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Years: An Evaluation of the Parents
Advancing Choice in Education Scholarship
Program**

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**SCHOOL CHOICE IN DAYTON, OHIO AFTER TWO YEARS:
AN EVALUATION OF THE PARENTS ADVANCING CHOICE
IN EDUCATION SCHOLARSHIP PROGRAM**

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SCHOOL CHOICE IN DAYTON, OHIO AFTER TWO YEARS: An Evaluation of the Parents Advancing Choice in Education Scholarship Program

(Executive Summary)

In the spring of 1998, Parents Advancing Choice in Education (PACE), a privately funded non-profit corporation, offered low-income parents within the Dayton metropolitan area an opportunity to apply for a scholarship to help defray the costs of sending their child to private schools in Dayton and other parts of Montgomery County, Ohio. All students from low-income families entering a grade between kindergarten and twelfth grade were eligible. PACE offered scholarships to 515 students who were in public schools at the time and 250 students who were already enrolled in private schools. This evaluation examines the program's impact after two years on those students in grades 2-9 who had been attending public schools prior to receiving a scholarship.

PACE distributed scholarships among applicants by lottery, thereby making it possible to conduct an evaluation as a randomized experiment. All students who applied for the program and attended second-year follow-up sessions completed the Iowa Test of Basic Skills in reading and mathematics. Parents were invited to respond to a questionnaire about their experiences with their school, as were students in grades 4-9. By comparing student test scores and the questionnaire responses of families who received a scholarship with those who entered the lottery but did not receive a scholarship, we are able to estimate the effects of the offer of a voucher, as well as the effect of actually attending a private school. Similar randomized field trials of school voucher interventions are currently being conducted in New York City and Washington, DC.

In 1999 the PACE scholarship program expanded, reinforced by additional resources made available by the Children's Scholarship Fund, a nationwide scholarship program. At the same time, the maximum value of the scholarships awarded increased to \$1,700 for elementary school students and \$2,300 for high school students. Although the PACE program remains in operation, this is the final year of this evaluation.

Key findings from the evaluation are as follows:

Impacts on Parental Satisfaction, School Climate, School Facilities, Ethnic and Religious Considerations, Homework, and Parental Communication and Involvement

- Parents whose children attended private schools were much more satisfied with their children's schools than were similar parents whose children remained in Dayton public schools. Approximately 40 percent of private-school parents gave their child's school an "A", as opposed to just 16 percent of comparable public-school parents. When asked about various specific aspects of their child's school, private-school parents were more likely than public-school parents to report that they were "very satisfied" with what is taught, the teaching of moral values, the respect teachers show students, the level of teamwork among the school staff, overall academic quality, the quality of

teaching, the freedom students have to observe their own religious traditions, and their child's safety.

- Private-school parents reported fewer serious discipline problems in their child's school than their public-school counterparts did. Sixty-one percent of public-school parents reported that fighting is a serious problem in their child's school, as compared to just 11 percent of private-school parents. Forty-six percent of public-school parents reported that students missing classes is a serious problem in their child's school, as compared to just 11 percent of private-school parents. Parents reported similarly large differences between public and private schools with regard to the level of cheating, destruction of property, tardiness, and the threat of guns or other weapons.
- As reported by parents, the private schools attended by students participating in the evaluation were much smaller than the schools attended by public-school students (an average of 299 students versus 443 students). Private schools were more likely than public schools to have a music program, but less likely to have a gym or a nurse's office. No difference was observed in the average class sizes of students attending private and public schools.
- Attending a private school had no clear impact on the extent of ethnic integration students experienced in school. Switching to a private school did increase somewhat the percentage of students attending a school that was less than 50 percent minority (from 18 percent to 60 percent), this effect was equally large among the African American students participating in the evaluation. Private-school students and public-school students were equally likely to report that they eat lunch with students of a different racial background. Private-school parents were significantly less likely to report that racial conflict was a serious problem in their child's school.
- Ninety-two percent of the private-school students participating in the evaluation attended schools with a religious affiliation. Thirty percent of parents of students in private schools reported that they were "very satisfied" with the extent to which students can observe religious traditions in their school, as compared to 11 percent of public-school parents. Private-school students were more likely than public-school students to report attending religious services "a lot" in the past year (54 percent versus 23 percent).
- No significant differences were observed in the amount of time spent on homework by students in private and public schools, as reported by parents. Student reports, however, suggest that private-school students complete slightly less homework each day than their public-school counterparts (0.9 hours versus 1.2 hours). On the other hand, private-school parents were more likely to report that their child's homework assignments were at an "appropriate" level of difficulty (94 percent versus 72 percent).
- More private-school parents than public-school parents reported speaking to classes about their jobs (77 percent versus 36 percent) and actually participating in instruction in their child's classroom (75 percent versus 45 percent). However, no other significant

differences were observed in the level of communication between parents and schools in public and private schools.

- Twenty-five percent of public-school parents reported working on school projects with their child frequently in the past month, as opposed to just 4 percent of private-school parents. Similarly, public-school parents were more likely to report that they attended school activities with their child (25 percent versus 6 percent) and that they spoke with other parents about their child's school at least once a week (39 percent versus 19 percent).
- Private-school students were less likely than public-school students to agree with the statement "to do well in school, good luck is more important than hard work" (4 percent versus 34 percent).

School Selection and Impacts on Student Attendance Patterns

- Some critics of school choice have suggested that low-income families empowered to select a school may base their decisions primarily on non-academic considerations. In Dayton, however, this does not appear to have been the case. Over 38 percent of parents offered a scholarship indicated that academic quality was the most important consideration in their choice of school. The next two most important school characteristics to be cited by PACE parents were "what is taught" and school discipline. No scholarship parents selected the school's extracurricular activities, its sports program, or the fact that it was attended by their child's friends as the most important factor in their decision.
- Critics also frequently argue that increasing school choice will destabilize students' educational experiences, both within a given school year and from one year to the next. There is little evidence from Dayton to support this claim. While students attending private schools were absent slightly more often in the previous month than students in public schools (2 days versus 1), they were also slightly less likely to have been late to school (0 days versus 1). No differences in school mobility rates were observed either during the second year of the program or in parental plans for the following year. Nor were PACE students more likely than public-school students to have been suspended from school for disciplinary reasons.

Impacts on Student Test Scores

- As previously reported, after two years African American students who attended private schools scored 8 national percentile points higher on the Iowa Test of Basic Skills in reading and 7 points higher on a combined reading and math score. Their score also increased by 5 points on the math section of the test, although this gain falls just short of statistical significance.
- Non-African American students did not differ significantly from their public school counterparts in their performance in math or reading.

Impacts on Parental Satisfaction and School Disruption by Race

- The PACE program's impact on parental satisfaction and assessments of the level of disruption in their schools also differed by race. The overall level of satisfaction among parents of African American students attending private schools increased by four fifths of a standard deviation over their public-school counterparts. For whites, the effect of switching to a private school was half as large and statistically indistinguishable from 0. However, white parents' assessments of the overall level of disruption in their child's private school decreased by more than 2 standard deviations, while those of African Americans remained essentially unchanged.

This evaluation of the PACE program was conducted by the Program on Education Policy and Governance, which is jointly sponsored by the Taubman Center on State and Local Governance, Kennedy School of Government, and the Center for American Political Studies of the Department of Government, Harvard University. Financial support for the evaluation was provided by grants made by the Lynde and Harry Bradley Foundation, the Thomas B. Fordham Foundation, the Milton and Rose D. Friedman Foundation, the John M. Olin Foundation, the Smith Richardson Foundation, and the Walton Family Foundation. The findings and interpretations reported in this paper are the sole responsibility of the authors and are not subject to the approval of program operators or foundations providing financial support.

**SCHOOL CHOICE IN DAYTON, OHIO AFTER TWO YEARS:
An Evaluation of the Parents Advancing Choice in Education Scholarship Program**

Too often debates about the use of school vouchers as an instrument for educational reform are driven by ideology rather than by empirical evidence.¹ As recently as ten years ago, there was little quality evidence on which informed discussions might have been based. Fortunately, this is no longer the case. The rapid proliferation of both government and privately funded voucher programs has generated a rich body of evidence on how voucher programs operate and their impact on low-income children and families.

Among the growing number of privately funded voucher programs currently in operation in cities across the nation, those in Dayton, Ohio, Washington, DC, and New York City stand out as particularly valuable sources of information. Drawing on the lessons of earlier studies, researchers worked together with program operators in these three cities to ensure the creation of high-quality evidence concerning vouchers' impact on both test scores and subjective assessments of school quality. All families applying for the programs were required to provide demographic information and to bring their children in to be tested academically in order to be eligible for a scholarship. Scholarship recipients were then selected by lottery, allowing program evaluations to be designed as randomized field trials. To assess the impact of receiving a voucher, both those families who received scholarships and those who did not were tested again and asked about their schools both one and two years after the start of the program.

The use of a randomized field trial overcomes the most formidable challenge confronting researchers studying education: that of ensuring that the populations being compared are in fact comparable. Previous studies comparing the effectiveness of public and private schools have relied primarily on statistical adjustments to control for differences between the types of students

and families who chose to attend them. Although the use of such techniques may serve to increase confidence in a result, they are only effective for those characteristics for which there exist reliable measures. They ultimately cannot eliminate the possibility that differences in outcomes reflect selection according to some unmeasured trait. In contrast, the random assignment of subjects to treatment and control groups allows the researcher to be confident that any statistically significant differences between the groups are in fact a consequence of the intervention.

The ongoing studies of voucher applicants in Dayton, Washington, and New York City constitute the first rigorous application of the strategy of random assignment to the study of school choice. The results of separate evaluations of each program conducted after one year have been reported elsewhere, as have combined second-year student achievement outcomes.² This paper reports on the experiences of parents and students in Dayton, Ohio after two years' involvement in the voucher program. It offers an assessment of the vouchers' impact on student achievement, as well as on a range of other educational and social outcomes as reported by parents and students. Although the Dayton program will remain in operation for at least two more years, and presumably longer, this is the final year of this evaluation.

The PACE Program

In the spring of 1998, Parents Advancing Choice in Education (PACE), a privately funded non-profit corporation, offered low-income parents within the Dayton metropolitan area an opportunity to win a scholarship to help defray the costs of sending their child to the school of their choice. All low-income families with a student entering a grade between kindergarten and twelfth grade were invited to apply. Because the number of eligible applicants exceeded the number of available scholarships, recipients were selected by lottery. The vouchers offered to

winning families could be used at either participating private or out-of-district public schools both in Dayton and parts of surrounding Montgomery County.

The scholarship program was first announced in January 1998. Based on census data and administrative records, program operators estimated that 32,000 local students met the program's income and eligibility requirements; PACE received preliminary applications for over 3,000 students. Program operators then asked these applicants to attend meetings at which administrators could verify their eligibility for a scholarship. Over 1,500 applicants attended one of these verification sessions, which were held on Saturdays in February, March, and April of 1998.

Scholarship recipients were selected at random from the pool of all families who applied. If a family was selected, all eligible children in the family were offered a scholarship. PACE scholarships were guaranteed for at least four years; in addition, the program's managers announced their intention, funds permitting, to support students through their completion of high school.

In order to ensure that an adequate number of scholarships were awarded to students not already attending a private school, separate lotteries were held for those applicants previously attending public schools and those in private schools. As the program evaluation was restricted to applicants from public schools, this procedure also ensured random assignment to treatment and control groups among those families who were to be included in the study. Both lotteries were conducted by the evaluation team on April 29, 1998.

Tables 1-3 summarize the basic features of the PACE program during its first two years. In the first year, PACE offered scholarships to 515 students who were attending public schools and 260 students who were already enrolled in private schools. These 775 scholarship offers

produced a yield of 542 participating students, of which 282 had previously been attending a Dayton public school. The number of participants expanded in the second year to include 853 students, 551 of whom were attending public schools at the time they applied for a scholarship.

PACE scholarships for the 1998-99 school year covered 50 percent of tuition at a private school up to a maximum amount of \$1,200 for students in kindergarten through eighth grade and \$2,400 in grades nine through twelve. The actual value of the average PACE scholarship used during the first year was \$1,134, while the average family contribution to tuition was \$1,366. For the second year of the program the maximum value of the scholarships was increased to \$1,700 for elementary school and \$2,300 for high school as a result of new financial support from the Children's Scholarship Fund, a nationwide school choice program. As a consequence, the average value of the PACE scholarship increased in the program's second year to \$1,382, while the average family contribution for each child declined to \$1,154.

As can be seen in Table 3, the vast majority of the private schools selected by voucher recipients in Dayton had a religious affiliation. During the first year of the program 542 students used PACE scholarships to attend one of 30 private schools; 388 of these students attended one of eighteen Roman Catholic schools, 117 attended one of seven non-denominational Christian schools, and 18 attended a single Lutheran school. Only 19 students attended one of 4 secular private schools. In its second year the program included 823 students attending 42 different private schools; 539 students attended one of 22 Roman Catholic schools, 220 attended one of 10 non-denominational Christian schools, 38 attended the same Lutheran school, 23 attended one of six secular private schools, and three attended three different Montessori schools.³

Evaluation Procedures

The procedures used to evaluate the PACE program conform to those used in randomized field trials in medical research: The independent evaluation team collected baseline data prior to the lottery, administered the lottery, and then collected follow-up information near the conclusion of each of the first two years of the program. This section summarizes each of the steps in the data collection effort.

Collection of Baseline Data

One of the conditions for participation in the lottery, and thus of eligibility for a scholarship, was agreement to provide the evaluation team both baseline and follow-up information. Applying students were initially given the Iowa Test of Basic Skills in reading and mathematics at the eligibility verification sessions held in early 1998.⁴ The sessions generally lasted about two hours and were held at local private schools, where students could take tests in a classroom setting. Private school teachers and administrators served as proctors under the general supervision of the evaluation team. Students in grades four and above were also required to complete a short questionnaire asking about their experiences in their current schools.

While the children were being tested, the adults accompanying them filled out questionnaires inquiring about their satisfaction with their child's schools, their involvement in the child's education, and the demographic characteristics of the child's families. The adults completed these surveys in rooms separate from those used for testing. Administrators assured them that their responses would be held in strict confidence and used only for statistical purposes, and were available throughout to answer questions about particular items.

Given the likelihood that a variety of caretakers might accompany the children, questions were designed in such a way as to allow any caretaker familiar with the child's school

experiences to answer them. Although grandmothers and other relatives and guardians occasionally attended the sessions, parents completed 93 percent of the surveys at baseline. Therefore, for ease of presentation the remainder of the report will refer to the opinions expressed by all respondents as those of parents.

At baseline, 1,440 students were tested and parents completed 1,232 questionnaires. Of the 1,440 students tested, 803 were not at the time attending a private school, while parents of students who were not attending private schools accounted for 690 of the 1,232 completed parent questionnaires. The follow-up information collected in subsequent years was obtained only from those students who were not in private schools at the time of application and thus were to be included in the evaluation.

Because scholarships were allotted by chance, families in the treatment group (those who were offered scholarships) were not expected to differ substantially from members of the control group (those who did not win a scholarship). The data collected at baseline confirmed this expectation. There were no statistically significant differences between the family background characteristics of those offered scholarships and those who were not. However, those students offered a scholarship scored 6.5 percentile points lower in math and 3.1 points lower in reading than those not offered a scholarship, both statistically significant differences.⁵ When estimating the program's effects on subsequent test scores results are adjusted to reflect this initial variation.

Collection of Second-Year Follow-Up Data

To assess the program's impact on students and families after two years, the evaluation team collected follow-up information in March and April of 2000 from those applicants who had not already been attending a private school. The procedures used to obtain this data were essentially

the same as those used both at baseline and at the conclusion of the first year of the program. Students again took the ITBS in mathematics and reading, while the caretakers who accompanied them completed surveys asking a wide range of questions about the educational experiences of each of their children. Students above grade three once more were asked to complete a questionnaire about their experiences in school.

Since students required more time to finish their questionnaire and ITBS tests than parents needed to complete their own surveys, time was available for senior members of the evaluation team to conduct recorded but anonymous focus-group sessions with some parents. Participants in these interviews were selected at random from all those attending the testing sessions; some parents accompanied by small children, however, could not easily participate, while other parents simply chose not to. The parental comments quoted in this report are taken from transcripts of these discussions.⁶

Scholarship recipients were officially required to participate in the evaluation in order to retain their scholarships for the following year.⁷ In the first year of testing, both those families who were awarded scholarships but chose not to use them and members of the control group were compensated for their expenses and told that they would automatically be included in a new lottery for additional scholarships if they attended these follow-up sessions. Fifty-seven percent of the students in the control group and 56 percent of those offered scholarships returned to take the reading and math tests after the first year. The same incentives for attendance were again used in the second year of the program. Nevertheless, participation rates declined slightly, with 50 percent of the students in the control group and 48 percent of those offered scholarships returning to be tested two years from baseline.

Data Analysis and Reporting Procedures

Analysis of the impact of school choice in Dayton on participants in the PACE program is greatly simplified by the fact that scholarship recipients were selected by lottery. The use of random assignment makes it possible to compare two groups of students that were similar, on average, in virtually all respects save for the offer of a scholarship. This straightforward analytic strategy is complicated slightly by differential participation in the follow-up sessions. The baseline characteristics of those students attending the second-year follow-up sessions differed in certain respects from with who dropped out of the study. Statistical adjustments have been made to account for these differences.⁸

The results presented below provide evidence that helps to answer two distinct questions, each of which has important policy implications:

1. How did the *offer* of a PACE scholarship impact a group of low-income scholarship applicants, as measured by test scores and as perceived by applicants and their parents?
2. What was the impact on low-income students of actually attending a private school?

The first question can be answered simply by comparing the weighted responses of scholarship winners with the weighted responses of the control group; any significant differences between the two can presumably be attributed to the voucher offer. To compute program impacts on children's test scores, we estimated a statistical model that accounts for each student's status as a member of the treatment or control group as well as his or her baseline reading and math scores. Baseline test scores were included both to control for the chance differences between the treatment and control groups on baseline achievement tests and to increase the precision of the estimated impacts. We used the same basic approach to compute

program impacts on parent and student survey responses, except that results are not adjusted to reflect baseline test scores.

In the eyes of some policy analysts, it is this first question that is most important: What happens when a school choice program is put into effect? What are the impacts on the population of low-income families interested in a scholarship? The analogous issue in medical research is the identification of the likely consequences of placing a particular new drug on the market. How will the potential health of users be altered, whether or not all patients for whom the medicine is made available actually take it?

Other scholars, however, are more interested in the consequences of actually attending a private school. They want to know the impact on low-income families not simply of an offer of a scholarship, but rather of actually making the switch from the public sector to the private. The parallel question in medical research is: What are the consequences of actually taking a pill as prescribed?

To compute the effects of actually attending a private school, a statistical model was estimated that takes into account the fact that the placement of students in public and private schools was not entirely random. In technical terms, each student's status as a member of the treatment or control group was used as an instrumental variable in a two stage least squares regression in which the dependent variable in the first-stage regression was whether or not the student attended a private school.

Tables 5-20 provide the answers to both of these questions in six columns, arranged as follows:

1. Responses of all those offered a PACE scholarship;
2. Responses of those not offered a PACE scholarship;
3. The estimated impact of being offered a PACE scholarship;

4. Responses of all those who attended a private school during the second year of the program;
5. Estimated responses of the appropriate control group for those who attended a private school;
6. Estimated impact of attending a private school during the second year of the study.

To simplify presentation, however, the text of this report will primarily discuss the estimated impact on students and families of attending a private school—that is, the responses of those who attended a private school and the appropriate public-school comparison group (columns four and five of the accompanying tables), as well as the differences between the two (column six).

As a measure of the potential impact of a more general voucher program, this estimate has the advantage of not assuming that voucher usage rates are fixed. In theory, take-up rates might be expected to vary according to the size of the scholarship, the timing of the offer, and the marketing strategies of local private schools and of the program as a whole. Furthermore, if programmatic impacts are substantial, participation rates may fluctuate with the passage of time.

Since approximately half of the Dayton families in the treatment group actually used it during the program's second year, the estimated effects of actually switching to a private school are roughly twice as large as the effects of receiving a voucher alone. Readers who are interested in the precise magnitude of the effects of the scholarship offer should examine the first three columns of the tables directly.

A Context for Interpreting Program Impacts

Response Bias

Whether responding to a survey or simply conversing with friends, people tend to overestimate their finer qualities and underestimate less attractive ones. Students, for example, are likely to exaggerate the amount of time they spend on homework, while parents can be expected to

provide an inflated estimate of the regularity with which they volunteer at school. Parents may also view the school their child attends through rose-tinted glasses; after all, few responsible parents are likely to admit to themselves or others that they are sending their child to a terrible school.

The interpretation of data from the parental and student surveys used in this evaluation needs to take into account this general human tendency. No special weight should be placed on the frequency with which any particular event is said to occur. But although absolute levels may not be estimated accurately, there is no reason to believe that the two sets of parents—scholarship recipients and members of the control group—differ in the accuracy of their reports. After all, individuals were assigned randomly to the two groups, so any reporting bias should be similar for the two groups. Therefore, this report focuses almost entirely on the differences in the two groups' responses, assuming that the direction and magnitude of these disparities represent an accurate reflection of their relative experiences.

Generalization of the Findings

It is essential to qualify any generalizations from the results of this pilot program to a large-scale voucher plan involving all children in Dayton or any other major city. Only a small fraction of low-income students in Dayton-area public schools were offered scholarships, and the students using these scholarships constituted only a small proportion of the total number of students attending Montgomery County private schools. As a result, this evaluation provides little insight into the potential systematic consequences of expanding school choice. The impact of a much larger program on both individual students and on the education system as a whole could conceivably be quite different.

Moreover, any voucher program directed at low-income families will initially attract those families in the area most interested in exploring an educational alternative. It is precisely this group that applied for a scholarship during the program's first year. Because this is obviously a select population, it is not known whether the findings of this evaluation would pertain to those families who might apply for scholarships in subsequent years if the program were to continue to expand. It is thus hoped that in the future careful research directed at these issues will accompany larger pilot programs established by private philanthropists and public authorities.

Despite these caveats, however, the data collected on the PACE program does provide important insights into some of the most contentious issues regarding the use of school vouchers. In particular, it offers detailed evidence on the actual experiences of parents and students using vouchers to switch from a public to a private school. The remainder of this report summarizes the results of the program evaluation and discusses their implications in the context of the ongoing public debate over the merits of school choice.

Evaluation Results

Selecting a School

Critics of school choice often disagree with its proponents about the relative importance of academic considerations in parents' decisions regarding their child's education. They assert that most parents choosing to send their child to private schools are more concerned with a school's location, its sports programs, or the religious instruction it offers than with the quality of the academic program. The Carnegie Foundation for the Advancement of Teaching, for example, has claimed that "when parents do select another school, academic concerns are often not central to the decision."⁹ A Twentieth Century Fund report argues that "few parents of any social class

appear willing to acquire the information necessary to make active and informed educational choices,” proceeding to suggest that this problem is particularly acute among low-income parents, who are not “natural ‘consumers’ of education.”¹⁰

Supporters of school choice dispute such contentions, arguing that low-income parents, like other parents, generally place the highest priority on educational quality. Recent research by Terry Moe demonstrates that low-income parents with children in public schools who express a desire to move to a private school are motivated primarily by their conception of the quality of academic instruction available in the two sectors.¹¹ His evidence, drawn from a national sample, suggests that the widespread belief that the decisions made by low-income parents would be driven by predominantly non-academic considerations is misguided. The responses given by participants in the Dayton program when asked about their choice of school are wholly consistent with Moe’s more general findings.

Dayton parents were presented with a long list of possible reasons for having selecting their school and asked to identify the most important. They were also given the option of saying that the school their child attends “was the only choice available.” As can be seen in Table 4, 38 percent of parents offered a voucher and 36 percent of those in the control group identified “academic quality” as their most important consideration when choosing the school their child would attend. Only 4 percent of both groups of parents identified a “convenient location” as most important, while school facilities, extracurricular activities, the child’s friends, and the school’s sports program were each mentioned by less than 2 percent of either group. In general, therefore, responses to this question cast considerable doubt on assertions that low-income parents awarded vouchers would select among schools primarily on the basis of non-academic considerations.

Surprisingly, given the overwhelming proportion of voucher students in Dayton attending religious schools, “religious instruction” was identified as the most important consideration by only seven percent of parents offered a voucher. On its face, this result also appears to contrast sharply with evidence presented in the first-year evaluation of the PACE program, in which parents were asked the same question but allowed to identify the three most important reasons for selecting their school. Nearly half of parents of students in private schools in the first year of the program listed “religious instruction” as one of the three key factors in their choice of school.¹² The large drop-off in the number of parents giving this response in the second year suggests that while religious instruction was often *one* important consideration in the choice of school, it was rarely *the most* important consideration. For most parents participating in the PACE program, academic considerations were paramount.

The relative importance of academic concerns was also evident in the comments of numerous focus-group participants. After extolling the various benefits of religious education, one mother was asked whether that was her main reason for applying for a scholarship. “That is not the only reason,” she replied. “Like I said, its more about the education.”¹³ As another parent put it, “I want my child to get the best education possible without a lot of disciplinary problems in the classroom. That is my biggest concern.”¹⁴

Although similar percentages of both treatment and control groups identified “academic quality” as their most important consideration, the two groups did differ significantly in the frequency with which they mentioned several of the other factors included on the list. Over 18 percent of parents offered a voucher identified “what is taught in school” as the most important reason for their choice, while just 7 percent of control-group parents gave this response. “School discipline” was cited as most important by 7 percent of parents in the treatment group but by less

than 2 percent of the control group. Control-group parents, on the other hand, were significantly more likely to respond that their school “was the only choice available.” Comparing the full range of responses given by both groups, therefore, reveals that parents who had been offered a voucher were considerably more likely to have chosen the school their child was attending at the time for primarily academic reasons.

Had a lottery not been used to assign families to treatment and control groups, the differences in the responses given by the two groups might be interpreted as evidence that a voucher system would remove from the public schools those students whose parents place the highest emphasis on educational considerations. However, given the fact that the members of the two comparison groups were drawn at random from a single pool of applicants, an alternative interpretation is more appropriate: The award of a PACE scholarship appears to have increased the capacity of low-income parents in Dayton to choose a school for their child on the basis of their assessment of its academic merit, an opportunity of which the majority took full advantage.

Parental and Student Satisfaction

A less controversial claim voiced by voucher proponents is that low-income parents who use vouchers to send their children to private schools are generally more satisfied with various aspects of their schools than are public-school parents. Evaluations of the Dayton, Washington DC, and New York City scholarship programs after one year; studies of earlier school choice programs in Milwaukee, San Antonio, Indianapolis, and Cleveland; and a recently released study of a nationwide scholarship program have all reached essentially this same conclusion.¹⁵ The results from the second year evaluation of the Dayton program are consistent with these earlier findings.

As shown in Table 5, when parents were asked to assign their children's schools an overall grade, 40 percent of scholarship users gave their schools an "A", as opposed to just 16 percent of the control group. The average grade assigned by scholarship users fell between a "B" and a "B+", while the average grade assigned by comparable non-users was below a "B-".

Similar disparities emerged when parents were asked to evaluate several more specific aspects of their child's school. For example, more than 44 percent of private-school parents were "very satisfied" with what is taught in their schools, as opposed to just 16 percent of their public-school counterparts. Likewise, one quarter more scholarship users reported that they were very satisfied with the teaching of values in their child's school. The percent of private-school parents reporting that they are very satisfied was also significantly higher than the control group for the following additional items: teacher respect for students, teamwork among school staff, academic quality, quality of teaching, and safety. For no item were private-school parents the less likely of the two groups to be very satisfied with their schools.

Combining parental responses to each of the specific questions into an aggregate satisfaction index has the advantage of allowing consideration of the impact of the voucher program on the distribution of parents across the full spectrum of response categories (from "very dissatisfied" to "very satisfied").¹⁶ The effect size of 0.72 on parental satisfaction as measured by this standardized index indicates that switching from a public to a private school increased parents' overall satisfaction with their schools by approximately three quarters of a standard deviation.

The enhanced satisfaction associated with switching to a private school was not universal, however, and even for scholarship winners came at a price, for the PACE scholarships did not cover the full expenses of attending a private school. For some parents who participated

in the focus-group sessions, the benefits clearly failed to justify the costs. As one mother complained:

I wish I would have never put my children [in the private school]. They will be switching. To me it is just not what the school should be. I thought that it was a good choice but to me they actually don't really care about the kids, they are just more or less just interested in the scholarship money. That is my opinion. That is how I feel.¹⁷

For many parents who participated in the focus group sessions, however, the sacrifice required to send their child to private school was clearly worth it, with or without the help of a voucher. As one non-scholarship parent who had decided to pay the full cost of private school tuition for one of her children, put it:

And the one in the private school is killing me to pay to keep him in there but it is such a difference. The difference in the child and his attitude toward school. He comes home and does his work on his own. There is no problem with him... There is such a difference in these private schools and these public schools here. It is terrible.¹⁸

Another mother was even more explicit about the tradeoffs involved in obtaining a satisfactory education for her children:

I like the Christian setting. I like all that being emphasized and the private schooling. It is a consumeristic market and you can go in and [be listened to as] parents because you are paying the bucks. So I pay for the education double. I am a homeowner so I pay the taxes and then I pay for my education. So I drive crummy cars. I tell people that I drive crummy cars so that my children can have an education.¹⁹

The final set of results in Table 5 gives parents' responses when asked to choose from among a list of six possible responses the "biggest obstacle" to their child's performance in school. Public-school parents were significantly more likely to report that a lack of facilities or programs hindered their child's progress. They were also somewhat more likely to identify a lack of discipline in the school or the poor quality of teachers as the largest obstacle, although both of these differences fail to achieve statistical significance. Private-school parents, on the

other hand, were nearly 40 percentage points more likely to say that a lack of motivation on the part of their child, rather than a feature of his or her school, was the biggest obstacle.

Students in grades four through nine were also questioned regarding their satisfaction with their schools. As indicated in Table 6, differences in student satisfaction were generally in the same direction but not as great as those reported by their parents. The average overall grade private-school students assigned their school fell between a B and B+, as opposed to the grade of B- given by public-school students. In addition, 34 percent of private-school students reported that they like going to school each day “a lot”, a response given by 22 percent of public-school students. Due to the smaller number of students completing surveys, however, these differences fall short of conventional thresholds of statistical significance.

In sum, therefore, the parents of scholarship users in Dayton were in general far more satisfied with their children’s schools than those remaining in public schools. Meanwhile, students using scholarships were at least as satisfied with the schools they attended, and may even have been more satisfied, although the evidence in support of the latter claim is less than conclusive.

Comparing First and Second Year Parental Satisfaction Results

As indicated above, the pattern of enhanced satisfaction among private-school parents found in Dayton closely parallels the results of virtually all empirical studies of voucher programs. Critics of school choice, when confronted with such findings, often assert that the enhanced satisfaction of parents using vouchers is simply the result of a “Hawthorne effect”. In other words, rather than any substantive difference in the quality of public and private schools, they argue that it is the simple fact of change—in the form of switching to a new school—that is responsible for increasing parental satisfaction.

If it is in fact the case that elevated satisfaction is simply a consequence of moving to a different school, regardless of the quality, the effect on satisfaction of attending a private school might be expected to be smaller two academic years after the change than after the first year. Parents may initially be impressed by the novelty of the private school they have selected, only to grow disappointed over time as their excitement fades and the school does not live up to their expectations.

When compared with first-year results, as in Table 7, the responses given by Dayton parents after the second year of the PACE program provide some evidence consistent with this alternative interpretation. The effect of switching to a private school on parent's levels of satisfaction did in fact decline by the conclusion of the second year of the program. After one year, switching to a private school increased parental satisfaction as measured by our aggregate index by 1.14 standard deviations; after two years, this figure had decreased to 0.72 standard deviations, the estimate reported above. And while after one year attendance at a private school produced an increase in the overall grade parents gave their school of more than a full letter grade, after two years the size of this effect diminished to just over half a grade.²⁰ Nevertheless, it is important to emphasize that even after two years parents of students in private schools remained, on average, significantly more satisfied with their schools than their counterparts in the public sector, suggesting that their satisfaction with their new schools was more persistent than many proponents of the "Hawthorne" explanation allow.

School Climate

If parental reports are accurate, the PACE scholarship program had a major impact on the quality of students' daily experiences at school. The results presented in Table 8 demonstrate that applicant families whose children attended public schools were more likely to report that

fighting, cheating, students missing classes, the destruction of property, guns and other weapons, and kids being late for school, were “serious” or “very serious” problems in their child’s school. For example, more than 60 percent of parents in the public-school control group rated fighting to be a serious problem in their school, as opposed to just 11 percent of private-school parents. Similarly, 46 percent of public-school parents, but just 11 percent of private-school parents, reported that students missing classes was a serious problem.

As in the case of satisfaction, the responses given by public and private-school parents to this battery of questions regarding the seriousness of various disruptions in their schools were combined into an aggregate index in order to provide a summary measure of disruption that takes into account the entire range of possible responses. The results indicate that switching from a public to a private school decreased parents’ overall assessment of the prevalence of a range of potential problems in their child’s school by more than four fifths of a standard deviation.²¹

The improved disciplinary climate as perceived by parents of children in private schools resonates throughout their informal comments in focus-group discussions. One mother described her daughter’s experience in switching to a private school after receiving a scholarship as follows:

She was in second grade when we changed [to a private school], and she came home one day and said that she liked it because people didn’t fight as much and it was quiet. To me that was perfect right there. That was enough to make me happy. If she doesn’t go to school and worry about somebody fighting around her that leaves her free to do her school work or play on the playground.²²

Another mother was similarly impressed with the educational environment in the private school she had chosen for her son:

Well, his grades have always been excellent—he’s a smart child. He had a lot of disciplinary problems at [Dayton public school]. I think it had a lot to do with the peer pressure. He was always fighting and being suspended. It was terrible. But

now the setting is more disciplined and the children are more civilized. But his grades have always been good.²³

For a third parent, problems of academic quality and school climate in the public sector were more intimately related:

A little of that is a lack of discipline in the classroom because the same thing happened to my son. He will come home and he says, ‘Well, we really didn’t get a chance to go over this because the kids was acting up so she just said do it for homework.’ Well how are you going to do it for homework if it wasn’t gone over in class? Homework is supposed to be what you learned in class.²⁴

A comment made by a final private-school parent concisely summarized the feelings of many scholarship applicants: “There is more safety than in public schools. I wouldn’t put a child in public schools.”²⁵

The public and private schools attended by study participants apply somewhat different strategies for maintaining discipline, although the differences—also included in Table 8—are not substantial. Over 87 percent of the parents of private-school students, for example, report that their child is required to wear a uniform to school, as compared with fewer than 60 percent of parents in the control group. By way of contrast, nearly 90 percent of public-school parents reported that students must obtain a hall pass to leave class, a regulation that applies to only 64 percent of the students attending private schools. Virtually all parents in both groups reported that certain forms of dress were forbidden in their schools and that visitors are required to sign in at the school office.

As in the case of satisfaction, differences in the disciplinary climate of the schools as described by students are in the same direction as in parental reports, but are smaller in magnitude (see Table 9). For example, only 18 percent of students attending private school students agreed that there was “a lot of cheating” in their school, as compared with 33 percent of their public school counterparts. Similar differences were found when the two groups of

students were asked if students often disrupt class, if students who misbehave often get away with it, and whether or not they feel safe at school. Although none of these differences reaches conventional thresholds of statistical significance, the consistency of the direction of the effects and their similarity with parental reports serve to increase confidence in their validity.

There were no observed differences between the two groups in the average number of student's four best friends who liked school, got good grades, get into trouble with teachers, used bad language, or smoked cigarettes.

Comparing First and Second Year School Disruption Results

As with parental satisfaction, some voucher critics may speculate that the lower incidence of various problems reported by parents using PACE scholarships is simply a psychological artifact of changing schools, rather than a reflection of any substantive difference in disciplinary environment. To examine whether this is the case, Table 10 uses the aggregate disruption index described above to compare the program's effect on parents' perceptions of the level of disruption in their children's schools after its first and second years. The results of this comparison are quite straightforward. While the estimated effect of receiving a voucher decreased in magnitude by one tenth of a standard deviation between the first and second years, the effect of attending a private school actually increased by 0.07 standard deviations.²⁶

Therefore, the positive effects of attending a private school on the disciplinary environment experienced by low-income students in Dayton, as perceived by their parents, have proven to be persistent over time through the PACE program's first two years.

School Facilities and Programs

The public and private schools attended by program applicants differed somewhat in the range of facilities and programs they offered their students (see Table 11). For example, over 91 percent

of public-school parents reported that their school had a nurse's office, as compared with just 77 percent of private-school parents. Parents of students in public schools were also significantly more likely to say that their school contained a gym. Private-school parents, on the other hand, were 10 percentage points more likely than public-school parents to report that their child's school had a music program. They were also nearly 20 percentage points more likely to report that their child had access to individual tutors, although the smaller number of parents who chose to answer this question prevents this difference from achieving statistical significance.

Despite these minor differences, however, schools in the public and private sectors appear to be quite similar with respect to a range of other facilities and programs. No statistically significant differences were found between the percentages of parents in the two groups of parents reporting access to any of the following resources: an arts program, a library, a computer lab, a cafeteria, prepared lunches, special programs for students with difficulty learning, or child counselors. Moreover, it is unclear whether those differences that were observed reflect distinct educational priorities, differences in financial resources, or simply the fact that they attend to different populations of students.

Perhaps the clearest difference between the public and private schools attended by students in the study is size. The schools attended by scholarship users were, on average, much smaller than the ones attended by members of the control group. As estimated by parents, sending a child to a private school had the effect of reducing the size of the school by 144 students, or more than 30 percent.

One feature of private schools that appeared frequently in focus-group comments concerning the attraction of private schools was classes that were smaller than classes in public schools. As one parent who had decided to send her child to a private school put it, "I basically

wanted to try out private schools for a change because when you have a lot of kids there are going to be discipline problems, and more discipline problems cause a lot of distractions, and it takes away from teaching time.”²⁷

It is somewhat surprising, therefore, that there was no statistically significant difference in the size of classes for the two groups of students, as reported by parents. This finding is even more unusual given the results of the surveys administered after the first year of the program, which indicated that the classes of students in private schools were, on average, 3.2 students smaller than classes in public schools.

One possible explanation for this change is that the increased demand for private education in Dayton as a result of the creation and growth of the PACE program may have led private schools to expand their enrollments, causing class sizes to increase as a byproduct. The reports of private-school parents regarding the total size of their schools, which increased by 40 students between the program’s first and second year, provide circumstantial evidence in support of this interpretation. If this interpretation were correct, it would appear to confirm the views of those who caution that the rapid expansion of school choice might contribute to the erosion of some of the advantages traditionally enjoyed by the private sector. A firm conclusion, however, would require direct evidence on both enrollment and class size from the private schools themselves.

Ethnic Considerations

The implications of school choice for levels of racial integration and inter-racial conflict are a subject of considerable debate. Critics warn that increasing parental choice will lead to greater ethnic segregation and the balkanization of society.²⁸ Recent empirical research, however,

suggests that the private sector is in many areas actually better integrated than the public sector, and that race relations in private schools are more harmonious.²⁹

The next two tables present evidence collected from parents concerning the level of ethnic integration and the quality of inter-race relations in the schools attended by applicants for PACE scholarships. Table 12 contains the results of all parental reports, regardless of race, while Table 13 provides the same information for parents of African American students, a group representing 272 of the total number of 378 respondents to follow-up surveys. Although difficult to interpret conclusively, the overall picture emerging from Dayton should serve to moderate the fears of most choice critics.

On the one hand, parents of children in private schools were far more likely to report that “less than 50 percent” of the students in their child’s class were minority (60 percent, as compared to 18 percent of the control group), and much less likely to say that “50 to 75 percent” of their child’s classmates were minorities (15 percent, as compared to 46 percent of the control group). As Table 13 reveals, however, these differences are equally large when the analysis is restricted to African American students. Fifty-one percent of the parents of African American students attending private schools reported that less than half of their child’s classmates were minorities, as opposed to just 7 percent of those parents with children attending public schools. African Americans attending private schools were 29 percentage points less likely to report attending a school that was “50 to 75 percent” minority. There were no significant differences, however, in the percentage of African American students attending schools that were more than 75 percent or “100 percent” minority. Nor were there any significant differences between the two comparison groups when all parents were asked the proportion of the student body who were of the same racial background as their child.

These results, taken together, suggest that the private schools attended by participants in the PACE evaluation were on the whole no less integrated than the public schools they would otherwise have attended. Meanwhile, other evidence suggests that inter-race relations are generally more positive in Dayton private schools. While 32 percent of public-school parents reported that racial conflict is a “serious” or “very serious” problem in their child’s school, this same response is given by only 9 percent of private-school parents. When this same analysis is restricted to the parents of African American students, the effect of attending a private school is in the same direction but falls short of statistical significance.

Students in grades four through nine were also questioned about the extent of their interaction with students with different racial backgrounds. There were no measurable differences between the two comparison groups of students with regard to the frequency with which they ate lunch with a member of another racial group or the number of the students’ four best friends who are of a different race. These results remain the same whether all students are included or if the analysis is restricted to African Americans. In sum, therefore, there is little evidence from Dayton to corroborate the fears of those who criticize school choice on the grounds of its impact on racial integration.

Religious Considerations

The effect of school choice on religious education is a particularly salient issue, lying at the heart of legal debates over the constitutionality of government funded voucher programs.³⁰ There is no doubt that one of the major effects of the PACE scholarship program was to increase the number of students enrolled in religious schools. As reported in Table 14, 92 percent of the private-school students whose parents participated in the second-year follow-up sessions

attended religious schools during the program's second year; the percentage of all PACE scholarship users attending religious schools that year was even higher (see Table 3).

As discussed above, parents sending their children to private schools were no more likely to cite religious instruction as the most important factor in their choice of school than were parents who sent their children to public schools; less than 10 percent of parents offered a scholarship gave this response. Once enrolled, however, private-school parents were significantly more satisfied than public-school parents with the role occupied by religion in their child's school; nearly 30 percent of former group were "very satisfied" with the extent to which their child could observe religious traditions in his or her school, as opposed to just 10 percent of the latter group.

Nevertheless, it is apparent from the results presented in Table 14 that the PACE program did not increase the religious participation of participating parents. The mothers of students in private schools were no more likely to attend religious services than were the mothers of public-school students. This is not surprising, as scholarship winners represent a group selected at random from the pool of all applicants.

Sending a child to a private school does, however, appear to have had a significant and perhaps unexpected impact on parent's beliefs about the role religion should play in public schools. Specifically, parents of students in private schools were significantly less likely—37 percent, as opposed to 68 percent of the public-school control group—to agree strongly that "religious education should be a part of all children's education." A similar pattern emerged when the two groups of parents were asked whether or not "prayer should be allowed in all schools, public or private, as long as it is voluntary", although the difference in this second case was smaller in magnitude and failed to achieve statistical significance. Therefore, it appears that

increasing parents' capacity to send their own children to a religious school if they so desire may serve to diminish the urgency with which parents view the exclusion of religious instruction in the public sector.

The responses of students suggest that the PACE program did, however, have a significant effect on students' religious participation. More than half of students attending private schools reported that they attended religious services "a lot" in the past year, as compared with less than one-fourth of their public-school counterparts. Differences in the number of students participating in youth group activities and receiving religious instruction outside of school were in the same direction but statistically insignificant.

Special Education

Issues related to special education have received a good deal of attention in recent debates over school choice. Critics of school choice say that private schools ignore the needs of students with physical and mental disabilities. Laura Rothstein, for example, says that "choice programs often operate in a way that is either directly or indirectly exclusionary of those with disabilities."³¹ Defenders of school choice generally admit that many private schools lack special facilities or programs for students with special needs, but claim that many of those diagnosed as disabled can learn in regular classrooms and that special arrangements can be made for the rest.

To explore this issue in the Dayton context, parents were asked if their child had been diagnosed with a learning disability. Those who answered in the affirmative were then asked how well their school did in meeting that child's special needs. Were private schools systematically denying admission to students with learning disabilities, the percentage of private-school students with learning disabilities would presumably be significantly lower than in public schools. As Table 15 shows, however, there was essentially no difference in the percentage of

parents in public and private schools reporting that their child has a learning disability. Nor was there a significant difference in the percentage of parents in the two comparison groups reporting that their schools had special programs for students with learning problems.

Furthermore, among parents of children with learning disabilities the ones whose child attended a private school were far more likely to report that their school is doing “very well” in meeting their child’s special need. In fact, nearly 95 percent of the private-school parents gave this response, an answer given by literally none of the parents of students with learning disabilities in public schools.

Although statistically significant, this result should be treated with caution due of the relatively small number of observations on which it is based; only 55 parents of students with learning disabilities also answered this second question. Nevertheless, the apparent success with which private schools are meeting the needs of their disabled students was in fact the subject of numerous comments made by participants in focus-group discussions. When one recipient of a PACE scholarship was asked how she liked her child’s private school, for example, she responded:

Love it. They are wonderful people. I walked into a meeting the other day for my daughter who is having a hard time in math. They laid out the testing. There were two psychologists at this meeting, and both her teachers—two psychologists were at this meeting and another special education person. Five people showed up at this meeting for my one daughter who is doing poorly in math... They did all this testing. They said she is a brilliant child. We need to boost her confidence. She can do this; we just have to work with her. They invited her tutor in who works with her—there were seven of us around the table to discuss one child with a “D” in math. It was awesome. I said you can’t get this anywhere else.³²

School Expectations and Homework

Despite the reputation of private schools as more academically rigorous, parents of students in private and public schools in Dayton reported that their children spent similar amounts of time

on homework assignments (see Table 16). In fact, students in private schools actually reported doing slightly less homework—0.9 hours each day, as opposed to 1.2 hours—than their public-school counterparts. However, virtually no private-school parents reported that their child’s assignments were “too easy”, an assessment made by more than 17 percent of public-school parents. More than 94 percent of private-school parents described the level of difficulty of their child’s homework as “appropriate”, as opposed to only 72 percent of public-school parents.

Moving to other questions about academic matters on the student survey, there were no significant differences in the proportion of students in public and private schools reporting that their teachers grade and return their homework “always or most of the time”, that they “had trouble keeping up with the homework”, or that “classwork was hard to learn”.

Parent-School Communications

Table 17 presents evidence regarding the degree of communication taking place between parents and schools in the public and private sectors. Private schools appear to provide parents with more opportunities for direct participation in classroom instruction. Seventy-seven percent of private-school parents report that parents in their child’s school regularly speak with classes about their jobs, while 75 percent say that parents actually participate in their child’s instruction. The similar figures for public-school parents were 36 percent and 45 percent, respectively.

There were no observed differences, however, in the percentage of private- and public-school parents reporting that their school hosted regular parent teacher conferences or parent open houses, that they were informed of their child’s academic progress at the midpoint of the grading period, that parents received notes from their child’s teacher or a newsletter from their school, or that parents were notified the first time a child was sent to the office for disruptive behavior. Thus, aside from actual participation in instruction, there is little evidence from

Dayton to support the notion that the level of communication between parents and students is higher in the private sector.

Parental Involvement with Child's Education

The evidence from parental surveys regarding the extent to which parents are involved in their children's education after the first two years of the PACE program is less straightforward. At one level, it appears that sending a child to a private school may diminish a parent's engagement. For example, parents of children in private schools were somewhat less likely to report that they participated frequently in a range of school-related activities with their children. Only 4 percent of private-school parents reported that they had worked on a school project with their child 6 or more times in the past month, a response given by 25 percent of public-school parents.

Similarly, just 6 percent of the former group said that they had attended activities with their child 6 or more times, as opposed to 25 percent of the latter. Differences in the numbers of parents frequently discussing school experiences with their child, helping their child with math or reading that was not a part of his or her homework, or working with their children on homework assignments were in the same direction, although statistically insignificant.

Private-school parents were also significantly less likely—19 percent, as opposed to 39 percent—to report that they talked about their child's schools with other parents at least once a week. However, attending a private school had no identifiable impact after two years on the average number of parent-teacher conferences parents attended, the number of hours they volunteered in their child's school, or the percent of parents who were member of the Parent Teacher Association or a similar organization.

Given the similarity of the two groups of parents at baseline and the fact that paying even a portion of private school tuition is itself indicative of concern for education, it is instructive to

consider possible explanations for the self-reported lower levels of engagement among parents sending their children to private schools. As Table 18 suggested, parental reports suggest that private schools in Dayton encourage direct participation by parents in classroom instruction, providing them with a formal channel for involvement. Parents of children in public schools, on the other hand, may be forced to participate more informally in ways suggested by the questions asked above. This interpretation is consistent with the image emerging from focus-group discussions, in which participants repeatedly noted public-school administrators' stubborn resistance to excessive parental involvement. As one parent put it, "The public school is very put off sometimes almost that you are in their face."³³

It is also important to recall that the results presented in Table 18 do not provide a complete picture of the aggregate level of parental involvement in the public and private sector in Dayton. Rather, they merely show the effect of switching into the private sector among those parents applying for a PACE scholarship. The observations of several parents suggest that overall levels of parental participation in school activities are in fact much higher in the private sector. As one public-school teacher who chose to send her own child to private school observed:

That is the difference between the public school and private school... parent involvement. In private school, [if the school] says they want you out [at the school to volunteer], [the parents] are there. [If the public school] says they want you there [at the school to volunteer], you might have some show up... [I had a] parent-teacher conference yesterday—one parent. The parents just aren't there.³⁴

Student Self-Esteem

In addition to questions about their experiences in school and extracurricular activities, the questionnaires completed by students in grades four through nine also contained a series of questions evaluating their self-esteem. The responses to these questions, presented in Table 19,

provide an opportunity to assess whether the personal development of choice students was adversely affected by the transition into a new school. On the whole, the adjustment to a private-school environment appears to have been quite easy. The evaluation of the PACE program conducted after one year found no observed differences between private and public school students.³⁵

After two years, the self-esteem of private-school students was actually higher than that of their public-school counterparts. Significantly fewer students attending private schools agreed that “to do well in school, good luck is more important than hard work”; over one third of applicant students attending public schools gave this response, as opposed to less than 5 percent of private-school students. Meanwhile, all students attending private schools agreed that they felt good about themselves, an answer given by less than 90 percent of those in public schools. The percentage of students agreeing with the statements “at times I think I am no good at all”, “I am able to do things as well as most other people”, “when I make plans, I am almost certain I can make them work”, and “my teachers really listen to what I have to say” were all higher for the private-school cohort, although these differences were insignificant statistically due to the small size of the samples. Similar percentages of students in both groups agreed with the statement “every time I try to get ahead, something stops me.”

Attendance Patterns

All else equal, it is generally thought students’ educational progress is adversely affected by irregular attendance and frequent changes of school. The potential impact of voucher programs on student attendance patterns is thus an important issue. Does school choice destabilize a child’s educational experience? In his evaluation of the Milwaukee voucher program, John Witte expressed concern about the high rate of attrition from private schools.³⁶ A number of choice

critics have raised similar question regarding the readiness of private schools to expel students who do not “fit in.”³⁷ But other empirical studies have found that students from low-income families who receive vouchers are actually more likely to remain in the same school, both throughout a given school year and from one year to the next.³⁸

The PACE program provides an opportunity to examine this question with experimental data after 2 years of participation in a voucher program. The findings—presented in Table 20—generally serve to validate the conclusion that school choice does not disrupt the attendance patterns of low-income students.

Students using PACE scholarships to attend a private school were absent from school more often than comparable students remaining in public schools, missing on average one additional day per month as reported by parents. At the same time, however, private-school students were late for school less often than their public-school counterparts. Although statistically significant, neither of these differences is particularly large, suggesting that the day-to-day attendance patterns of the two groups during the second year of the program were quite similar.

Students attending private schools did not face unusually long daily commutes to school. In fact, their typical commute was slightly shorter than that of public-school students, although this difference failed to achieve statistical significance. The lack of a significant difference in the length of students’ commute, however, may obscure other important differences. For example, it seems likely that private school students are primarily driven to school by their parents, rather than relying on buses provided by their school. The lack of information concerning the modes of transportation used by the two groups of students makes such an interpretation speculative. What does seem clear, however, is that the majority of families using PACE scholarships chose

to send their child to a private school relatively close to their home. While expanding school choice would obviously loosen the tie between residential location and school, it would not sever it completely.

Relative to low-income families in general, a very high percentage of all parents in the study reported that their child had remained in the same school the entire school year. This may reflect the fact that parents who applied for PACE scholarships were strongly committed to their children's education. Over 90 percent of public-school parents and literally all of private-school parents report that their child remained in the same school throughout the school year.

Nineteen percent of public-school parents reported that their child had been suspended from school at least once during the past year, a response given by 9 percent of private-school parents. Although the relatively small size of the samples makes it impossible to conclude that this difference did not occur by chance, the result does serve to disconfirm the hypothesis that private schools will suspend or expel a large percentage of students using vouchers.

When asked about their plans for the following school year, only 14 percent of parents of students in private schools who were not graduating expected their child not to attend the same school the next year. While over 29 percent of public-parents gave this same response, the difference between the two groups once again falls short of conventional thresholds of statistical significance.

In sum, therefore, there is no evidence from the data available on the experiences of families participating in the PACE scholarship program to suggest that increasing school choice would disrupt either the day-to-day or year-to-year attendance patterns of low-income families. In fact, the award of a voucher if anything appears to have played a stabilizing role, although more information would be necessary to make this claim with certainty.

Test Scores

The problem of unmeasured variation in the characteristics and abilities of parents and students is particularly acute in observational studies of academic achievement in public and private schools. Although numerous studies have found that private-school students outperform outwardly comparable public-school peers, it remains a matter of debate whether the findings reflect actual differences in the quality of instruction available in the two sectors or simply differences in the kinds of students and families attending them.³⁹

Until recently, studies of the effects of voucher programs on student achievement have suffered from this same difficulty, their failure to assign students to treatment and control conditions on a random basis preventing them from eliminating the potential influence of self-selection.⁴⁰ The ongoing study of privately funded voucher programs in three major cities, of which this evaluation is a part, has provided researchers with the first opportunity to examine the effect of vouchers on test scores experimentally. After one year this study found strong positive effects of attending a private school for African American students, but insignificant effects for students of other ethnic backgrounds.⁴¹

Table 21 reports the PACE program's impact on student performance on the Iowa Test of Basic Skills after two years. As in the rest of this report, we present the impacts on student performance of (1) the offer of a school voucher and (2) actually attending a private school during the second year of the program. Since mathematics and reading test scores were highly correlated, we report both results for the combined performance of students on both tests along with the results for each test separately. The reported impacts represent the magnitude of the effect in terms of national percentile rankings (NPR). Nationally, the median NPR score on the Iowa Test of Basic Skills is 50.

As after one year, the estimated impact differed considerably depending on whether or not the student was African American. Among students taking the test after two years, 74 percent were African American, 24 percent were white, and less than 2 percent were of another ethnic background. Test scores of black students attending private schools were higher both in reading and in math. Math scores were 7.6 NPR points higher than the scores of members of the control group, and reading scores were 5.3 NPR points higher. The impact on math scores of switching to a private school is statistically significant at the 0.1 level; the difference in reading scores, however, fall just short of this threshold.

Combining math and reading scores to provide a more reliable measure of overall academic achievement produces a statistically significant gain of 6.5 NPR points among African American students attending private schools during the second year of the program relative to their peers in public schools. This gain is almost exactly double the effect of 3.3 NPR points observed for African Americans after the PACE program's first year.

A gain of this magnitude is equivalent to 0.34 standard deviations, or about a third of the total difference in test score performance observed between blacks and whites. Continuing evaluation of voucher programs will be necessary to determine whether such gains can be maintained and extended over time. However, even if the relative rate of gains among blacks were to attenuate in successive years, these results suggest that expanding school choice could play a substantial role in reducing the "black-white test score gap".⁴²

Another way of obtaining a sense of the magnitude of these effects is to compare them to the effects observed in an evaluation of class-size reduction conducted in Tennessee, the only other major education reform to be subjected to evaluation by means of a randomized field trial. According to the most recent analysis of Tennessee data, the estimated effect on African

Americans of reducing class size by seven students after two years was 4.9 NPR points, somewhat less than the 6.5 percentile effect of switching to a private school.

Despite these moderately large gains for African Americans, however, the test scores of students of other ethnic groups attending private schools were essentially the same as their public-school counterparts. In other words, the PACE scholarship program appears to have had no impact whatsoever on their academic achievement. This basic pattern of a substantively significant beneficial effect of school choice on black students and a negligible effect on students of other ethnic groups is not restricted only to Dayton, but is also evident in second-year data from Washington, DC and New York City.⁴³

Comparing Parental Satisfaction and School Disruption Results by Race

The consistency of this pattern of test-score results over time and across cities—a large positive effect for blacks but no effect on other ethnic groups—suggests the potential value of disaggregating parental survey responses by race. Relative to the other cities in which this pattern was observed, such an exercise is likely to be uniquely informative in the Dayton context. In Washington DC, over 94 percent of students participating in the evaluation after two years were African American, while the same type of analysis would be complicated in New York City by the existence of numerous distinct ethnic groups among the non-African American study participants and by the fact that the sample contained only a negligible number of whites. In Dayton, by contrast, 74 percent of students taking the second-year achievement test were African American, 24 percent were white, and less than 2 percent were of another ethnic background, allowing for a more straightforward comparison.

The results of the comparison of the estimated effect of the PACE program on parental satisfaction and levels of disruption disaggregated by race are presented in Table 22. In order to

simplify presentation, the results presented here are limited to the effect of actually attending a private school. Column 3 provides the estimated effect of attending a private school on African American parents, while column 6 provides the same information for non-Hispanic whites.

The results of this comparison are striking. As expected, given the program's impact on the test performance of black students and pattern observed in the aggregate results, switching to a private school had a statistically significant positive effect on the satisfaction of African American parents as measured by the aggregate satisfaction index. The overall level of satisfaction among parents of African American students attending private schools increased by four fifths of a standard deviation over their public-school counterparts. Changing to a private school also improved the average grade African American parents assigned their school by over half a letter grade, from a C+ to a B.

For whites, meanwhile, the effect of switching to a private school on scores on the aggregate satisfaction index was half as large and statistically indistinguishable from 0 (although this is also due in part to the smaller number of whites participating in the evaluation). Additionally, although the improvement in the average grade white parents assigned their private schools was as large as among African Americans, the effect was again statistically insignificant. The basic pattern that emerges when the effects of attending a private school on parental satisfaction are disaggregated by race are thus quite similar to the same pattern for student academic achievement, with positive and statistically significant results for African Americans but unclear results for whites.

While the improvements in parental satisfaction among parents participating in the PACE program appear to have been concentrated primarily among African Americans, however, the same is not true of changes in the level of disruption parents perceive in their schools. On the

contrary, the differences that emerge when the effect of attending a private school on the aggregate school disruption index is broken down by race suggest that the beneficial effects of the voucher offer were primarily concentrated among non-Hispanic whites. White parents' assessments of the level of disruption in their child's private school decreased by more than 2 standard deviations, while that of African Americans fell by only a quarter of a standard deviation, a statistically insignificant amount.

In conclusion, therefore, while the PACE program's substantial positive effects on parental satisfaction were driven primarily by the responses given by African American parents, its equally substantial impacts on the perceived seriousness of a range of disciplinary problems were most heavily concentrated among non-Hispanic whites. The impact on student academic performance not only of the PACE program in Dayton, but also of similar pilot voucher programs established in New York City and Washington DC, also differed by race, with significant positive effects found only for African American students. Understanding the reasons for this variation between ethnic groups in the effects of programs expanding school choice remains an important topic for future research.

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² For first year results from Dayton see William G. Howell and Paul E. Peterson, "School Choice in Dayton: An Evaluation After One Year," Program on Education Policy and Governance, Harvard University, February 2000. For Washington, DC results see Patrick Wolf, William G. Howell, and Paul E. Peterson, "School Choice in Washington, DC: An Evaluation after One Year," Program on Education Policy and Governance, Harvard University, February 2000. Both these papers, as well as all other PEPG reports cited below, are available at www.ksg.harvard.edu/pepg/. First year New York City results can be found in Paul E. Peterson, David E. Myers, William G. Howell, and Daniel P. Mayer, "The Effects of School Choice in New York City," in Susan B. Mayer and Paul E. Peterson, *Earning and Learning: How Schools Matter* (Washington, DC: Brookings, 1999), 317-39.

Combined second-year achievement results are presented in William G. Howell, Patrick J. Wolf, Paul E. Peterson, and David E. Campbell, "Test Score Effects of School Vouchers in Dayton, Ohio, New York City, and Washington, DC: Evidence from Randomized Field Trials," Program on Education Policy and Governance, Harvard University, August 2000. For second year New York City survey results see David Myers, Paul E. Peterson, Daniel Mayer, Julia Chou, and William G. Howell, "School Choice in New York City After Two Years: An Evaluation of the School Choice Scholarships Program," Program on Education Policy and Governance, Harvard University, August 2000.

³ Information provided to the evaluation team by the PACE staff, January 2001. A more complete description of the program's origins is found in Paul E. Peterson, Jay P. Greene, William G. Howell, and William McCready, "Initial Findings from an Evaluation of School Choice Programs in Washington, DC and Dayton, Ohio," Paper presented at the annual meetings of the Association of Public Policy and Management, New York City, NY, October 1998.

⁴ Kindergarten students applying for a scholarship to attend first grade were exempted from the testing requirement. The assessment used in this study is Form M of the Iowa Test of Basic Skills, Copyright 1996 by the University of Iowa, published by the Riverside Publishing Company, 425 Spring Lakes Drive, Itasca, Illinois, 60143-2079; All rights reserved. The tests were scored by Riverside Publishing.

⁵ For a comprehensive analysis of the baseline characteristics of the applicants for the PACE scholarship program, including a comparison of those in public and private schools, see Peterson, Greene, Howell, and McCready, "Initial Findings."

⁶ Although parental comments are used throughout the report to illustrate and provide a context for interpreting findings from the surveys, they do not constitute a random sample of parental opinion.

⁷ In practice, program operators chose not to enforce this policy.

⁸ Specifically logit models were run on both the treatment and control groups in which the dependent variable was scored one if the child completed the second year follow-up session, and zero otherwise. Covariates in these models included a range of baseline demographic and test score information, with means imputed where missing. The weights used in this report represent the inverse of the predicted values generated by these models. Because the differences between those who attended the follow-up sessions were quite small, the use of unweighted data to estimate program impacts does not alter the significance level or direction of any of the reported effects.

⁹ Carnegie Foundation for the Advancement of Teaching, *School Choice: A Special Report* (Princeton, New Jersey: Carnegie Foundation for the Advancement of Teaching, 1992), 13.

¹⁰ Carol Ascher, Norm Fruchter, and Robert Berne, *Hard Lessons: Public Schools and Privatization* (New York: Twentieth Century Fund Press, 1996), pp. 40-41.

¹¹ Terry M. Moe, *Schools, Vouchers, and the American Public* (Washington DC: Brookings, 2001). A concise summary of the findings of Moe's research can be found in Terry M. Moe, "Hidden Demand," *Education Next*, 1, 1, Spring 2001: 48-55.

¹² Howell and Peterson, "School Choice in Dayton," p. 14 and Table 3.

¹³ Dayton Decliners Group, March 18, 2000.

¹⁴ Dayton Control Group, March 25, 2000.

¹⁵ Howell and Peterson, "School Choice in Dayton;" Wolf, Howell, and Peterson, "School Choice in Washington DC;" and Peterson, Howell, Myers, and Mayer, "School Choice in New York City." The results of studies of choice programs conducted prior to 1998 are summarized in Paul E. Peterson, "School Choice: A Report Card," in Peterson and Hassel, eds., *Learning from School Choice* (Washington, DC: Brookings, 1998), 17-19. For more recent evidence based on national data, see Peterson, Paul E. and Campbell, David E., "An Evaluation of the Children's Scholarship Fund", Program on Education Policy and Governance, Harvard University, May 2001.

¹⁶ To construct the aggregate satisfaction index, parental responses to each question about their child's school were first assigned a value ranging from 1 ("very dissatisfied") to 4 ("very satisfied"). An average response was then calculated for each parent, excluding those individual questions that the parent chose not to answer. Each of these average values was next divided by the standard deviation of all parents' average responses. Finally, the mean value

of these averages was then subtracted from each observation to produce a final index with a mean of 1 and a standard deviation of 0.

¹⁷ Dayton Treatment Group, April 1, 2000.

¹⁸ Dayton Control Group, March 18, 2000.

¹⁹ Dayton Control Group, March 18, 2000.

²⁰ In order to test the statistical significance of the differences in effects in year one and year two, bootstrapping techniques were used to generate direct estimates of the standard errors of these differences. We estimated the effects in year one and year two for each bootstrapped sample and calculated the difference between them, repeating this process 1,000 times in order to produce a distribution with a reliable standard error and confidence intervals. Each of the differences reported in table 7 is significant at the $p < .01$ level.

²¹ The procedure used to generate the aggregate problem index was the same as that used to generate the aggregate satisfaction index as described above in footnote 16 except for the initial values assigned to responses, which ranged from 1 (“not serious”) to 3 (“very serious”).

²² Dayton Treatment Group, March 25, 2000.

²³ Dayton Control Group, March 18, 2000.

²⁴ Dayton Control Group, March 25, 2000.

²⁵ Dayton Control Group, March 18, 2000.

²⁶ The statistical significance of these differences was assessed using the bootstrapping techniques described above in footnote 20; neither difference was significant at $p < 0.1$.

²⁷ Dayton Control Group, March 25, 2000.

²⁸ Prominent examples of this argument include Michael Kelly, “Dangerous Minds,” *New Republic*, December 30, 1996; Guttman, Amy, *Democratic Education* (Princeton, NJ: Princeton University Press, 1999).

²⁹ Jay P. Greene, “Civic Values in Public and Private Schools,” in Peterson and Hassel, *Learning from School Choice*, pp. 83-106.

³⁰ Joseph P. Viteritti, “School Choice and American Constitutionalism” in Paul E. Peterson and David E. Campbell, eds., *Charters, Vouchers, and Public Education* (Washington DC: Brookings, forthcoming).

³¹ Laura F. Rothstein, “School Choice and Children with Disabilities,” in Stephen D. Sugarman and Frank R. Kemerer, eds. *School Choice and Social Controversy* (Washington, DC: Brookings, 1990), p. 357.

³² Dayton Treatment Group, April 1, 2000.

³³ Dayton Treatment Group, April 1, 2000.

³⁴ Dayton Treatment Group, April 1, 2000.

³⁵ Howell and Peterson, “School Choice in Dayton,” p. 35.

³⁶ John F. Witte, “First Year Report: Milwaukee Parental Choice Program,” University of Wisconsin, Madison and Robert M. Lafayette Institute of Public Affairs, November, 1991.

³⁷ Dan Murphy, F. Howard Nelson, and Bella Rosenberg, “The Cleveland Voucher Program: Who Chooses? Who Gets Chosen? Who Pays?” A Report by the American Federation of Teachers, p. 10.

³⁸ Jay P. Greene, William G. Howell, and Paul E. Peterson, “Lessons from the Cleveland Scholarship Program,” in Peterson and Hassel, *Learning from School Choice*, pp. 376-380.

³⁹ Major studies finding positive educational benefits from attending private schools include James S. Coleman, Thomas Hoffer, and Sally Kilgore, *High School Achievement* (New York: Basic Books, 1982); John E. Chubb and Terry M. Moe, *Politics, Markets, and America’s Schools* (Washington, DC: Brookings, 1990); and Derek Neal, “The Effects of Catholic Secondary Schooling on Educational Achievement,” *Journal of Labor Economics*, 15, (1997), pp. 98-123. Critiques of these studies include Arthur S. Goldberger and Glen G. Cain “The Causal Analysis of Cognitive Outcomes in the Coleman, Hoffer, and Kilgore Report,” *Sociology of Education*, 55, (1982), 103-22; and Douglas J. Wilms, “Catholic School Effects on Academic Achievement: New Evidence from the High School and Beyond Follow-up Study,” *Sociology of Education*, 58, (1985), pp. 98-114.

⁴⁰ Results of non-experimental evaluations of the academic achievement of students participating in voucher programs are summarized Paul E. Peterson, “School Choice: A Report Card,” in Peterson and Hassel, *Learning from School Choice*, pp. 3-32.

⁴¹ Howell and Peterson, “School Choice in Dayton;” Peterson, Myers, Howell, and Mayer, “School Choice in New York City;” Wolf, Howell, and Peterson, “School Choice in Washington DC.”

⁴² Christopher Jencks and Meredith Phillips, *The Black-White Test Score Gap* (Washington, DC: Brookings, 1999).

⁴³ These results are discussed in detail in Howell, Wolf, Peterson, and Campbell, “Test Score Effects of School Vouchers.”

Table 1 – Students Participating in the PACE Program

	1st Year (1998-1999)	2nd Year (1999-2000)
Participating Students	542	853
Students previously attending public schools	282	551
Students previously attending private schools	260	302
Participating students per family	1.85	1.68
Percent of Students in Grade:		
Kindergarten	10%	11%
1 st Grade	13	12
2 nd Grade	10	11
3 rd Grade	11	10
4 th Grade	14	11
5 th Grade	10	12
6 th Grade	10	8
7 th Grade	7	9
8 th Grade	9	6
9-12 th Grade	6	11
Total	100	100

Information provided to the evaluation team by the PACE staff, January 2001.

Table 2 – PACE Program Summary Financial Data

	1st Year (1998-1999)	2nd Year (1999-2000)
Total Money Spent	\$614,361	\$1,179,049
Average Scholarship per Child	\$1,134	\$1,382
Average Family Contribution per Child	\$1,366	\$1,154
Average Tuition per Child	\$2,600	\$2,633
Average Family Income	\$16,667	\$20,215

Information provided to the evaluation team by the PACE staff, January 2001.

Table 3 – Private Schools Participating in the PACE Program

Type of School	Number of Students		Number of Schools	
	1 st Year (1998-1999)	2 nd Year (1999-2000)	1 st Year (1998-1999)	2 nd Year (1999-2000)
Roman Catholic	388	539	18	22
Christian (non-denominational)	117	220	7	10
Lutheran	18	38	1	1
Montessori	0	3	0	3
<i>Other non-religious</i>	<i>19</i>	<i>23</i>	<i>4</i>	<i>6</i>
<i>Total⁴⁴</i>	<i>542</i>	<i>823</i>	<i>30</i>	<i>42</i>

Information provided to the evaluation team by the PACE staff, January 2001.

⁴⁴ This total does not include students participating in the PACE program but not attending private schools (those using PACE scholarships to attend out-of-district public schools).

Table 4 – School Selection, Dayton, OH

	Effect of Scholarship Offer		
	Offer (1)	No Offer (2)	Impact (3)
Percent of parents citing the following as the most important consideration in their choice of school:			
Academic quality	38.3	36.2	2.1
What is taught	18.2	6.8	11.4***
Only choice available	11.5	18.6	-7.1*
Discipline	7.4	1.9	5.5**
Religious instruction	7.0	6.7	0.3
Special features of school	6.5	9.6	-3.1
Neighborhood public school	4.8	8.2	-3.4
Convenient location	3.5	3.6	-0.1
Teacher quality	2.0	1.8	0.2
School facilities	0.8	0.0	0.8
School safety	0.0	3.4	-3.4
Class size	0.0	1.8	-1.8
Extracurricular activities	0.0	1.5	-1.5
Child’s friends	0.0	0.0	0.0
Sports program	0.0	0.0	0.0
(N)			341

Grades 2-9 in 1999-2000. Percentages are weighted. N is actual number of observations.

* = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 5 – Parental Satisfaction with School, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of parents satisfied with the following aspects of their child’s school:						
What is taught	32.6	20.1	12.5***	44.1	15.6	28.5***
Teaching values	27.2	16.4	10.8**	27.4	12.4	25.0***
Teacher respect for students	24.3	14.9	9.4**	33.2	11.5	21.7**
Teamwork among school staff	27.2	17.6	9.6**	36.6	13.8	22.8**
Academic quality	27.4	18.3	9.1**	35.6	15.1	20.5**
Quality of teaching	29.1	20.2	8.9*	37.5	17.0	20.5**
Freedom to observe religious traditions	21.6	13.4	8.2**	29.3	10.5	18.8**
Safety	29.2	21.9	7.3*	36.0	19.4	16.6*
Amount of information from teachers	26.3	19.4	6.9	32.6	16.9	15.7
Clarity of school goals	26.0	19.6	6.4	32.0	17.2	14.8
School discipline	24.3	18.5	5.8	29.5	16.4	13.1
Student respect for teachers	23.4	18.0	5.4	28.2	16.1	12.1
Class Size	22.9	18.0	4.9	27.7	16.2	11.5
Parental support for school	22.1	17.3	4.8	26.4	15.5	10.9
School Facilities	19.1	14.7	4.4	22.8	12.9	9.9
Location	27.2	33.1	-5.9	21.7	35.2	-13.5
Aggregate Satisfaction Index:	0.15	-0.17	0.32***	0.44	-0.28	0.72***
Mean Value = 0						
Standard Deviation = 1						

(N)		278-360		278-360
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Table 5 Continued

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of parents giving their child's school the following overall grade:						
A	30.3	19.7	10.6**	40.0	16.3	23.7**
B	37.0	38.9	-1.9	35.3	39.5	-4.2
C	23.7	26.7	-3.0	20.9	27.7	-6.8
D	9.0	11.2	-2.2	7.0	11.9	-4.9
F	0.0	3.5	-3.5**	0.0	4.7	-7.9**
Total	100.0	100.0		100.0	100.0	
Average grade parent gave school (4.0 scale)	B (2.9)	B- (2.6)	0.3***	B/B+ (3.1)	B-/C+ (2.5)	0.6***
Percent of parents identifying the following as the biggest obstacle to their child's performance in school:						
Child's lack of motivation	51.5	35.1	16.4***	68.8	29.3	39.5***
Lack of facilities or programs	10.2	20.8	-10.6**	0	24.4	-25.5**
Lack of discipline in school	8.5	13.7	-5.2	3.1	15.5	-12.4
Quality of teachers	16.5	20.5	-4.0	12.3	21.9	-9.6
Problems in child's home or neighborhood	4.0	1.0	3.0	3.8	.5	3.3
Child's friends	8.6	9.0	0.4	9.8	8.8	1.0
Total	100.0	100.0		100.0	100.0	
(N)			278-359			278-359

Grades 2-9 in 1999-2000. Percentages are weighted. N is actual number of observations.

* = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 6 – Student Satisfaction with School, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of students giving their school the following overall grade:						
A	33.8	26.3	7.5	40.0	24.0	16.0
B	40.4	42.6	-2.2	38.6	43.2	-4.6
C	18.4	21.0	-2.6	16.2	21.8	-5.6
D	4.5	8.1	-3.6	2.0	9.1	-7.7
F	3.1	2.1	1.0	3.8	1.8	2.0
Total	100.0	100.0		100.0	100.0	
Average grade student gave school (4.0 scale)	B (3.0)	B- (2.8)	0.2	B/B+ (3.1)	B- (2.8)	0.3
Percent of students who report that:						
They “like a lot” going to school each day	29.5	24.1	5.4	34.1	22.3	11.8
(N)			277-299			277-299

Grades 4-9 in 1999-2000. Percentages are weighted. N is actual number of observations.

* = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 7 – Comparing First and Second Year Satisfaction Results, Dayton, Ohio

	Effect of Scholarship Offer			Effect of Attending a Private School		
	Year One	Year Two	Difference (Yr 1-Yr 2)	Year One	Year Two	Difference (Yr 1-Yr 2)
	(1)	(2)	(3)	(4)	(5)	(6)
Aggregate Satisfaction Index: Mean Value = 0 Standard Deviation = 1	0.71***	0.32***	-0.39***	1.14***	0.72***	-0.42***
Average grade parent gave school (4.0 scale)	0.7***	0.3***	-0.4***	1.2***	0.6***	-0.6***
(N)	408-428	359-360		408-428	359-360	

* = effect significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 8 – Parental Perception of School Climate, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of parents reporting that the following problems at school are “serious” or “very serious”:						
Fighting	31.2	53.3	-22.1***	10.7	61.3	-50.6***
Cheating	18.0	36.1	-18.1***	1.9	42.7	-40.8***
Truancy	24.8	40.7	-15.9***	10.6	46.4	-35.8***
Destruction of property	25.3	38.2	-12.9***	13.3	42.9	-29.6***
Guns or other weapons	14.7	24.1	-9.4**	6.1	27.5	-21.4**
Kids being late for school	36.5	45.7	-9.2*	28.1	49.0	-20.9*
Aggregate Disruption Index: ⁴⁵ Mean Value = 0 Standard Deviation = 1	-0.21	0.15	-0.36***	-0.53	0.28	-0.81***
Percent of parents reporting the following rules at child’s school: ⁴⁶						
Uniforms	75.9	64.2	11.7**	87.4	59.8	27.6**
Hall Passes	75.0	85.8	-10.8**	64.2	89.7	-25.5**
Certain forms of dress forbidden	98.0	94.7	3.3	100.0	93.4	7.9
Visitors must sign in	97.3	97.0	0.3	97.4	96.8	0.8
(N)			312-356			312-356

Grades 2-9 in 1999-2000. Percentages are weighted. N is actual number of observations. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

⁴⁵ In addition to the six items presented in this table, the aggregate disruption index also includes parents' responses when asked about the seriousness of racial conflict in their child's school.

⁴⁶ Reported percentages exclude those parents reporting they did not know whether or not the relevant rule existed at the child's school.

Table 9 – Student Perception of School Climate, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of students who agree with the following:						
“There is a lot of cheating in my school”	24.0	30.9	-6.9	18.3	33.0	-14.7
“Other students often disrupt class”	69.8	75.2	-5.7	64.5	77.3	-12.8
“Students who misbehave often get away with it”	31.9	36.9	-5.0	23.6	35.0	-11.4
“I don’t feel safe in school”	17.4	22.6	-5.2	12.9	24.2	-11.3
“Rules in my school are strict”	64.5	62.3	2.2	66.3	61.6	4.7
Number of students four closest friends who:						
Like school	2.66	2.64	0.02	2.66	2.62	0.04
Get good grades	3.16	3.02	0.14	3.29	2.98	0.31
Get into trouble with teachers	1.26	1.31	-0.05	1.23	1.33	-0.10
Use bad language	1.17	1.20	-0.03	1.14	1.21	-0.07
Smoke cigarettes	0.16	0.15	0.01	0.18	0.15	0.03
(N)			269-285			269-285

Grades 2-9 in 1999-2000. Percentages are weighted. N is actual number of observations. * = difference significant at p < .1, ** = significant at p < .05, *** = significant at p < .01; two-tailed tests conducted.

Table 10 – Comparing First and Second Year Parental Perceptions of Disruption Levels, Dayton, Ohio

	Effect of Scholarship Offer			Effect of Attending a Private School		
	Year One	Year Two	Difference (Y1 Effect-Y2 Effect)	Year One	Year Two	Difference (Y1 Effect-Y2 Effect)
	(1)	(2)	(3)	(4)	(5)	(6)
Aggregate Disruption Index: ⁴⁷ Mean Value = 0 Standard Deviation = 1	-0.46***	-0.36***	-0.10	-0.74	-0.81***	0.07
(N)	435	356		435	356	

* = effect significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

⁴⁷ The Aggregate Disruption Index for the first year results does not include parental assessments of the seriousness of the presence of guns or other weapons

Table 11 – School Facilities and Programs, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of children who have the following resources at school as reported by parents:⁴⁸						
Music program	99.6	95.6	4.0**	100.0	94.1	9.6**
Gym	90.7	95.4	-4.7*	86.4	97.0	-10.6*
Nurse’s office	82.7	89.0	-6.3	76.7	91.3	-14.6*
Individual tutors	51.7	60.5	8.8	74.9	57.2	17.7
After-school program	57.9	64.8	-6.9	47.8	62.3	-14.5
Special education programs	85.8	90.0	-4.2	82.0	91.7	-9.7
Computer lab	79.2	84.3	-5.1	71.7	82.7	-11.0
Prepared lunches	80.8	76.3	4.5	84.4	74.9	9.5
Cafeteria	87.3	90.1	-2.8	82.7	89.1	-6.4
Arts program	87.6	84.9	2.7	89.9	83.9	6.0
Library	89.7	92.3	-2.6	85.9	91.5	-5.6
Child counselors	75.2	75.6	-.4	74.8	75.8	-1.0
Average school size as reported by parents	347.2	418.6	-71.4***	298.8	443	-144.2***
Average class size as reported by parents	23.6	23.4	.3	24.1	23.4	.7
(N)			250-354			250-354

Grades 2-9 in 1999-2000. Percentages are weighted. N is actual number of observations.

* = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed test conducted.

⁴⁸ When more than one third of respondents claimed they “didn’t know” whether a program existed at their child’s school, the item was deleted.

Table 12 – Ethnic Considerations, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
<u>PARENTAL REPORTS</u>						
Percent of classmates that are minority, as reported by parents:						
Less than 50 percent	43.1	24.9	18.2***	60.4	18.3	42.1***
50 to 75 percent	28.1	41.5	-13.4***	15.3	46.3	31.0***
More than 75 percent, but not everyone	22.3	25.9	-3.6	18.8	27.2	-8.4
100 percent	6.6	7.8	-1.2	5.5	8.2	-2.7
Total	100.0	100.0		100.0	100.0	
Percent of classmates that are the same race as student, as reported by parents:						
Less than 50 percent	26.3	24.0	2.3	28.3	23.2	5.1
50 to 75 percent	28.9	36.0	-7.1	22.5	38.4	-15.9
More than 75 percent, but not everyone	38.2	33.0	5.2	42.8	31.2	11.6
100 percent	6.7	7.1	-4	6.4	7.2	-8
Total	100.0	100.0		100.0	100.0	
Percent of parents reporting racial conflict is a “serious” or “very serious” problem at child’s school ⁴⁹	17.9	28.4	-10.5**	8.5	31.7	-23.2**
(N)			329-357			329-357
<u>STUDENT REPORTS</u>						
Percent of students reporting they eat lunch with students of other racial groups:						
“Never”	16.3	14.7	1.6	17.5	14.2	3.3
“Some of the time”	24.4	22.1	2.3	26.3	21.3	5.0
“Most of the time”	13.4	19.4	-6.0	8.5	21.3	-12.8
“All of the time”	46.0	43.9	2.1	47.7	43.2	4.5
Total	100.0	100.0		100.0	100.0	

Average number of student's four closest friends who are of a different race:	1.11	.98	.13	1.24	.94	.30
(N)			283-293			283-293

Parental reports are for students in grades 2-9 in 1999-2000; student reports are for grades 4-9 only. Percentages are weighted. N is actual number of observations. * = difference is significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

⁴⁹ Reported percentages excluded respondents reporting that their child's school contained only children of a single race.

Table 13 – Ethnic Considerations Among African-Americans, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer (1)	No Offer (2)	Impact (3)	Private (4)	Public (5)	Impact (6)
<u>PARENTAL REPORTS</u>						
Percent of classmates of African American students that are also minorities, as reported by parents:						
Less than 50 percent	32.0	10.8	21.2***	51.0	7.4	43.6***
50 to 75 percent	30.3	44.6	-14.3**	17.5	46.9	-29.4**
More than 75 percent, but not everyone	29.2	34.0	-4.8	24.9	34.8	-9.9
100 percent	8.5	10.6	-2.1	6.7	10.9	-4.2
Total	100.0	100.0		100.0	100.0	
Percent of African-American parents reporting racial conflict is a “serious” or “very serious” problem at child’s school⁵⁰	23.3	27.6	-4.3	19.2	28.1	-8.9
(N)			231-253			231-253
<u>STUDENT REPORTS</u>						
Percent of African-American students reporting they eat lunch with students of other racial groups:						
“Never”	18.1	16.0	2.1	19.9	15.7	4.2
“Some of the time”	23.9	22.7	1.2	24.9	22.5	2.4
“Most of the time”	14.3	21.0	-6.7	8.9	22.2	-13.3
“All of the time”	43.7	40.3	3.4	46.4	39.7	6.7
Total	100.0	100.0		100.0	100.0	

Average number of African-American student's four closest friends who are of a different race:	.98	.96	.02	.99	.95	.04
(N)			204-216			204-216

Parental reports are for students in grades 2-9 in 1999-2000; student reports are for grades 4-9 only. Percentages are weighted. N is actual number of observations. * = difference is significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

⁵⁰ Reported percentages excluded respondents reporting that their child's school contained only children of a single race.

Table 14 – Religious Considerations, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer (1)	No Offer (2)	Impact (3)	Private (4)	Public (5)	Impact (6)
<u>PARENTAL REPORTS</u>						
Percent of parents:						
Whose children attend a religious school	54.0	13.3	40.7***	91.7	0.0	91.7***
Listing religious instruction as the most important factor in choice of school	7.0	6.7	0.3	7.2	6.5	0.7
Satisfied with how much students can observe religious traditions in their child’s school	21.6	13.4	8.2**	29.3	10.5	18.8**
Attending religious services at least once a week	58.8	58.5	0.3	59.3	58.4	0.9
Agree strongly that “religious education should be a part of all children’s education”	49.0	62.9	-13.9***	36.8	67.5	-30.7**
Agree strongly that “prayer should be allowed in all schools, public and private, as long as it is voluntary”	68.3	75.5	-7.2	61.9	78.0	-16.1
(N)			341-357			341-357
<u>STUDENT REPORTS</u>						
Percent of students:						
Attending religious services “a lot” in past year:	41.6	27.9	13.7**	53.8	23.2	30.6**
Participating in church youth group activities “a lot” in past year	49.9	45.0	4.9	53.9	43.5	10.4

Receiving religious instruction outside school “a lot” in past year	28.2	23.4	4.8	32.2	22.1	10.1
(N)			273-280			273-280

Parental reports are for students in grades 2-9 in 1999-2000; student reports are for grades 4-9 only. Percentages are weighted. N is actual number of observations. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed test conducted.

Table 15 – Special Education Facilities and Programs, Dayton, OH

	Scholarship Offer			School Attended		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of parents reporting that their child has a learning disability	18.4	16.9	NA	19.8	16.4	NA
(N)			356			356
Percent of parents of children with learning disabilities reporting that their school is doing “very well” in meeting student’s special need:	58.2	10.4	47.8***	94.6	0.0	94.6***
(N)			55			55

Grades 2-9 in 1999-2000. Percentages are weighted. N is actual number of observations. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 16 – Homework, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
<u>PARENTAL REPORTS</u>						
Average number of hours of homework assigned each day	1.0	0.9	0.1	1.0	0.9	0.1
Percent of parents reporting that their child’s homework assignments are:						
Too easy	7.4	15.0	-7.6**	0.9	17.5	-16.6**
Appropriate	85.1	75.2	9.9**	94.1	71.9	22.2**
Too difficult	3.5	4.9	-1.4	2.1	5.3	-3.2
Don’t know	4.4	4.0	0.4	4.6	3.8	0.8
Total	100.0	100.0		100.0	100.0	
(N)			353-373			353-373
<u>STUDENT REPORTS</u>						
Average number of hours of homework assigned each day	0.9	1.1	-0.2*	0.9	1.2	-0.3*
Percent of students reporting that:						
Teachers grade and return their homework “always or most of time” ⁵¹	59.6	57.9	1.7	62.1	57.2	4.9
“I had trouble keeping up with the homework”	28.2	24.9	3.3	31.2	23.9	7.3
“Classwork was hard to learn”	24.7	28.0	-3.3	22.0	29.1	-7.1
(N)			278-295			278-295

Parental reports are for students in grades 2-9 in 1999-2000; student reports are for grades 4-9 only. Percentages are weighted. N is actual number of observations. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed test conducted.

⁵¹ Students not receiving homework excluded.

Table 17 – Parent-School Communications, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent for whom following practices exist at child’s school:⁵²						
Parents speak to classes about their jobs	61.7	42.6	19.1***	77.2	35.7	41.5***
Parents participate in instruction	63.0	50.0	13.0**	75.0	44.9	30.1**
Regular parent/teacher conferences held	95.7	88.3	7.4	100.0	85.7	16.9
Parent open-houses held at school	96.4	95.7	0.7	97.1	95.5	1.6
Parents informed about student progress halfway through the grading period	90.1	91.2	-1.1	89.1	91.6	-2.5
Parents receive notes from teachers	80.9	78.1	2.8	83.7	77.1	6.6
Parents receive newsletter about school	81.2	83.1	-1.9	79.5	83.7	-4.2
Parents notified when child sent to office for first time because of disruptive behavior	81.0	76.5	4.5	84.8	74.8	10.0
(N)			255-352			255-352

Grades 2-9 in 1998-99. Percentages are weighted. N is actual number of observations. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed test conducted.

⁵² Reported percentages exclude those parents reporting they did not know whether or not the relevant practice existed at the child’s school.

Table 18 – Parental Involvement with Child’s Education, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of parents who participated in the following activities with their child six or more times in the past month:						
Worked on a school project	12.3	21.7	-9.4**	3.9	25.0	-21.1**
Attended school activities w/ child	13.6	21.8	-8.2**	6.1	24.6	-18.5**
Discussed child’s experiences in school	71.6	77.8	-6.2	66.1	80.0	-13.9
Helped with math/reading that was not part of homework	29.4	34.6	-5.2	24.5	36.4	-11.9
Worked on homework	44.6	45.2	-0.6	33.0	47.4	-14.4
Percent of parents who report talking to other parents about child’s school at least once a week:	27.3	36.0	-8.7*	19.4	39.1	-19.7*
Avg. number of parent-teacher meetings parent attended in the past year	2.1	2.2	-0.1	2.0	2.2	-0.2
Avg. number of hours parent volunteered in child’s school in the past month	0.8	1.1	-.3	0.6	1.2	-0.6
Percent of parents who are members of a PTA or a similar organization	24.3	23.6	0.7	24.8	23.3	1.5
(N)			348-356			348-356

Grades 2-9 in 1998-99. Percentages are weighted. N is actual number of observations. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 19 – Student Self-Esteem, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of students who agree with the following statements:						
“To do well in school, good luck is more important than hard work”	15.6	29.1	-13.5***	3.8	33.5	-29.7***
“I feel good about myself”	98.4	91.8	6.6**	100.0	89.7	14.4**
“At times I think I am no good at all”	23.9	28.9	-5.0	19.4	30.6	-11.2
“I am able to do things as well as most other people”	88.6	93.5	-4.9	85.1	95.7	-10.6
“When I make plans, I am almost certain I can make them work”	85.5	81.1	4.4	89.4	79.7	9.7
“Teachers really listen to what I have to say”	74.7	71.1	3.6	78.1	69.8	8.3
“Every time I try to get ahead, something stops me”	35.5	34.2	1.3	36.6	33.9	2.7
(N)			269-281			269-281

Grades 4-9 in 1999-2000. Weighted percentages and actual number of observations

* = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 20 – Attendance Patterns, Dayton, OH

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Average number of days in the past month student was absent from school:	1.5	1.1	0.4**	1.9	0.9	1.0**
Average number of days in the past month student was more than a half hour late for school:	0.4	0.8	-0.4***	0.1	0.9	-0.8***
Average length of commute to school (in minutes):	14.3	19.6	-5.3	7.6	19.9	-12.3
Percent of students who changed schools during the 1999-2000 school year:	3.7	8.3	-4.6	0.0	9.9	-10.3
Percent of students suspended from school for disciplinary reasons during the 1999-2000 school year:	12.9	17.4	-4.5	8.8	18.9	-10.1
Percent of non-graduating students planning not to attend the same school the following year:	19.9	27.0	-7.1	14.1	29.2	-15.1
(N)			353-358			353-358

Grades 2-9 in 1999-2000. Percentages are weighted. N is actual number of observations.

* = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 21 – PACE Program Impact on Student Test Scores, Dayton, OH

	Impact of Offer (Percentiles)	Impact of Attending a Private-School (Percentiles)	(N)
African Americans			
Overall	3.5*	6.5*	273
Math	2.8	5.3	273
Reading	4.1*	7.6*	273
All Other Ethnic Groups			
Overall	-0.1	-0.2	96
Math	0.0	0.0	96
Reading	-0.2	-0.4	96

* = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted. Difference between treatment and control groups in National Percentile Points on Iowa Test of Basic Skills. Impacts estimated using weighted OLS regressions. N = actual number of observations. Observations were excluded if scores either fell by more than 1 ½ standard deviations or increased by more than 2 standard deviations from baseline to first-year follow-up. All models control for baseline math and reading scores.

Table 22 –Satisfaction and School Disruption Effects by Race, Dayton, OH

Estimated Impact of Scholarship Offer	African-American			Non-Hispanic White		
	Private	Public	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Aggregate Satisfaction Index: Mean Value = 0 Standard Deviation = 1	0.48	-0.35	0.83***	0.35	-0.06	0.41
Average grade parent gave school:	B (3.0)	C+ (2.4)	0.55**	A- (3.6)	B- (2.7)	0.87
Aggregate Disruption Index: Mean Value = 0 Standard Deviation = 1	-0.21	0.06	-0.27	1.28	0.91	-2.19***
(N)			233-258			88-89

Grades 2-9 in 1999-2000. Percentages are weighted. N is actual number of observations.

* = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.