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ABSTRACT

This paper examines the Cleveland Scholarship and Tuition Program (CSTP), a program initiated in 1996 that was the first in the U.S. to offer state-funded scholarships that can be redeemed at both secular and parochial schools. To gather information about the program, a telephone survey of 2,020 CSTP applicants, 1,006 of which did not enroll in the program, was conducted. Analysis of the data revealed five major findings. First, parents reported that their decision to apply for a scholarship was largely motivated by academic concerns. Second, a relatively small proportion of nonrecipients claimed that an inability to secure admission to a preferred private school was an important reason in their decision not to participate in the program. Third, parents of scholarship recipients who previously attended public schools were much more satisfied with every aspect of their choice school than applicants who did not receive a scholarship but attended public school instead. Fourth, choice schools did well at retaining students in the program, both within the school year and from one school year to the next. Finally, preliminary test scores in mathematics and reading show large gains for CSTP students attending the Hope schools. Overall, the findings support future choice initiatives, though special funding arrangements and further programming will be necessary for disabled and other special-needs students. (Contains 15 tables that present research data.) (RJM)

Lessons From the Cleveland Scholarship Program

Conducted under the auspices of Harvard University's Program on Education Policy and Governance, Jointly Sponsored by the Taubman Center on State and Local Government at the Kennedy School of Government and the Center for American Political Studies in the Department of Government.

by

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Lessons From the Cleveland Scholarship Program

Does school choice work? If so, who benefits? Choice critics say private schools do not appear to serve students' academic needs any better than public schools. They further argue that the few detectable benefits accrue mainly to students who need the least assistance. Parents who are already involved with their child's education will capitalize on choice and private schools are disinclined to accept students with special needs. What is more, after choice students gain admission to private school, the argument goes, the weakest will be weeded out.

The Cleveland Scholarship and Tutoring Program (CSTP), which began in the fall of 1996, provides new evidence which sheds light on these issues.[1] CSTP is the first program in the country to offer state-funded scholarships that can be redeemed at both secular and parochial schools. During the 1996/97 school year, 1,996 scholarship recipients attended fifty-five private schools, in grades kindergarten through grade 3. During the 1997/98 school year, CSTP has offered scholarships to 3,000 kindergarten through fourth grade students.

At the time the data reported below were collected, CSTP had been in place for only one year. Consequently, we cannot yet know the long term effects vouchers will have on student test scores, how many and what kinds of schools will emerge in response to new demand, or whether vouchers will stimulate reform within the Cleveland public schools. But it is not too soon to begin to evaluate important aspects of the program. In the summer of 1997, Harvard's Program on Education Policy and Governance (PEPG)

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[1] In this paper, we focus on the scholarship component of the program.

commissioned a survey of 2,020 voucher applicants in order to find out who participated in the program, who did not and how satisfied both were with the schools their children attended.[2] PEPG also analyzed test score data of students attending two new choice schools. The evidence collected has important implications for the contemporary school choice debate.

We present five main findings. First, parents reported that their decision to apply for a scholarship was largely motivated by academic concerns. Second, a relatively small proportion of non-recipients claimed that an inability to secure admission to a preferred private school was an important reason in their decision not to participate in the program. Third, parents of scholarship recipients who previously attended public schools were much more satisfied with every aspect of their choice school than applicants who did not receive a scholarship, but attended public school instead. Fourth, choice schools did well at retaining students in the program, both within the school year and from one school year to the next. And fifth, preliminary test score results in mathematics and reading show large gains for CSTP students attending the Hope schools.

Origins of the Program

In March 1995 the Ohio General Assembly appropriated funds expected to be

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[2] In addition to the funds made available by the Ohio State Department of education, PEPG received financial support for this evaluation from the Kennedy School of Government's Taubman Center on State and Local Government and the John M. Olin Foundation. We wish to thank William McCready, Robin Bebel and the staff of the Social Science Research Institute at Northern Illinois University in Dekalb, Illinois for preparing and conducting the parent survey. We thank Mark Hinnawi for research assistance and Michelle Franz for her expert administrative support. We would also like to thank Bert Holt at the Cleveland Scholarship and Tutoring Program for compiling the necessary information on applicants to the program and providing us with the information needed to conduct the parent survey. We also appreciate the assistance provided by Francis Rogers at the Ohio Department of Education and the principal and staff at the Hope Schools.

sufficient to provide 1,500 scholarships worth as much as $2,250 each. Scholarship recipients were to be chosen by lottery. The scholarship covered up to 90 percent of a school's tuition, the balance coming from the child's family or another private source. The maximum amount provided was little more than a third the per pupil cost of Cleveland public schools, which in 1997 was $6,507.[3] This simple comparison of costs, however, omits the additional costs of transportation, special education and any additional aid to choice schools from public or private sources.

The legislation establishing CSTP allowed as many as 50 percent of all scholarships to be used by students already in private schools. The Ohio Department of Education, however, reduced the figure to 25 percent. Of the 6,244 applications received by CSTP in the fall of 1995, 29 percent or 1,780 came from students already attending a private school. In January, 1996, CSTP awarded 375 scholarships to these applicants. As of April 3, 1997, CSTP awarded 21 percent (427 of 1,996) of the scholarships to students previously matriculated in a private school. CSTP granted the remaining 79 percent of the scholarships to students who had previously been attending public school or who were beginning kindergarten.[4]

In two respects, the Ohio Department of Education gave preference to poor families. First, students from low-income families received larger scholarships. Students coming from families whose income was below 200 percent of the poverty line received 90 percent of their school's tuition, up to $2,250, while those students coming from families whose income was at or above 200 percent of the poverty line were eligible to

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3 Cleveland Plain Dealer, "The Equity Gap," March 25, 1957, A9.

4 Paul T.. Hill and Stephen P. Klein, "Toward an Evaluation Design for the Cleveland Scholarship Program," (Paper prepared for Ohio Department of Education, November 1996). Undoubtedly, some of

receive $1,875 or 75 percent of their school's tuition, whichever was less. Second, low-income students had a better chance of winning the initial lottery. The first lottery, held in January 1996, was limited to those applicants (58 percent of the sample) whose income was below the poverty line. And because this lottery received considerable attention by the local press, low income families were more likely to find out that they had won a scholarship.

Many of those offered scholarships did not accept them, either because the CSTP office could not reach them, or because they did not come to the CSTP office to verify their income or, if they did, were found to be ineligible. By the summer of 1996, CSTP also discovered that tuition at Cleveland private schools was less than originally estimated, making it possible to increase the number of scholarship recipients to nearly 2,000. To accommodate more applicants, the Ohio Department of Education then relaxed the rules, making eligible any family with income below 200 percent of the poverty line. But by the time of the second, less visible lottery, CSTP was in the midst of a court challenge, making it unclear whether the program would actually begin in the fall of 1996. Also, CSTP reported that it was becoming increasingly difficult to locate applicants (due to changes of telephone and address). As a result, the acceptance rate declined sharply, and CSTP claimed it eventually offered scholarships to all low-income applicants that it was able to contact.[5]

CSTP planning and administration were seriously hampered by a lawsuit brought by the Ohio Federation of Teachers (an affiliate of the American Federation of Teachers) and other interest groups and individuals. The court case dragged on into August 1996,

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the kindergartners would have attended private school even if they hadn't received a scholarship.

and it was not until two weeks before the beginning of the school year that the lower court found no constitutional or other legal barrier to CSTP.[6] In addition, private schools reported difficulties obtaining student records from the Cleveland public schools. What is more, CSTP did not convince the Cleveland public schools to arrange transportation until well into the school year, making it necessary to shuttle many scholarship students by taxi. In short, the program began with enough uncertainty and confusion that parental satisfaction could not be taken for granted.

Data Collection

During the summer of 1997, Harvard University's Program on Education Policy and Governance (PEPG) conducted a telephone survey of 2,020 CSTP applicants and analyzed available test-score data. PEPG interviewed 1,014 scholarship recipients, and 1,006 applicants who did not enroll in the program.

The 2,020 interviews required 3,437 telephone attempts. As shown in Table A1 of the Appendix, only 5 percent of the attempts resulted in a refusal; other interviews were not completed because no contact could be made, usually because the respondent was no longer at the telephone number provided PEPG by CSTP.

The completion rate for scholarship recipients (74.1%) was higher than for those who applied but did not receive a scholarship (48.6%). The survey thus better represents scholarship recipients than non-recipients. As can be seen in Table A2, the income and

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[5] However, as we shall see, 44 percent of the non-recipients contacted in our survey thought that they had never been awarded a scholarship.

[6] The Ohio Federation of Teachers appealed the case, and in the Spring of 1997, the appellate court ruled CSTP unconstitutional because it violated both the federal establishment of religion clause and a Ohio state constitutional requirement that general laws be equitably applied across the entire state. In July 1997, the State Supreme Court accepted the case for review and permitted CSTP to continue contingent

ethnicity of recipients new to choice schools who responded to the survey (column 2a) did not differ significantly from the income and ethnicity of all such recipients (column 2b), though they came from slightly smaller families. As compared to the universe of non-recipients (column 4b), however, those non-recipients responding to the survey (column 4a) had higher family incomes, were more likely to be white, and come from smaller families. If these demographic characteristics are positively correlated with parental satisfaction, the positive effects reported below underestimate CSTP's actual programmatic impact.

CSTP was not set up as a randomized experiment. Although a lottery was initially used to determine scholarship recipients, CSTP eventually attempted to give scholarships to all low-income applicants. As a result, those receiving scholarships may have been the applicants who CSTP could easily reach and who were willing to have their income verified.

The demographic characteristics of recipients new to choice schools and non-recipients remaining in the public schools were nonetheless quite similar, perhaps because CSTP initially used a lottery to award scholarships. When demographic differences can be observed, the scholarship recipients are the more disadvantaged group. Though the two groups may also have unobserved characteristics that distinguish them, if such differences are correlated with demographic differences, the comparisons are likely to be biased against finding positive programmatic effects.

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on its decision on the merits.

Background Characteristics of Applicants

Many of those critical of school choice fear that disadvantaged families will be excluded from either the program itself, or the private schools to which they apply. In the words of a recent Twentieth Century Fund report, if school choice "becomes a strategy to . . . restrict lower-income students of color to an inferior education, then the divisions between rich and poor in this country, and the attendant social problems, will only increase."[7] But a Heritage Foundation report counters that "school choice programs benefit minority inner-city students the most."[8] The Parental Survey permits an evaluation of these claims.

Survey results indicate that it is possible for choice programs to award scholarships to low-income recipients. Table 1 shows that the average family income of scholarship recipients new to choice schools (column 1) was less than that of non-recipients in public school (column 2). Similarly, the average family income of scholarship recipients from private schools (column 3) was less than that of non-recipients attending private school (column 4).[9] All of these differences are statistically significant.

In other respects, recipients new to choice schools resembled non-recipients in

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[7] Carol Ascher, Norm Fruchter, and Robert Berne, Hard Lessons: Public Schools and Privatization (New York: Twentieth Century Fund Press, 1996), p. 111.

[8] Nina H. Shockraii and John S. Barry, "Two Cheers for the S. 1: The Safe and Affordable schools Act of 1997," The Heritage Foundation Issue Bulletin, no 232, p. 5.

[9] The discussion in the text relies solely on data collected from the parent survey; these data differ significantly from the data collected by the CSTP office. According to the survey data, the average family income for recipients from public schools was $20,091. According to official CSTP records taken from an application form submitted eighteen months earlier, the family income reported by this same group was $12,253. We do not think the explanation for the discrepancy is a remarkable increase in parents' earning power. More likely, respondents had an incentive to give a downwardly biased estimate of their income when reporting to an official government agency allocating benefits based on income; respondents may have had an incentive to report an upwardly biased estimate of their income when talking anonymously to a survey researcher.

Although all estimates of the income of a population are subject to error, the problem can be minimized by always making comparisons within a specific data set in which the same bias, whether

public schools. Differences in terms of their mother's education, their mother's employment, their family size, their family living arrangements, their residential mobility or their religious affiliation were not statistically significant. These findings generally do not change when we isolate kindergartners.[10]

Educational differences are somewhat more pronounced. Scholarship recipients new to choice schools were less likely to have received special education than were non-recipients in public school (10.7 percent as compared to 17.6 percent). But recipients were also less likely to have been in classes for gifted students (7.7 percent compared to 18.3 percent).[11] It does appear, though, that some students who had special education needs, and/or who had been suspended for disciplinary reasons, had difficulty obtaining placement in private schools. Of the respondents who said they could not obtain admission in a desired private school, 25 percent said their child had been receiving special services related to a disability or learning problem and 12 percent said their child had been suspended for disciplinary reasons. In the conclusion to this paper, we discuss these findings' policy implications.

Reasons for Seeking a Choice School

School choice advocates say they wish to empower parents by giving them a choice among schools. But some critics have suggested that families, especially low-income families, do not choose schools on the basis of school quality. The Carnegie Foundation for the Advancement of Teaching has claimed that "when parents do select

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upward or downward, is likely to exist across groups. We follow this procedure throughout this paper.

[10] See Jay Greene, William Howell and Paul Peterson, "An Evaluation of the Cleveland Scholarship Program." (Occasional Paper, Harvard University's Program on Education Policy and Governance, 1997).

[11] These data are available in Tables 1.2 and 1.3 of Greene, Howell and Peterson 1997.

another school, academic concerns often are not central to the decision."[12] A Twentieth Century Fund report claims that low-income parents are not "natural 'consumers' of education. . . [Indeed], few parents of any social class appear willing to acquire the information necessary to make active and informed educational choices."[13] Similarly, the American Federation of Teachers (AFT) report on Cleveland suggests that parents sought scholarships, not because of "'failing public schools" but "for religious reasons or because they already had a sibling attending the same school."[14]

Not much support for such criticisms can be found in the Parent Survey. Asked why they applied for a scholarship, 85 percent of parents new to choice schools said they wanted to "improve the academic quality" of their child's education.[15] Second in importance was the "greater safety" to be found at a choice school, a reason given by 79 percent of the recipients. "Location" was ranked third. Contrary to AFT's suggestion, "religion" was ranked fourth, said to be very important by just 37 percent. Finally, "friends" were said to be "very important" by less than 20 percent of the scholarship recipients. Non-recipients who remained in public school ranked the reasons in the same order but did not give any of them the same degree of importance.[16]

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[12] Carnegie Foundation for the Advancement of Teaching, School Choice: A Special Report. (Princeton, New Jersey: Carnegie Foundation for the Advancement of Teaching, 1992), p. 13.

[13] Ascher et al., pp. 40-41.

[14] Murphy, et al. 1997, p. 10.

[15] See Tables 1.4 and 1.5 in Greene, Howell and Peterson 1997.

[16] What accounts for this difference? Two possibilities present themselves. On the one hand, non-recipients might have appeared less enthusiastic about their original reasons for applying as a post-hoc rationalization for not having taken advantage of the scholarship. Alternatively, one might hypothesize that the intensity of parents' reasons for seeking a choice school was an important factor in determining who actually received a scholarship. Preliminary evidence suggests that the former is true. The responses of those who involuntarily were placed in public schools (either because they did not know they received a scholarship, or because they claimed that being denied admission to a preferred private school was an important reason for refusing the scholarship) were largely indistinguishable from those of non-recipients who actively chose to send their child to a public school. This suggests that the strength of parents' intentions did not have much impact on which applicants received a scholarship.

Reasons for Non-Participation

Non-recipients were asked their reasons for not participating in the program. According to CSTP officials, the office made strong efforts to reach all applicants, so non-recipients may have had substantive reasons for not accepting a scholarship. The recent evaluation of CSTP by the American Federation of Teachers explained non-participation this way:

> It is clear that the [CSTP] Office made repeated efforts to make vouchers available to low-income public school families. However, some families who had originally applied for a voucher never followed up, as evidenced by the fact that families representing 34 percent of public school students in the voucher lottery did not visit the Office and verify their income. More significantly, many families who did verify their income and thus wanted vouchers could not find an available seat in a private school, at least not in the private school of their "choice". . . . About half of public school students who wanted vouchers most likely could not find an open seat in the private school or schools of their "choice."[17]

Why did many people apparently offered a scholarship by CSTP turn it down? The most important reason, from the parents' point of view, was inadequate communication between CSTP and the applicants. As shown in Table 3, no less than 44 percent of the non-recipients remaining in public schools said they were never offered a scholarship. This figure is probably much larger. We estimate that a clear majority of those our survey team could not contact were also not reached by CSTP.

Low-income families are highly mobile and often depend upon friends and relatives for telephone and mail service. They can be extremely difficult to reach. Even when contacted, many families may not have understood that in order to receive a scholarship they had to verify their income. Moreover, Ohio Department of Education rules, which

first limited eligibility to applicants with incomes below the poverty line, may have discouraged many of those above the poverty line from giving the program further consideration, despite the fact that eligibility requirements were subsequently relaxed. Families with incomes above 200 percent of the poverty line were not eligible until November 1997, two months after the school-year had begun.

Possible communication problems, compounded by the uncertainty caused by court challenges and the small staff charged with conducting the lotteries, made it less than surprising that half or more of the non-recipients thought that they never not won a scholarship. More surprising is that nearly 2,000 applicants did in fact receive a scholarship and were placed in a choice school within a short period of time -- under difficult and continuously changing circumstances.

We asked the remaining 56 percent of non-recipients their reasons for not accepting a scholarship. Three reasons were mentioned with roughly equal frequency: transportation, financial considerations, and the offer of admission to a desired public school (Table 3). Apparently, the initial difficulties in setting up travel arrangements may have affected parental decision-making. In mentioning financial considerations, parents may have been referring to the fact that they needed to supplement the scholarship with a tuition payment (10-25 percent of the cost), or to eligibility requirements, which initially limited scholarships to those below the poverty line. The third major reason, said to be important by over a third of the non-recipients in public schools, was their success in gaining admission to a desired public school. Observers reported that the Cleveland public schools responded to the scholarship program by giving applicants access to one of the

[17] Murphy et al. 1997, pp. 9-10.

city's magnet schools or enrichment programs. If so, it suggests that CSTP increased choices of CSTP applicants within the Cleveland public schools.

The fourth most important reason for non-participation, given by 21 percent of those remaining in public schools, was the inability to secure admission to their desired private school. Many private schools were already oversubscribed. Also, the choice program was being set up in a context seriously complicated by the court suit filed by the Ohio Federation of Teachers, creating a great deal of uncertainty as to whether it would become operational. As we have already seen, scholarship recipients also were more likely to have special education needs than their counterparts in public schools. For any of these reasons, it is entirely possible that some private schools might have been reluctant to accept a large number of scholarship recipients from public schools.

Parental Satisfaction

Many economists think that customer satisfaction is the best measure of a product's quality. According to this criterion, there is little doubt that Cleveland's choice schools outperformed the city's public schools. Recipients from public schools were much more satisfied with every single aspect of their choice school than non-recipients in public schools. Table 4 shows that two-thirds of parents new to choice schools (column 1) reported being "very satisfied" with the "academic quality" of their school, as compared to less than 30 percent of public-school parents (column 2). Nearly 60 percent were "very satisfied" with school safety, as compared to just over a quarter of non-recipients in public-school. With respect to discipline, 55 percent of recipients from public school, but only 23 percent of non-recipients in public school, were very satisfied. The differences in

satisfaction rates were equally large when parents were asked about the school's "private attention to the child," "parent involvement," "class size" and school "facility." The most extreme differences in satisfaction pertained to "teaching moral values": Seventy-one percent of the recipients from public schools were "very satisfied," as compared to only 25 percent of the non-recipients in public schools.

It also is worth inquiring whether scholarship families coming from public schools were as satisfied as those who had already been enrolled in private schools. The AFT, in its report on the program, suggests that scholarship recipients from private schools were given important advantages. In the words of the report:

> Voucher students who had previously been enrolled in private schools held a "monopoly" on placements in the established private schools. In contrast, almost half of the voucher students who moved from public to private schools were enrolled in four schools with little or no educational and financial track record.[18]

There is some evidence from the survey in support of the AFT suggestion that scholarship recipients from public schools had a less satisfying educational experience than those from private schools. However, the differences between the two groups, in most cases, are modest. For example, 67 percent of recipients from private schools (Table 4, column 3) say they were "very satisfied" with the academic quality of the school, compared to 63 percent of those from public schools (Table 4, column 1). For school discipline, the figures were 62 percent and 55 percent, respectively. The biggest difference concerned school safety: 69 percent as compared to 59 percent. The overall trend, nonetheless, persists. Choice parents, whether or not they are new to choice schools, expressed much higher levels of satisfaction with their school than did families

[18] Murphy et al., p. ii.

with children still in public school.

What factors contribute to these differences? To answer this question, we employ multivariate regression analysis. We build a composite measure of school satisfaction, which is simply the sum of the responses given for each category, rescaled from zero to 100 to facilitate interpretation.[19] We then regress this summary satisfaction measure against each child's educational characteristics, the type of schools attended and demographic controls. In Table 5, we examine the determinants of satisfaction for all applicants; in Table 6, we consider the determinants of satisfaction for scholarship recipients; in Table 7 we focus on non-recipients. In each table, model 1 controls for the most significant demographic factors; Model 2 includes the full range of demographic factors.

The results reported in Table 5 are quite striking. Again, the most prominent finding is that students attending established private schools were as many as 16 percentage points more satisfied than parents whose children voluntarily decided to remain in public school.[20] The baseline of the regression in Table 5 against which other categories are compared consists of those individuals who actively chose to attend public school. These individuals knew they were offered a scholarship and refused it, and claimed that being refused admission to a preferred private school was not an important reason for their decision to attend public school. It is clear that the findings are due to higher satisfaction with established choice schools and do not just tap the dissatisfaction felt by a small subset of public school parents who could not get into the program.

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[19] The zero order correlation among satisfaction categories ranges between .45 to .68.

[20] Because school types are coded as dummy variables, the magnitude of these effects can be interpreted as percentage points. These differences are substantial. Students attending established parochial schools,

The level of satisfaction varies with the type of school scholarship recipients attended. As shown in Table 6, parents whose scholarship students attended an "Established Parochial School" (which consist mostly of Catholic schools) and "Established Secular School" (largely Montessori schools) were most satisfied, then "New Secular Schools" (the Hope schools) and finally "New Parochial Schools" (two religious schools which admitted a large number of scholarship students). The fact that the coefficient for "New Parochial School" in Table 5 is indistinguishable from zero suggests that the satisfaction levels of parents who voluntarily sent their child to public school and scholarship parents in the newly established parochial schools are roughly equal.

The parents of children who involuntarily ended up in public schools were approximately 7 percentage points less satisfied with the public schools than those individuals who actively chose to attend public school. Children who "involuntarily" attended public school include non-recipients who either did not know they were offered a scholarship or claimed that a rejection from a desired private school was an important reason in not taking advantage of the scholarship.

Parents with special needs children were three percentage points less satisfied with their schools. This attribute is statistically significant when we examine the universe of applicants and just scholarship recipients (tables 5 and 6), but not when we examine non-recipients (Table 7). The differences between the satisfaction rates of special needs recipients and non-recipients, however, are not statistically significant. Nonetheless, there is some evidence that choice programs need to give additional attention to ensuring adequate services for this population.

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for example, were four tenths of a standard deviation more satisfied with their school than those who voluntarily remained in public school.

Racial differences with respect to parental satisfaction between recipients and non-recipients are somewhat more pronounced. Minority scholarship recipients, the vast majority of whom were African-American, on average were about 3 percentage points less satisfied with their schools than whites (Table 6); among non-recipients, no such differences can be detected (Table 7). Differences between recipients and non-recipients are statistically significant. It is possible that some minorities may have had a more difficult time either gaining admission to a desired private school, or integrating into the school once there.

With respect to income, a reverse effect can be detected. As shown in tables 6 and 7, income impacts the satisfaction of only non-recipients. Among non-recipients, parent with incomes greater than $50,000 were about 6 percentage points more satisfied with their child's school than parents with incomes of less than $10,000. The size of the coefficient appear small because the variable is coded from 0 to 10.[21] No such differences are recorded among scholarship recipients. This finding suggests that voucher programs attenuate the influence of income, presumably by affording choice to all children.

Interestingly, religious compatibility seems to have had little or no effect on the satisfaction of scholarship recipients (Table 6). It made no difference whether or not a student attended a parochial school that was of the same religion as his or her family. This finding includes families with no religious affiliation, suggesting that children of many different religious backgrounds can have a positive educational experience, regardless of whether they attend a compatible secular or parochial school.

In summary, four principal findings are evident. First, scholarship recipients were

[21] Differences with respect to satisfaction of the richest and poorest applicants is simply ten times the

far more satisfied with their child's school than were non-recipients in public schools. Second, parental satisfaction is especially high in well-established private schools. Third, among scholarship recipients, minorities seemed less satisfied with their child's school; these differences are not statistically significant among non-recipients. Finally, while the satisfaction of high-income non-recipients is higher (even when controlling for what type of school a child attends and numerous other demographics), the effect of income among scholarship recipients disappears.

School Mobility Rates

Most educators think that, all things being equal, it is better that students stay in the same school, especially during a single school year. Most of the time, education works better when it is not subject to disruption. One evaluation of the Milwaukee choice experiment argued that "attrition" from the program was its "most troubling aspect."[22] Daniel McGroarty, by contrast, has argued that mobility among Milwaukee's school choice program was less than the mobility among the city's public schools. Moreover, high rates of school mobility are to be expected given the high residential mobility rates that occur among low-income, inner-city neighborhoods.[23] According to the U. S. census, the annual residential mobility rate among central-city, female-headed households with children between the ages of six and seventeen is 30 percent for African Americans and 35 percent for Latinos.

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unstandardized regression coefficient.

[22] John F. Witte, "Who Benefits from the Milwaukee Choice Program?" in Bruce Fuller et al., eds., Who Chooses? Who Loses? Culture, Institutions and the Unequal Effects of School Choice (New York: Teachers College Press, 1996), p. 133; see also Carol Ascher, Norm Fruchter, and Robert Berne, Hard Lessons: Public Schools and Privatization (New York: The Twentieth Century Fund Press, 1996), p. 71.

[23] Daniel McGroarty, "School Choice Slandered, " Public Interest Fall, 1994, pp. 94-111.

The Cleveland choice schools seem to have done well in retaining their students. Only 7 percent of all scholarship families reported not attending the same school for the entire year. Among recipients from public schools the figure was 10 percent. In Milwaukee's public elementary schools, nearly 20 percent leave even before the end of the school year in June.[24] Come the following fall, nearly 40 percent of the students changed schools.

As shown in column 1 of Table 7, the most important reason recipients new to choice schools gave for changing schools mid-year was admission to a preferred private school. Very likely, many of these changes were due to the fact that the CSTP program was delayed by the legal suit, so that some recipients did not receive their scholarships until after the school year had begun. If so, this cause of school mobility should decline over time. Another 1 percent of the students changed schools because they had been admitted to a preferred public school; perhaps Cleveland public schools had given these families the opportunity to attend a magnet school. Another 0.8 percent moved during the course of the year. And 0.8 percent changed schools for transportation reasons, perhaps a sign that the initial transport problems of the CSTP program posed difficulties for some parents.

Parents were also asked whether they planned on sending their child to the same school next year. 81 percent of scholarship recipients from public schools gave a positive response, as did 88 percent of the recipients who already had been attending private school (Table 8). If actual choices are consistent with these plans, the mobility rate in

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[24] Data on the mobility rates among students in low-income elementary schools in grades two through five are provided in John F. Witte, Andrea B. Bailey and Christopher A. Thorn, "Second Year Report: Milwaukee Parental Choice Program," Department of Political Science and the Robert M. La Follette Institute of Public Affairs, University of Wisconsin-Madison, Madison Wisconsin, December, 1992, pp

Cleveland from one year to the next is approximately the same as in Milwaukee's state-funded elementary choice program, which was about one-half the mobility rate in Milwaukee public schools.

Choice critics have suggested that private schools may routinely expel or not readmit students for a second year, if they are not keeping pace with their peers. Defenders of school choice say that private schools use this discretion sparingly. To clarify this disagreement, we asked why families planned on changing schools. As shown in Table 8, less than one-half of one percent of recipients from public schools said their child could not be readmitted to their private school. In other words, while refusal to be readmitted is not unknown, neither has it been practiced to any significant degree.

Parents instead gave a wide range of other reasons for planning to move their child to another school in the fall of 1997. Six percent gave quite practical reasons, such as the family's moving from the area or the child's change in grade level (necessitating a school change). Another one and one-half percent found another private school they preferred, and a half percent found a preferable public school. Either transportation difficulties or financial costs posed an obstacle for another 2.4 percent. But 6.5 percent of all recipients from public schools planned on leaving because they were not satisfied with the quality of the school or were disappointed in the way in which the CSTP program operated. For a small but still important fraction of scholarship recipients, CSTP, at least in its first year, was not a success.

To examine sources of school mobility more closely, in Table 9 we ran a probit model where the dependent variable is scored one if the child either changed school during

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19-20.

the school year, changed over the summer, or both, and zero otherwise. All non-demographic variables are coded from zero to one to facilitate comparisons. After controlling for demographic and school characteristics, parental satisfaction proved to be far and away the most important factor affecting a scholarship recipient's decision to stay at a school. The more satisfied a parent was with her child's school, the more likely she was to remain at the same school. Choice critics may see this as a sign of program failure, because not all families' expectations were fulfilled. However, school choice supporters may interpret this as evidence that choice allows a parent to make a move when things do not seem to be working out.

Table 9 also corroborates some of the parental satisfaction findings. Students attending an established parochial schools are significantly less likely to change schools, presumably because of the high parental satisfaction recorded among these schools; this inference is supported by the fact that as one moves from Models 1 and 2 (which include the satisfaction measure) to Model 3 (which does not), the size of the coefficient doubles.[25]

Students who attended an established secular school were more likely to change schools. The reason for this, however, has little to do with parental satisfaction. Rather, this category largely consists of Montessori schools, which usually terminate at kindergarten. The students who attended these schools were more likely to leave at the end of the year, not because they were less satisfied, but because these schools could no longer accommodate them. The high correlation between established secular school and kindergarten explains why the latter variable does not come up statistically significant in

[25] Note also that when moving from Models 1 and 2 to Model 3, the constant switches signs, again to

any of the three models.

Test Scores

Much doubt has been cast upon the newly established secular schools. The AFT expressed concern that the Hope schools were "voucher-dependent" and had little or no "educational track record."[26] And parents at the Hope schools were only 6 percentage points more satisfied than those who voluntarily remained in public schools. An analysis of test scores from the Hope schools addresses the concerns raised by the AFT, and insofar as parental satisfaction at more established schools was much greater, provides conservative evidence about the performance of choice schools on the whole.

Three additional reasons make this analysis particularly interesting. First, the Hope schools were the only schools formed in response to the adoption of CSTP. They thus provide information on schools that develop in response to the introduction of a parental choice program. Second, the Hope schools announced they would accept all students who applied for admission. Many of the poorest and most educationally disadvantaged students went to the Hope schools, making an examination of test scores from those schools a hard test case for the program as a whole. If gains are achieved here, they are probably being achieved under better circumstances in other choice schools. And third, enrollment at the Hope schools constitutes approximately 15 percent of the total enrollment in the Cleveland scholarship program and approximately 25 percent of those students who previously attended a public school.

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compensate for the variance accounted for by parental satisfaction.

Standardized test scores from Hope Academy and Hope Ohio City were made available to PEPG during the summer of 1997. We examined scores from the California Achievement Test (CAT) for all students tested in both the fall and spring of the 1996-97 school year.[27] The Hope schools' staff reported that they tested all students in attendance, including those students identified as having special needs. Proctors from John Carroll University monitored the Spring testing to ensure its integrity.

The scores of Hope-school students show moderate gains in reading and large gains in math. After one year, students in kindergarten through third grade scored, on average, 5.4 percentile points higher on the reading test and 15.0 percentile points higher on the math concepts test (Table 10). Reading scores of students in first through third grade increased by 5.4 percentile points, math concepts scores by 12.8 percentile points, and total math scores by 11.5 points. Students in all grades experienced improvements. (Only the math concepts test was administered to kindergarten students). These results were statistically significant at the .05 level.

The language test score, however, shows a decline of 4.8 percentile points. This decline was produced by a 19.0 point drop among first graders. Second graders improved

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[26] Murphy et al., p. ii, 1997.

[27] The white paper "What Really Matters in American Education" put out by the Department of Education on September 23, 1997 makes a number of erroneous statements concerning our analyses of test scores. First, it says that we do not "control for the family background or prior achievement of the voucher students." This is not correct. By examining gains in achievement from the beginning to the end of the first year of exactly the same students in choice schools, we automatically take into account family background and prior achievement.

Second, the white paper states, without documentation, that the Hope School test scores are based on an "old, invalid form of the California Achievement Test (CAT)." This is also incorrect. Officials at the company that makes the CAT, McGraw-Hill-CTB, confirm that the CAT 5, the version of the test taken by the Hope Schools, continues to be sold and graded by the company in the belief that the results are valid. We do not know of any study that has shown their belief to be incorrect.

Third, the white paper claims that our reporting of the scores "lumps together results for students in grades K through 3, suggesting that differences among grades are being masked." As can be seen in Table 12, the results broken out by grade confirm our earlier statement that gains were made by students

by 2.9 points and third graders gained 12.9 points on the language test (Table 11). Kindergartners did not take this component of the test. The language test is not normally administered in the Cleveland Public Schools.

The Hope schools' test results can be put in perspective by comparing these results to those of similar students elsewhere. The Hope school students are distinctive in that they are poor, mostly of minority background, and applicants to a state-funded scholarship program. Spring test scores are available from a similar group of low income, minority, scholarship applicants in the Milwaukee choice experiment while they were still in public schools.[28] These students had spring standardized scores that were lower than those of the Hope-school students. The spring Hope-school math test scores, on average, were at the 40.8 percentile, as compared to the 34.9 percentile in Milwaukee. On math concepts, Hope school students scored 46.9, as compared to 31.0 in Milwaukee. On the reading test, Hope school students scored at the 34.8 percentile, as compared to 33.5 in Milwaukee (see Table 12).[29]

The gains achieved by Hope-school students should be contrasted against the 1 to 2 point decline that is typical of inner-city students. According to the office overseeing desegregation in Cleveland, Cleveland public school reading scores declined, on average, by 1 to 2 percentile points between both the first and second grades and the second and third grades in the years 1994-95 to 1995-96. PEPG and other researchers found a similar

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in all grades.

[28] These data are analyzed in Jay P. Greene, Paul E. Peterson, and Jiangtao Du, "The Effectiveness of School Choice in Milwaukee." (Occasional Paper. Harvard University. Program in Education Policy and Governance, 1997).

[29] Milwaukee students were given the Iowa Test of Basic Skills, not the California Achievement Test. Though the tests seek to measure similar skills and are both normed on national populations, some differences may persist.

pattern in the Milwaukee choice experiment.[30] The decline in percentile rankings can be attributed to the fact that inner-city students learn at a slower rate than the national average and therefore, as they grow older, they fall further behind. The reverse effect observed at the Hope schools suggest that these students are learning at a faster rate, allowing them to close the gap with others nationwide.

More definitive conclusions about the effects of the scholarship program on academic achievement depend upon the collection of additional data. It is possible that some of the gains achieved by students at the Hope schools have faded over the summer in the absence of enriching activities. It is also possible that the results at the Hope schools are not representative of the program as a whole. But initial data from two of the schools deemed most problematic by choice critics suggest that CSTP has helped improve student test scores.

Conclusions

CSTP has been in operation for only one year, a period not long enough to evaluate fully an educational program. Test-score results need to be monitored over several years before definitive results can be obtained. Also, CSTP was not set up as a randomized experiment, enabling investigators to compare participants with a control group of essentially similar parents and students. The results from the parent survey

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[30] The Cleveland public school test score decline is documented in "Cleveland City School District, Building Profiles, Data for 1995-96 School Year. Three-year Baseline Data, Elementary Schools," Assessment and information Services, September, 1996. For the comparable decline among Milwaukee students, see Jay P. Greene, Paul E. Peterson and Jiangtao Du, "Effectiveness of School Choice: The Milwaukee Experiment," Harvard University's Program on Education Policy and Governance, Occasional Paper 97-1, March, 1997; Cecilia Elena Rouse, "Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program," Quarterly Journal of Economics, Forthcoming, Figures I and II.

reported above thus compare groups that may differ in respects that cannot be detected.

Despite these limitations, the quality of the data is sufficient to draw some preliminary conclusions. The Parent Survey includes the responses of over 70 percent of scholarship recipients the survey team attempted to reach, totaling 1,014, which was more than half of all recipients. The demographic characteristics of the sample of recipients are not significantly different from those of the universe from which they were drawn. The survey team was less successful in reaching non-recipients, contacting 49 percent. The non-recipients surveyed were from more advantaged backgrounds than those of the universe from which they were drawn; however, this simply biases the findings against the parental satisfaction results that were obtained. It is likely that even stronger results would have appeared had the response rate been higher.

Though the comparison groups were not created by a randomized experiment, neither did their background characteristics differ in important respects. Whenever demographic differences do appear, it is the scholarship recipients from public schools who are usually the more disadvantaged group. Kindergartners are an exception to this generalization, but similar findings appear, whether or not kindergartners are included in the analysis.

The Parent Survey indicates that the educational opportunities afforded by CSTP have won a strong endorsement from those participating in the program. A majority of scholarship parents are "very satisfied" with nearly every aspect of the schools their child attended. Levels of satisfaction with choice schools are much higher than the levels of satisfaction with Cleveland public schools. This enthusiasm seems justified. Test scores in math and reading have risen in the two schools newly established in response to CSTP,

with which parents were less satisfied than more established choice schools.

Parents listed academic quality as the most important reason for their participation in CSTP, suggesting that educational objectives are paramount in their choice of school. However, a fifth of the non-recipients said one reason they did not participate was their inability to find a desired private school. And families whose children had special education needs found it more difficult to obtain a desired private-school placement; parents of special needs parents were also less satisfied with their schools.[31] School choice plans clearly need to provide participating schools with the funds and incentives to deliver the necessary services to special needs students.

School mobility rates among CSTP schools were lower than those in central-city public schools. Only a tiny fraction, less than one-half of one percent, of the parents new to choice schools reported that their child had been expelled from their private school or refused admission for a second year.

The findings coming out of the Cleveland Scholarship Program further clarify a number of the claims and assumptions surrounding the spirited, contemporary school choice debate. Though CSTP encountered some difficulties establishing itself in its initial year, in good part because of the uncertainty surrounding a legal suit, both test score and parental survey data provide strong support for future choice initiatives. The data, however, suggest that special funding arrangements and further programming are necessary if disabled and other special needs students are to participate fully in a school-choice program.

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[31] Though, as we noted previously, special needs children who attended private school were not significantly less satisfied with their schools than parent of special needs children who attended public school.

As similar programs proliferate in other cities, we will learn more about the ways in which school choice affects the education of inner-city children. In the fall of 1997, for example, roughly 1,200 New York students accepted scholarships to attend the private school of their choice. This particular study has the added advantage of being set up as a randomized experiment, and therefore will provide important data on who participates in choice programs, and how choice influences the educational experiences of scholarship recipients as compared to non-recipients. The fact that the debate over school choice increasingly hinges upon the collection and examination of evidence, and less on ideology, signifies progress on two fronts: in our understanding of the comparative advantages of public and private schools and the possibility choice may offer in promoting educational reform for the inner-city residents who need it most.

Table 1: Demographic Comparisons Among All CSTP Applicants
Grades K-3

1996-97 School Program: Previous School: Received Scholarship?	Choice Public Yes	Public Mostly Public[1] No	Choice Private Yes	Private Mostly Private[2] No
Income				
$0 - $10,999	29.8%	23.0%	25.0%	4.3%
$11,000 - $24,999	40.6	22.2	43.2	14.9
$25,000 - $39,999	20.2	23.7	22.4	28.4
$40,000 - $49,999	5.4	12.7	4.2	16.6
More than $50,000	3.9	11.0	5.1	24.8
Total:	100.0%	100.0%	100.0%	100.0%
Average Income[3]	$20,091***T	$25,545	$21,099###	$39,108
	(13,847)[4]	(17,015)	(13,880)	(16,295)
Mother's Education				
Some High School or Below	8.6%	13.9%	6.6%	4.9%
High School Grad. (or GED)	30.6	29.4	29.3	26.0
Some College	49.9	43.5	50.4	44.3
College Grad. and Above.	10.9	13.3	13.6	19.2
Total:	100.0%	100.0%	100.0%	100.0%
Average Education[5]	3.64T	3.57	3.73##	3.94
	(0.86)	(0.99)	(1.17)	(0.94)
Mother's Employment Status				
Full-time	49.2%	51.6%	49.4%	56.4%
Part-time	20.9	17.1	20.7	21.9
Looking for Work	12.4	15.6	10.8	4.5
Not Looking	17.5	15.6	19.1	17.2
Total:	100.0%	100.0%	100.0%	100.0%
Average Employment[6]	3.02	3.05	3.00###	3.18
	(1.15)	(1.14)	(0.88)	(1.13)
Family Size				
2	17.4%	17.4%	17.6	12.9%
3	29.7	28.2	32.4	23.7
4	29.5	24.8	23.0	34.4
5	13.2	16.4	13.3	17.5
6+	10.2	13.2	13.7	11.5
Total:	100.0%	100.0%	100.0%	100.0%
Average Size	3.77	3.87	3.80#	3.97
	(1.47)	(1.46)	(1.43)	(1.32)

Living Arrangement				
Mother and Father	37.0%	36.6%	37.5%$^{\#\#\#}$	67.2%
Only Mother	57.1	54.8	54.7$^{\#\#\#}$	29.2
Only Father	1.3	1.2	0.8	1.5
Grandparent	3.2	3.8	3.9$^{\#\#\#}$	0.4
Other	1.3*	3.4	2.7	1.7
Total	100.0%	100.0%	100.0%	100.0%
Mobility (time at current residence)				
0-1 year	8.2%*	5.9%	7.5%$^{\#}$	4.2%
1-2 years	16.4*	13.4	13.8$^{\#\#\#}$	6.1
2+ years	75.4	78.8	78.7$^{\#\#\#}$	88.7
Total	100.0%	100.0%	100.0%	100.0%
Ethnicity				
African American	66.8%^{*TTT}	76.1%	48.4%$^{\#\#\#}$	35.1%
White	25.0^{TTT}	15.5	37.9$^{\#\#\#}$	56.7
Hispanic	3.2^{TTT}	3.2	7.4$^{\#\#}$	4.0
Multiracial	3.8	3.8	4.3	3.0
Other	1.2	1.4	2.0	1.3
Total	100.0%	100.0%	100.0%	100.0%
Religious Affiliation				
Baptist	40.4%^{TTT}	43.0%	29.4%$^{\#\#}$	22.1%
Other Protestant	13.8	17.4	12.6	15.7
Catholic	24.8^{***TTT}	13.4	43.1$^{\#}$	49.8
Other Religion	13.2^{TTT}	14.3	5.9	7.2
No Religion	7.9	10.2	9.0$^{\#\#}$	4.8
Total	100.0%	100.0%	100.0%	100.0%
n	533	416	236	426

Column (1) refers to scholarship recipients who previously were in public school; (2) to public school students; (3) to scholarship students who previously were in private school; and (4) to private students who applied, but did not receive, a scholarship. All kindergartners who are scholarship students are included in column one. Values of *n* signify the lowest number of cases represented by a group among the selected items; consequently, one cannot infer the value of certain frequencies by taking the product of a percentage and the value of *n*.

* signifies that differences between columns 1 and 2 are statistically significant at the .05 level.
** signifies that differences between columns 1 and 2 are statistically significant at the .01 level.
*** signifies that differences between columns 1 and 2 are statistically significant at the .001 level.

\# signifies that differences between columns 3 and 4 are statistically significant at the .05 level.
\## signifies that differences between columns 3 and 4 are statistically significant at the .01 level.
\### signifies that differences between columns 3 and 4 are statistically significant at the .001 level.

T signifies that differences between columns 1 and 3 are statistically significant at the .05 level.
TT signifies that differences between columns 1 and 3 are statistically significant at the .01 level.
TTT signifies that differences between columns 1 and 3 are statistically significant at the .001 level.

The actual questions read as follows:

- "What is your annual family income before taxes? Please include all sources of earnings from all members of the household. Do not, however, include the value of food stamps, Medicaid or public housing."
- "What is the highest level of education that you [the mother] completed?"
- "Do you [the mother] currently have a job, either full-time or part-time?"
- "Does your child live with either biological parent?"
- "How long have you [the mother] lived at your current address?"
- "What is your [the mother's] religious affiliation?"

Data on ethnicity and family size were compiled from CSTP office records.

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(1) Of those students who did not receive a scholarship and attended a public school in 1996-97, 7.4 percent had attended a private school the year before.
(2) Of those students who did not receive a scholarship and attended a private school in 1996-97, 28.4 percent had attended a public school the year before.
(3) When calculating average income, responses of "over $50,000" were set at $60,000.
(4) Standard errors are in parentheses.
(5) This index is scaled from 1 to 6 where 1 signifies less than high school, 2 some high school, 3 high school graduate (including GED), 4 some college, 5 college graduate and 6 more than college.
(6) This index is scaled from 1 to 4 where 1 signifies not looking for work, 2 looking for work, 3 part-time employment and 4 full-time employment.

Table 2: Reasons for Applying for Scholarship
Grades K-3, average scores

1996-97 School Program: Previous School: Received Scholarship?	Choice Public Yes	Public Mostly Public[1] No	Choice Private Yes	Private Mostly Private[2] No
	(1)	(2)	(3)	(4)
How important were the following considerations in your decision to apply for a scholarship?				
Improved Academic Quality:	2.85**	2.69	2.79###	2.56
	(0.38)[3]	(0.51)	(0.46)	(0.67)
Greater Safety:	2.78***	2.55	2.75###	2.51
	(0.46)	(0.62)	(0.52)	(0.69)
Location:	2.47	2.44	2.52###	2.33
	(0.70)	(0.70)	(0.69)	(0.77)
Religion:	2.12***TTT	1.80	2.40##	2.27
	(0.79)	(0.80)	(0.73)	(0.77)
Friends:	1.63T	1.62	1.70	1.68
	(0.79)	(0.76)	(0.79)	(0.79)
n	597	459	255	415

Indices scored from 1 to 3, averages reported: 1 signifies not important; 2 important; and 3 very important. Also, see notes to Table 1.

Table 3: Reasons for not Participating in CSTP
Grades K-3, percent responding 'important'

1996-97 School Program:	Public
Previous School:	Mostly Public
Received Scholarship?	No
Did you receive a scholarship this year?	
Believed not Offered a Scholarship:[1]	44.1%
How important was each of the following in your decision not to participate in the scholarship program?	
Transportation:	36.5
Offered Admission to Desired Public School:	35.3
Financial Reasons:	31.2
Refused Admission to Private School:	21.1
Moved from Area:	13.1
n	460

Possible responses to survey question were dichotomous. Also, see notes to Table 1.

[1] These results combine answers to two questions. Those who believed they were not offered a scholarship were not asked the second question. Consequently, while individual respondents who believed they were offered a scholarship could claim that multiple reasons influenced their decision not to accept a scholarship, those who believed they were not offered one in the first place could only indicate the one reason.

Table 4: Parent Satisfaction with Their Own School
Grades K-3, average score

1996-97 School Program: Previous School: Received Scholarship?	Choice Public Yes	Public Mostly Public No	Choice Private Yes	Private Mostly Private No
	(1)	(2)	(3)	(4)
For the following characteristics, how satisfied are you with the school your child is attending?				
Academic Quality:	3.56^{***T}	3.06	3.64$^{\#}$	3.57
	(0.66)	(0.63)	(0.56)	(0.60)
Safety:	3.51^{***TT}	3.02	3.66$^{\#}$	3.58
	(0.68)	(0.63)	(0.54)	(0.61)
Discipline:	3.49^{***TT}	2.91	3.59$^{\#\#}$	3.49
	(0.63)	(0.81)	(0.57)	(0.67)
Teaching Moral Values:	3.66***	3.02	3.69	3.68
	(0.58)	(0.75)	(0.50)	(0.56)
Private Attention to Child:	3.42***	2.80	3.42	3.36
	(0.70)	(0.88)	(0.67)	(0.68)
Parent Involvement:	3.44***	3.03	3.47	3.44
	(0.67)	(0.79)	(0.61)	(0.69)
Class Size:	3.37***	2.75	3.35$^{\#\#}$	3.23
	(0.64)	(0.71)	(0.77)	(0.78)
Facility:	3.38^{***T}	2.85	3.47$^{\#\#\#}$	3.30
	(0.72)	(0.81)	(0.63)	(0.67)
n	592	483	254	465

* compares columns 1 and 2.
\# compares columns 3 and 4.
T compares columns 1 and 3.

Indices scored from 1 to 4; averages reported. 1 signifies very dissatisfied; 2 dissatisfied; 3 satisfied; and 4 very satisfied. Also, see notes to Table 1.

Table 5: Explanations for Scholarship Applicants' Satisfaction with Their Own School

Grades K-3

	Parental Satisfaction[1]	
	Model 1	Model 2
Educational Experiences:		
Involuntarily in Public School:	-6.7***	-6.6***
Type of School: [2]		
Private (No Scholarship):	15.5***	15.0***
Established Parochial School (Scholarship):	16.0***	15.9***
New Parochial School (Scholarship):	0.5	0.3
Established Secular School (Scholarship):	15.7***	16.1***
New Secular School (Scholarship):	6.5***	6.6***
Demographics:		
Special Needs:	-2.6**	-2.7**
Minority:	-3.3**	-3.0***
Income:	0.2	0.2
Kindergarten:	2.8**	2.4**
Family Size:	--	0.4
Mother's Education:	--	0.7
Mother's Employment Status:	--	-0.6
Residential Mobility:	--	0.2
Constant	69.4***	66.9***
Adjusted R^2	.24	.23
n	1586	1585

Unstandardized coefficients from OLS regressions reported. * significant at the .05 level; ** significant at the .01 level; *** significant at the .001 level.

[1] Index of satisfaction, summarizing eight dimensions listed in Table 3. See page 15 for description.

[2] The baseline group includes those individuals who were offered a scholarship, but refused it, and claimed that being refused admission to a desired public school was not an important reason for choosing to attend a public school.

Table 6: Explanations for Scholarship Recipients' Satisfaction with Their Own School
Grades K-3

	Parental Satisfaction	
	Model 1	Model 2
Educational Experiences:		
Prior Public School:	-0.3	-0.5
Religious Compatibility:	-0.4	-0.2
Type of School:[1]		
Established Parochial School:	15.0***	15.0***
Established Secular School:	14.9***	15.4***
New Secular School:	5.6**	5.9***
Demographics:		
Special Needs:	-3.0*	-3.0*
Minority:	-4.2**	-3.5**
Income:	-0.1	-1.8
Kindergarten:	2.3	2.3
Family Size:	--	0.7
Mother's Education:	--	0.5
Mother's Employment Status:	--	-0.4
Residential Mobility:	--	0.1
Constant	76.3***	73.3***
Adjusted R^2	.17	.17
n	770	755

Unstandardized coefficients from OLS regressions reported. * significant at the .05 level; ** significant at the .01 level; *** significant at the .001 level.

[1] The baseline group consists of two parochial schools with a high number of new scholarship students.

Table 7: Explanations for Non-Recipients' Satisfaction with Their Own School
Grades K-3

	Parental Satisfaction	
	Model 1	Model 2
Educational Experiences:		
Prior Public School:	1.9	1.4
Involuntarily in Public School:	-3.8**	-3.6**
Type of School:[1]		
Private School:	19.1***	18.3***
Demographics:		
Special Needs:	-1.5	-1.4
Minority:	-0.8	-0.3
Income:	0.5	0.6*
Kindergarten:	3.4*	3.1
Family Size:	--	0.1
Mother's Education:	--	0.3
Mother's Employment Status:	--	-0.8
Residential Mobility:	--	0.0
Constant	57.3***	56.0***
Adjusted R^2	.20	.20
n	813	736

Standardized coefficients from OLS regressions reported. * significant at the .05 level; ** significant at the .01 level; *** significant at the .001 level.

[1] The baseline group includes those individuals who were offered a scholarship, but refused it, and claimed that being refused admission to a desired public school was not an important reason for choosing to attend a public school.

Table 8: School Mobility Rates of Scholarship Students
Grades K-3

1996-97 School Program: Previous School: Received Scholarship?	Choice Public Yes	Choice Private Yes	Choice Total Yes
Child attend same school entire year?			
Yes:	91.0%***	99.2%	93.7%
No (broken out by stated reason):			
Admitted to Preferred Private School:	3.3*	0.0	2.3
Quality of Schools:	1.3	0.4	1.1
Admitted to Preferred Public School:	1.0	0.0	0.7
Moved:	0.8	0.0	0.6
Transportation Difficulties:	0.8	0.4	0.7
Administration:	0.3	0.0	0.2
Disability/Behavior Problems:	0.3	0.0	0.2
School Closure/Change:	0.3	0.0	0.2
Financial:	0.2	0.0	0.1
Expulsion:	0.2	0.0	0.1
Other:	0.3	0.0	0.2
n	600	256	856

* compares columns 1 and 2.

Also, see notes to Table 1.

Table 9: Matriculation Plans of Scholarship Students
Grades K-3

1996-97 School Program: Previous School: Received Scholarship?	Choice Public Yes	Choice Private Yes	Choice Total Yes
Plan on attending same school next year?			
Yes:	80.5%**	87.7%	82.8%
No (broken out by stated reason):			
Quality of School:	5.7*	2.1	4.5
Change of Student's Grade Level:	3.5*	0.4	2.5
Move from Area:	2.0	1.3	1.8
Prefer Different Private School:	1.6	2.1	1.8
Transportation Difficulties:	1.4*	0.0	1.0
Cost:	1.0	2.1	1.4
Disappointed with Program:	0.8	0.9	0.8
School or Program Closing Down:	0.8	0.8	0.8
Lack Special Ed. Resources:	0.4	0.0	0.3
Prefer Different Public School:	0.4	0.0	0.3
Refused Readmission/Expulsion:	0.4	0.4	0.4
Other:	1.8	2.1	1.9
Total:	100.0%	100.0%	100.0%
n	507	244	751

* compares columns 1 and 2.

Also, see notes to Table 1.

Table 10: Explanations for Retention of Scholarship Recipients
Grades K-3

	Retention Rate[1]		
	Model 1	Model 2	Model 3
Educational Experiences:			
Satisfaction:	2.88***	2.24***	--
Prior Public School:	-0.17	-0.13	-0.14
Religious Compatibility:	-0.02	0.06	-0.02
Type of School:[2]			
Established Parochial School (Scholarship)	0.46***	0.36*	0.84***
Established Secular School (Scholarship)	-1.01***	-0.74***	-0.46*
New Secular School (Scholarship)	-0.05	0.02	0.15
Demographics:			
Special Needs:	0.11	0.09	-0.02
Minority:	-0.22	-0.16	-0.29*
Income:	-0.00	0.02	-0.00
Kindergarten:	-0.07	-0.10	-0.06
Family Size:	-0.06	-0.07	-0.06
Residential Mobility:	-0.11	-0.09	-0.06
Mother's Education:	--	-0.09	-0.07
Mother's Employment Status:	--	0.04	0.08
Single Parent Household:	--	-0.07	-0.09
Constant	-1.05**	-0.62	0.99*
Degrees of Freedom	753	737	763
Chi-Square Goodness of Fit	785	899	776
n	766	753	778

Regression coefficients from a Probit Model are reported. * significant at the .05 level; ** significant at the .01 level; *** significant at the .001 level.

[1] Mobility is a dummy variable, scored 1 if the respondent changed school during the school year or planned to change school at the end of the school year.

[2] The baseline group consists of two parochial schools, both of which were established in the early 1990s, with a high number of new scholarship students.

Table 11: Test Score Changes
Grades 1-3, Hope schools

	Fall, 1996	Spring, 1997	Change
Reading	*28.4* (155)	*34.1* (155)	*5.6**
Language	*41.2* (154)	*36.6* (154)	*-4.5*
Mathematics Total	29.2 (155)	40.8 (155)	11.6*
Mathematical Concepts	28.6 (155)	41.4 (155)	12.8*

* Statistically Significant at .05 level. Numbers may not add, due to rounding. Number of cases in parentheses.

Table 12: Test Score Changes in Language
Grades 1-3, Hope schools

	Fall 1996	Spring 1997	Change	Number of Students
Kindergarten				
Math			N/A	
Math Concepts	36.6	54.7	18.1**	(108)
Reading	30.4	35.8	5.4**	(108)
Language			N/A	
Total			N/A	
Grade 1				
Math	25.0	31.6	6.6**	(66)
Math Concepts	21.6	37.0	15.4**	(67)
Reading	25.5	32.2	6.6**	(67)
Language	48.8	29.8	-19.0**	(66)
Total	26.6	29.8	3.2	(66)
Grade 2				
Math	36.3	54.4	18.0**	(59)
Math Concepts	37.7	50.5	12.8**	(59)
Reading	28.8	33.3	4.5*	(59)
Language	40.3	43.2	2.9	(59)
Total	30.6	42.6	12.0**	(59)
Grade 3				
Math	24.6	34.6	10.0**	(29)
Math Concepts	26.3	33.0	6.7*	(29)
Reading	34.4	39.9	5.5	(29)
Language	25.4	38.9	13.5**	(29)
Total	25.8	36.5	10.7**	(29)

** Statistically significant at .05 level; * significant at the .1 level. Numbers may not add, due to rounding.

Table 13: National Percentile Rankings of Low-Income Students at the Hope schools and Low-Income Voucher Applicants in Milwaukee in Grade K-3

	Hope schools	Hope schools	Milwaukee Low-Income Scholarship Applicants
	Fall	Spring	Spring
Math	*29.2*	*40.8*	*34.9*
Math Concepts	*31.9*	*49.9*	*31.0*
Reading	29.2	34.8	33.5

* Language and total scores were not available for students in Milwaukee.

Appendix A:

Table A1: Breakdown of Survey Response Rates

1996-97 School Program: Previous School:	Choice Public	Choice Private	Not a Recipient Public & Private	Total Public & Private
Frequencies:				
Interviewed	726	288	1,006	2,020
Could not Contact[1]	240	69	933	1,242
Refused to be Interviewed	37	8	130	175
Total Contacts Attempted:	1,003	365	2,069	3,437
As a percentage of contacts attempted:				
Interviewed	72.4%	78.9%	48.6%	58.8%
Could not Contact	23.9	18.9	45.1	36.1
Refused to be Interviewed	3.7	2.2	6.3	5.1
Total:	100.0%	100.0%	100.0%	100.0%

[1] The majority of these cases are non-working numbers (53.9% in column 4). Other reasons for not being able to contact a household include: the respondent being unavailable or unknown at attempted number (27.2%); and multiple failed attempts (10.9%); change of numbers to business, electronic or mobile use (5.8%); the respondent not speaking English or being mentally or physically impaired (1.4%).

Table A2: Examining the Possibility of Response Bias
Grades K-3

Select Group:	All Applicants		Choice(Public)[1]		Choice(Private)[3]		No Voucher	
Data Source:	Survey	Universe	Survey	Universe	Survey	Universe	Survey	Universe
	(1A)	(1B)	(2A)	(2B)	(3A)	(3B)	(4A)	(4B)
Average Income	$16,279***	$14,754	$12,533[3]	$12,045	$11,923**	$10,698	$20,748***	$16,251
	(14,586)	(14,184)	(12,194)	(11,361)	(9,959)	(7,907)	(16,261)	(15,424)
Average Family Size	3.77***	4.03	3.77**	3.89	3.83***	3.97	3.92***	4.09
	(1.47)	(1.46)	(1.43)	(1.43)	(1.51)	(1.54)	(1.40)	(1.46)
Ethnicity								
African American	59.5%*	62.8%	68.6%	68.8%	49.3%	48.7%	55.9%***	62.4%
White	31.7*	27.4	23.8	22.0	38.2	37.3	35.8***	28.1
Hispanic	3.9*	5.0	3.0	3.5	6.9	7.3	3.5*	5.2
Multiracial	3.5	3.2	3.5	3.8	3.8	4.4	3.3	2.9
Other	1.3	1.6	1.1	1.9	1.7	2.0	1.3	1.4
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
n	1896	6050	719	1,493	288	496	887	4,548

See notes to Table 1.

* compares differences between the survey and universe.

[1] Choice(Public) refers to those individuals who received a scholarship and previously attended a public school – this includes kindergartners.
[2] Choice(Private) refers to all individuals who received a scholarship and previously attended a private school – this too includes kindergartners.
[3] See footnote 8 in the text.

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