic background and the methodology of the student academic achievement studies.

Studies of the Cleveland and Milwaukee programs have used both administrative data collected and maintained by the school districts and voucher program offices and surveys conducted for the studies. Most of the studies described the completeness of the administrative data and the elements it contained, and the methods used to conduct the surveys. The criteria we used for assessing the data's quality are shown in table 6. While we recognized that the administrative data were not collected to meet research standards and that surveys of low-income families like those participating in the voucher programs often obtain low response, we paid particular attention to the administrative data's completeness and the surveys' response rates.[1] When 30 percent or more of the administrative or survey data were missing, we looked for analyses showing no important difference between individuals represented in the data and those who were not included. If such an analysis had not been conducted, we did not select the data for our analyses, except for the analysis of Milwaukee

[1]The response rate is the number of people in the survey sample who actually responded, compared with those who were asked to respond but did not.

voucher and public school student characteristics because other data sources were limited.

Table 6: Data Quality Criteria

Survey data	Administrative data
Use of a random sample	Correspondence to the entire study population
Sample size greater than 30	Sample size not applicable because data are gathered for all students
Response rate of 70 to 75 percent or greater	High percentage of the study population for whom information was located in the data base
The results of nonresponse analysis showing no important difference between individuals or families represented in the data and those missing from the data	Comparative analyses showing no important difference between individuals or families represented in the data and those missing from the data if 25 to 30 percent or more of the records are missing

The research on voucher students' academic achievement included both evaluations of the voucher program's impact on students' performance, and analyses and papers discussing methodological issues involved in conducting the research.[2] We reviewed the methodological papers for contextual understanding, but our assessment of the research focused on the impact evaluations. Our assessment included both the quality of the data used in the evaluation and the methodological quality of the research. The criteria we used in the assessment are shown in table 7.

Table 7: Criteria for Assessing Studies of Academic Achievement

Study component	Criteria
Design	For an experimental design, selecting the group receiving the program and the control group randomly For both experimental and quasiexperimental designs, using a comparison group
Data collection	Meeting the criteria for survey and administrative data quality shown in table 6
Data analysis	For quasiexperimental design, using a multivariate analysis procedure For quasiexperimental design, using controls for influences other than the program Testing and correcting for limitations such as nonrandom selection to the program and comparison group, and missing survey and administrative data

[2]The bibliography included at the end of this report lists both types of research.

An impact evaluation determines a program's effect on its participants by isolating a program's contribution from the effects of other influences that could have affected participant outcomes. To isolate the program's influences, an impact evaluation studies two groups: those receiving program services and a similar group not receiving program services. Researchers compare the relevant outcomes of these two groups, such as students' achievement test scores, to determine the program's effect.

The criteria for study design in table 7 apply to the two types of impact evaluation used to analyze the effect of an educational program on its participants: an experimental design and a quasiexperimental design. The two designs differ primarily in the way that the comparison groups are developed. In an experimental design, the comparison group is referred to as the control group. This group is composed of students randomly selected from possible program participants, such as applicants to a voucher program. Because control group members are selected randomly, researchers can compare outcomes to determine the program's effect without using statistical controls for other factors that could have influenced the outcomes. In a quasiexperimental design, the comparison group is composed of individuals who share characteristics with program participants, but who have not been randomly selected and who have may or may not have sought program services.[3] For example, applicants to a voucher program who did not receive a voucher might serve as a comparison group, because they share with voucher recipients an interest in alternative educational services. With this design, statistical controls, such as those provided by a multivariate analysis procedure, are needed to isolate the program from other factors that could influence outcomes.

The same data quality criteria we discussed above were used for assessing the administrative and survey data used in the impact evaluations. The criteria for data analysis in table 7 refer to the need to control for factors other than the program when program participants and comparison group members are not randomly selected. They also encompass additional analyses that may be needed if the group receiving program services and the comparison group were not randomly selected or to determine if missing data affect the reliability of the estimates of the program's effect.

We obtained the data for our analyses of eligibility criteria and the funding of the voucher programs from other sources. The information on the

[3]See *Early Childhood Programs: The Use of Impact Evaluations to Assess Program Effects* (GAO-01-542, Apr. 16, 2001) for a detailed description of experimental and quasiexperimental designs.

eligibility criteria for schools and students participating in the Cleveland Scholarship and Tutoring Program and the Milwaukee Parental Choice Program came from documents issued by the program offices. We also reviewed relevant state laws and regulations.

To describe the funding of the voucher programs and compare the amounts spent on voucher and public school students, we used information provided by the state departments of education and the program offices, as well as information found in program evaluations. We also examined relevant state and school district budget and financial reports. We conducted site visits to Ohio and Wisconsin and interviewed officials of the program offices, school districts, state departments of education, and several private schools to obtain their views on the financial impact of the voucher programs.

We also interviewed the contract researchers and key researchers from Harvard University's Program on Education Policy and Governance and from Princeton University. While an official evaluation of student academic achievement in the Cleveland voucher program continues, analyses of student academic achievement in the Milwaukee program are based on Milwaukee data collected before 1995, when the legislature was still funding data collection. Since student characteristic and achievement data have not been collected for the past 7 years, conclusions reached by both the contract researchers and other researchers may not be applicable to the current voucher program, which has grown tenfold in the interim.

Appendix II: Information on Publicly Funded School Voucher Programs in Florida, Maine, and Vermont

Florida Opportunity Scholarship Program

Objective: This program is intended to support the state constitutional requirement that the state provide students with the opportunity to obtain a high-quality education. Therefore, the program provides state tuition grants to permit students attending a failing public school (that is, "F"–rated) to attend an eligible higher–performing public school or a private school of choice.

Student Eligibility: Any student who spent the last year at a Florida public school that received an "F" rating from the state for the second time in 4 years qualifies for an Opportunity Scholarship. Also eligible are students who did not attend an "F"-rated school in the previous year but are now assigned to such a school.

Private School Eligibility: A private school must be located in Florida and may be sectarian or nonsectarian. Other requirements for private school participation include: (1) demonstrating fiscal soundness; (2) accepting scholarship students on an entirely random and religious-neutral basis without regard to the student's past academic history; (3) being subject to the instruction, curriculum, and attendance criteria adopted by an appropriate nonpublic school accrediting body; (4) employing or contracting with teachers who hold a baccalaureate or higher degree, or have at least 3 years of teaching experience in public or private schools; and (5) accepting as full tuition and fees the amount provided by the state for each student.

Maximum Student Participation: Participation is limited to the total number of students attending or assigned to qualifying "F"–rated schools for a given school year. For the 1999–2000 school year, two such schools with an approximate total population of 900 students were designated as failing. There were no new scholarships for the 2000–01 school year because, as of July 2000, no public schools received a grade of "F" for 2 of 4 years.

Maximum Voucher Amount: The maximum voucher amount is based on (1) a calculated amount equivalent to what would have been provided for the student in the district school to which he or she was assigned; or (2) the amount of the private school's tuition and fees, whichever is less. Eligible private school fees may include book fees, lab fees, and other fees related to instruction, including transportation. The voucher maximum for 1999–2000, based on the calculated costs for the two "F" schools, was $3,353 per student for kindergarten through third grade and $3,178 per student in fourth through eighth grades.

1999–2000 Enrollment in Private Schools: The first program year was the 1999–2000 school year. In that year, 143 out of about 900 students chose not to attend their assigned, failing public school. Fifty-eight enrolled in participating private schools and 85 enrolled in other, higher-performing public schools. Total Florida enrollments for students in kindergarten through 12th grade totaled 2,381,860 for public schools and 288,248 for private schools in 1999–2000.

1999-2000 Participating Private Schools: Five schools: four religious and one nonreligious.

Status of Legal Challenges: In October 2000, the First District Court of Appeal for the State of Florida ruled that the Opportunity Scholarship Program was consistent with Article IX, Section 1 of the Florida Constitution. That provision requires the state to maintain a uniform system of free public schools. The appellate court ruling reversed a trial court decision holding that the Opportunity Scholarship Program violated Article IX, Section 1. In April 2001, the Florida Supreme Court declined to review the appellate court's ruling. The appellate court also deferred consideration of whether the scholarship program statute was unconstitutional under the religion clauses in the Florida and U.S. constitutions, concluding that the trial court must first consider these allegations.

Maine Education Tuition Program

Objective: Districts that do not have their own schools must provide tuition to resident families for use in other schools. Students may attend a private school approved for tuition purposes, a public school in an adjoining district which accepts tuition students, or a school approved for tuition purposes in another state or country upon permission of officials of the receiving school. The "tuitioning" system has existed in some form for over 200 years but has excluded religious schools from receiving state funds since 1981. It especially benefits students living in the rural part of the state.

Student Eligibility: Children of parents residing in a district which does not maintain elementary or secondary schools.

Private School Eligibility: To receive public funds for tuition purposes, a private school must be nonsectarian and meet other requirements for reporting, auditing, and student assessment.

Maximum Student Participation: The number of students receiving tuition to attend other schools depends upon the number of students in

the districts without their own schools. The district pays tuition directly to a public school or to a private school that has accepted the child, has been selected by the child's parents, and has been approved for tuition purposes.

Maximum Voucher Amount: The tuition paid to a private elementary school cannot exceed the average per-student cost in all public elementary schools in the state for the previous year as computed by the State Education Commissioner. For private secondary schools, the tuition paid by the district cannot exceed the sum of the school's allowable expenditures, divided by the number of students at a particular school, adjusted by certain factors; or the adjusted state average public secondary per-student cost, whichever is lower. In the 2000–2001 school year, the maximum tuition rate for public elementary students attending any private school was $4,596. For secondary students attending private schools, the amount was $5,732.

1999-2000 Enrollment in Private Schools: The state's total public school enrollment was 214,985. The number of these public school students that attended private schools with public funding was 5,614. All but 214 of the voucher students attended secondary schools. The number of privately funded students attending private schools was 10,394.

Status of Legal Challenges: On April 23, 1999, the Maine Supreme Court affirmed the judgment of the Superior Court (Bagley vs. Raymond School Department) that the exclusion of religious schools from receiving state funds under Maine's education tuition program does not violate any section of the U.S. or Maine Constitution. On October 12, 1999, the U.S. Supreme Court declined to review the ruling, allowing the lower court's decision to stand.

Vermont Education Tuition Program

Objective: A school district that does not operate its own school or jointly operate a school with another district or districts (a union school) must provide for the education of its students by paying tuition to another Vermont public school district, an out-of-state public school district, or an approved private school. Vermont has had an educational choice system since 1869 but prohibited the inclusion of religiously affiliated schools in 1961.

Student Eligibility: Students in grades kindergarten through 12 from qualified districts.

Private School Eligibility: A private school may operate and provide elementary or secondary education if it obtains state approval. It must show that it has the resources required to meet its stated objectives, including financial capacity, qualified faculty, and physical facilities and special services that comply with state and federal regulations.

Maximum Student Participation: Each school district decides how it will educate its students and thus determines the number that will attend private school. A school district that does not maintain an elementary school may pay tuition for elementary pupils at approved private nonresidential elementary schools. If it does not maintain a high school, it may pay tuition for its pupils to an approved private high school.

Maximum Voucher Amount: The tuition paid to an approved private elementary school must not exceed the lesser of (1) the average tuition of Vermont union elementary schools or (2) the tuition charged by the public elementary school attended by the greatest number of the district's pupils. For students in grades 7 and 8, the district must not pay an amount that exceeds the average tuition of Vermont union high schools for students in grades 7 and 8. For students in grades 9-12, the maximum is the average tuition of union high schools for students in grades 9-12. For the 1999–2000 school year, the allowable tuition for elementary pupils was $6,257; for grades 7 and 8 pupils, $6,514; and for grades 9-12 pupils, $7,306.

1999–2000 Enrollment in Private Schools: Total public school enrollment was 104,559 students. A Vermont Department of Education official estimated that 2,500 publicly funded students attended five private academies (designated high schools used by districts without public high schools) and another 900 publicly funded students are enrolled in other private schools and programs.

Status of Legal Challenges: On June 11, 1999, the Vermont Supreme Court affirmed the judgment of the Superior Court (Chittenden Town School District v. Vermont Department of Education) that providing state aid tuition for children at religious schools would violate a provision of the state constitution barring compelled support for religion. On December 13, 1999, the U.S. Supreme Court declined to hear an appeal.

Appendix III: Additional Data on Racial and Ethnic Composition of Cleveland Schools

The Cleveland Municipal School District provided detailed data on public school students' racial and ethnic composition for school years 1996–97 and 1999–2000. The Cleveland Scholarship and Tutoring Program Office provided similar data for 1999–2000 voucher students (see table 8).

Table 8: Racial and Ethnic Composition of Public School and Voucher Students in Cleveland

	Public school students[a] (percent)		Voucher students (percent)
Racial and ethnic group	**1996–97**	**1999–2000**	**1999–2000**
African-American	70.1	70.4	57.4
Asian	0.9	0.6	[b]
Hispanic	7.6	8.3	6.1
Multiracial	0.2	0.8	3.8
Native American	0.3	0.4	[b]
Other	[b]	[b]	2.8
Subtotal—minority	79.0	80.5	70.1
White	21.0	19.5	29.9

[a]The public school percentages are based on students in kindergarten through the eighth grade.

[b]Not available.

Sources: For public school students, Cleveland Municipal School District; for 1999–2000 voucher students, the Cleveland Scholarship and Tutoring Program Office.

Appendix IV: Strengths and Limitations of Studies Analyzing Cleveland Students' Academic Achievement

Figure 1: Strengths and Limitations of Studies Analyzing Cleveland Students' Academic Achievement

	Contracted Studies	Other Studies
Who did the studies	Contract researcher	Harvard researchers
What the studies covered	Two studies of academic achievement by voucher and nonvoucher students: [a, b] First study: achievement of third-graders across the district [c] Second study: achievement of same students in grade 4	Three studies of academic achievement by voucher students: [e] First study: reanalysis of third-grade voucher and nonvoucher students covered in contract researcher's study, and voucher students in newly-established HOPE voucher schools Second study: achievement of students in HOPE voucher schools Third study: achievement of same HOPE voucher students in the following year
What the studies found	First study: no significant differences in scores between voucher and nonvoucher students in year 1 Second study: all voucher students but HOPE school students scored higher in language--one of six subject areas tested--but voucher students in HOPE voucher schools scored lower than public school students [d]	First study: voucher students showed statistically significant increases in language and science--two of six subject areas tested
Key strengths	Compared achievement between voucher and nonvoucher students Accounted for possible other reasons for differences in performance, such as family background or prior levels of achievement Assessed whether voucher and nonvoucher students differed consistently from each other in socioeconomic background, and whether voucher students who remained in the program differed consistently from those who left	First study: analysis procedure was able to account for possible other reasons for differences in voucher students' achievement, such as family background First, second and third studies: used the conventional standard for tests of statistical significance
Key limitations	Background information for many students was missing or incomplete 28 percent of the voucher students left the program in the second year	First study: excluded prior test scores when finding increases in test scores Second and third studies: did not control for any possible reasons for voucher students' achievement other than the voucher program

[a]Students in third–grade public school classes containing two or more students who had applied for or were participating in the tutoring assistance component of the Cleveland Scholarship and Tutoring Program were selected as the comparison group for the study. These classes were selected for comparison with the voucher students because they included public school students whose parents, like the voucher students' parents, were motivated to apply for a supplementary educational program. Use of this comparison group was intended to take account of nonrandom selection for the voucher program.

[b]The Hope schools were established especially for the voucher program. These two schools did not permit the contract researchers to test the achievement of their students in the first voucher program year (1996–97).

[c]The contract evaluation team administered the Terra Nova battery of achievement tests to voucher students at all participating voucher schools except the Hope schools. Scores from the California Achievement Tests, which the Hope schools had administered, were used for the analysis of Hope school students' achievement. Because the team considered these tests incompatible with the Terra Nova, scores from the two tests were not combined in a single analysis.

[d]The analysis procedures controlled for prior student achievement; family income; living arrangement; race; gender; and school characteristics, including class size, teachers' highest degree and years of teaching experience.

[e]Data from the first and third studies also are reanalyzed and reported in a single study. See "Lessons from the Cleveland Scholarship Program" in Paul E. Peterson and Bryan C. Hassel, eds., Learning from School Choice, (Washington, DC: Brookings Institution Press, 1998), pp. 357-92. An analysis of data from the first study, which does include prior test scores and background characteristics, finds increases in third-grade voucher students' test scores. While this study employs the conventional standard for tests of significance—95 percent confidence—the statistical test used assumes that a change in voucher students' achievement would be more favorable than would a change in the comparison group's. The analysis of data from the third study on changes in HOPE school students' test scores presents more detailed findings, but, in the comparison of test scores, does not control for any possible reasons for voucher student's achievement other than the voucher program.

Appendix V: Strengths and Limitations of Studies Analyzing Milwaukee Students' Academic Achievement

Figure 2: Strengths and Limitations of Studies Analyzing Milwaukee Students' Academic Achievement

	Contracted Studies	Other Studies	
Who did the studies	Contract researcher	Harvard researchers	Princeton researcher
What the studies covered	Academic achievement of voucher and nonvoucher students during school years 1990-94	Same	Same
What the studies found	No consistent evidence that voucher students did better or worse than public school students in math Analysis using nonselected applicants as a comparison group showed voucher students ahead in math, but results perhaps affected by very low test scores for some nonselected voucher applicants and by low-scoring voucher students leaving the program	Voucher students did better in reading and math	Voucher students did better in math, but not in reading
Key strengths	Compared voucher students, a random sample of public school students, and nonselected voucher applicants Used survey responses from those who did respond as a proxy for the responses of those who did not Controlled for effects of background characteristics and prior achievement Accounted for the effects of missing achievement test scores and possibility that a student's score on one test could affect his or her score on another test Determined that nonselected voucher applicants may be different because they were likely to be lower performing students than voucher students	Originated the idea of using nonselected voucher applicants as a comparison group for voucher students Used a statistical procedure designed to reproduce the Milwaukee voucher program assignment process, assuming that it was random	Compared voucher students, a random sample of public school students, and nonselected voucher applicants Controlled for all observed and unobserved student characteristics, including prior achievement and background characteristics Estimated missing test scores, allowed for the dependence of later test scores on earlier ones, and assessed whether the voucher students who left the program affected the achievement results Assessed whether voucher students and nonselected voucher applicants consistently differed from each other Estimated composite math test scores for the Milwaukee public school students in the 4th year of the program

	Contracted Studies	Other Studies	
Key limitations	Parents' response to surveys was very low Composite math score for many public school students had to be estimated Student departures from the voucher program and public schools were selective in ways that might affect achievement findings Almost 50 percent of applicants not selected for a voucher left the Milwaukee public school system Because data on classroom characteristics were not collected, and thus not included in the public use data base, none of the researchers were able to rule on classroom characteristics as a contributing factor in Milwaukee students' achievement	Data used to identify similarities and differences between voucher students and nonselected applicants were missing a large portion of the nonselected students Statistical tests used assumed that a change in voucher students' achievement would be more favorable than would a change in the comparison group's Used less stringent standard--90 percent confidence--for tests of statistical significance Student departures from the voucher program and public schools were selective in ways that might affect achievement findings Statistical procedures were unable to account precisely for departures from random assignment to the voucher program	The composite math score for 68 percent of public school students had to be estimated Student departures from the voucher program and public schools were selective in ways that might affect achievement findings

Appendix VI: GAO Contacts and Staff Acknowledgments

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To Report Fraud, Waste, and Abuse in Federal Programs

Contact one:

- Web site: http://www.gao.gov/fraudnet/fraudnet.htm
- E-mail: fraudnet@gao.gov
- 1-800-424-5454 (automated answering system)