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School Choice: An Examination of the Empirical Evidence on Achievement, Parental Decision Making, and Equity

DAN D. GOLDHABER

Support for all forms of school choice—public school choice, charter schools, and public-private choice—has been growing in recent years. Arguments in favor of greater choice rest on two propositions: that choice would serve to give more control over educational decisions to parents who in turn would choose good schools for their children, and that competition between schools for students will help reduce inefficiencies in the delivery of education, and, in doing so, improve educational outcomes. This review focuses on quantitative assessments of the impact of choice on educational outcomes. Several questions are examined in detail. First, is there any evidence that the various alternatives to traditional public schools—magnet schools, charter schools, and private schools—are delivering education in a fundamentally different and more efficient fashion? In other words, after accounting for differences in the backgrounds of the students attending these schools, are they better at educating students? Second, what are the equity consequences and demographic implications of enhanced school choice? Third, how might enhanced choice affect support for traditional public schools?

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Introduction and Overview of Issues

Support for giving parents greater discretion over where to send their children to school has recently been growing (T. M. Neal, 1997). This educational reform, known as school choice, can be broadly defined as any policy that is designed to reduce the constraints that current school configurations place on schools and students (Lamdin & Mintrom, 1997).¹ Arguments in favor of greater school choice rest on two propositions: (a) that competition among schools for students will help reduce inefficiencies in the delivery of education, and, in doing so, improve educational outcomes, and (b) that choice would serve to give more control over educational decisions to parents who in turn would choose good schools for their children. In theory, parents will vote with their feet for good schools and bad schools would be forced to either improve or go out of business. Underlying these arguments are the assumptions:

- Some “good” schools are delivering education in a more efficient manner than the traditional public schools that are currently perceived, by many, to be failing.
- Parents know how to, and will, choose “good” schools.

Several complicating factors make assessing these assumptions difficult. For instance, choice proponents often point to private schools as evidence of educational success. On average, private schools have higher standardized test scores, graduation rates, and college matriculation rates than do the public schools. However, private schools can establish admissions criteria, such as minimum test scores, whereas, in general, public schools must accept all students within specified attendance zones. They also tend to serve students whose parents are more affluent and educated. The bottom line is that it is not immediately clear that differences in performance between traditional public schools and choice schools are a direct result of the delivery of education, or the result of differences in the backgrounds of public school students from their “choice” school counterparts.

This point illustrates the problem of “student selection” that is raised when trying to assess the academic impact of choice. Private school students and parents may be different from their public school counterparts in “measurable” ways, however, subtle differences in “unobservable characteristics” may also exist between students who otherwise look alike in terms of measurable characteristics such as test scores, family income, and parental education. For instance, we might expect that parents who have demonstrated an interest in education in virtue of their willingness to pay additional monies for schooling are also more likely to encourage the academic development of their children by creating an environment in the home that is conducive to education. They may turn off the television, encourage their children’s achievement, and help their children with their homework. It is necessary to account for these differences (that may not be readily observable in the data) in order to parcel out school effects from student and family background effects. In the absence of controlled experiments, researchers try to control for these differences using a variety of statistical techniques.

The second assumption, that parents will select “better” schools, may seem a commonsense proposition, however, it is not immediately clear what “better” means. Schooling is a complex endeavor with multiple outcomes, and it is pos-

DAN D. GOLDHABER is a research associate at The Urban Institute, 2100 M Street, NW, Washington, DC 20037. His areas of specialization are education productivity and reform, and teacher labor markets.

sible that some schools with high overall “levels” of achievement do not contribute a great deal of “value-added” to student achievement. If parents do not have enough information to accurately distinguish between these, they may be apt to choose schools that have high achieving students but little value added for their children.

It is also possible for the competition between schools to be on grounds other than academics, which may not result in better academic outcomes. For instance, parents may select schools for religious reasons, safety, or student demographics. And, even if competition is based on academics, it is important to remember that though (under certain conditions) the free market guarantees efficiency, it does not guarantee equity.

Choice opponents point to the potential for school choice, particularly public-private choice, to lead to greater inequities. They believe choice would result in a “creaming” of the best students and teachers from traditional public schools, leading to further segregation of the school system by race and income and leaving the public schools a “dumping ground” for disadvantaged students.² This might serve to undermine one of the goals of the public schools: to bring children from different backgrounds together, teach them tolerance of one another, and provide them with common experiences. However, there is already a trend toward increased segregation in public schools (Orfield & Eaton, 1996) and it is conceivable that choice would help to stem or reverse the current trend. Greene (1998), Hoxby (1998), and others argue that choice could help reduce segregation by breaking the link between housing and schooling. In theory, choice would enable low-income families access to a greater array of schooling options outside of segregated neighborhoods, which could help stem “white flight” from urban centers.

Many also raise the concern over whether choice could undermine support for traditional public schools, which would jeopardize the ideal of providing every child equal access to quality schooling. As it stands now, parents who have their children in private schools have no direct incentive to support public schools. In the case of vouchers, the design of the system would determine whether the incentive structure would undermine or enhance incentives for support of public schools. Finally, many see choice as a distraction from the real issues of funding and equity that now exist in the public school system. They argue that choice simply is not the panacea that it is offered up as.

School choice may take several forms. It may be limited to choice among public schools within a particular school district, as is the case with many open enrollment programs, or it may allow for choice of public schools across district boundaries, as is the case in the state of Minnesota. Additionally, many public school systems have magnet schools or charter schools that draw students from wide geographic areas. The degree to which magnet schools and charter schools differ from traditional public schools ranges considerably from district to district and state to state. For instance, in some states and localities, magnet and charter schools may establish explicit admissions criteria and have a curriculum that differs from surrounding public schools. However, depending on the specific charter legislation passed, charter schools may have far more freedom over the hiring and management of school staff.

Public-private school choice has generally been proposed in areas where the public schools are perceived to be failing. Under this form of choice, parents typically receive educational vouchers that can be used for admission to a public school, or to subsidize private school tuition.

This review focuses on quantitative assessments of the impact of choice on educational outcomes. Several questions are examined in detail:

- Is there any evidence that the various alternatives to traditional public schools—magnet schools, charter schools, and private schools—are delivering education in a fundamentally different and more efficient fashion? In other words, after accounting for differences in the backgrounds of the students attending these schools, are they better at educating students?
- What are the equity consequences and demographic implications of enhanced school choice?
- How might enhanced choice affect support for traditional public schools?

Public School Choice

Hoxby (1997) and Hanushek (1986) argue that a partial explanation for the fact that increases in per-pupil spending over the last 25 years have not led to better student outcomes is that school districts have failed to spend the money in productive ways. They may be purchasing the wrong resources or misallocating them. Several researchers (Ballou, 1996; Ballou & Podgursky, 1997, 1998; Hoxby, 1996) argue that, in general, public schools do not do a particularly good job of screening among teaching applicants and do not have compensation and evaluation policies that encourage high quality teaching. School choice may put more pressure on school districts to use educational monies in efficient ways. For example, one study (Goldhaber & Brewer, 1997) finds that in mathematics and science, a teacher’s degree level only increases student achievement when the degree is in the particular subject area being taught. By contrast, many school systems have out-of-field teachers teaching those subjects, and virtually all school systems’ salary schedules reward higher degrees regardless of the subject of the degree.

In a sense, school choice exists today in the form of residential location. Local school quality is often an important consideration in determining where to select a house, and housing prices can vary greatly as a result of the quality of the schools within the local area. Hoxby (1998) uses this fact to study how competition for students within metropolitan areas affects school quality. She uses the number of school districts in a Standard Metropolitan Statistical Area (SMSA) as a measure of competition and finds that, holding all else constant, areas that have more school districts within an SMSA have both lower per-pupil spending and significantly higher student test scores. The model predicts that increasing the number of districts from three equal-sized districts to 13 equal-sized districts would lower per-pupil spending by 17% while increasing students’ test scores by three percentile points, educational attainment by 0.4 years, and wages by 4%. The Hoxby findings suggest that enhanced choice could lead to the best of all worlds: higher student achievement and lower per-pupil expenditure. However, it is important to note that her strong results rely on a number of statistical assumptions and may be over-

stated given that private school enrollment confounds the issues. For instance, in areas with few public alternatives, private schools might be more likely to siphon off many of the best students. And, actual demonstration programs have not shown these dramatic results.

One large-scale demonstration program that received a good deal of attention occurred in the Alum Rock School District in San Jose, California.³ The conclusions to be drawn from Alum Rock are not altogether clear. Some, such as Doyle (1977), view Alum Rock as a success proving the workability of a voucher program. However, many researchers of Alum Rock consider it to be a failure. There was no significant improvement made by students on a number of achievement tests (Kutner, Sherman, & Williams, 1985), and evaluation of the Alum Rock project suggests that the location of the school, rather than the program or school quality, was the primary factor influencing parents' decisions of where to send their children.

A more recent school choice program, which was analyzed by Chriss, Nash, and Stern (1992), took place in Richmond, California in 1987 through 1990. Like Alum Rock, choice was restricted to public schools (in the Richmond Unified School District). Each public school in the district (K-12) was assigned one of seven specialty instructional program models, and parents were allowed to enroll their children in any of the specialty schools in the district.⁴ Despite the increases in spending, the specialty programs offered, and the implementation of public school choice, a review of the data now available from the Richmond school district provides little evidence that students benefited from the program:

- Measures of school district performance such as absenteeism and dropout rates showed no substantive improvement during the 4-year period of the program.
- Scores on the California Achievement tests were actually lower, for most grades, in 1991 at the end of the demonstration period, than when the program began.

Chriss et al. conclude that "there is no evidence that students benefited from the choice plan" (1992, p. 405).⁵ However, both Alum Rock and Richmond were limited programs and no funding was at risk; thus, neither provides for the competition that Hoxby (1997) suggests is necessary to bring about greater efficiencies in the public system.

An interdistrict choice plan puts more pressure on local districts to improve, since there is the genuine threat of losing students to neighboring districts, along with all or a portion of the dollars associated with those students. Such a plan was implemented on a statewide basis in Minnesota in 1987. This plan allows students to attend, subject to space limitations and desegregation regulations, any school district in the state. Relatively few parents take advantage of this option. Statewide, fewer than 2% of students exercise the right to attend a school outside their home district. However, Funkhouser and Colopy (1994), based on interviews with school administrators, conclude that districts losing large numbers of students are likely to implement innovative programs designed to attract students into the district. There is no direct evidence available, on a statewide basis, on how interdistrict choice in Minnesota has affected student test scores.

Armor and Peiser (1998) examine an interdistrict program signed into law in Massachusetts in 1991. They find that choice has not had a significant impact on the racial and

ethnic distributions of school districts that have been net "senders" or "receivers" of students. Further, districts that initially lost students (in the first few years of the program) tended to stem the loss and eventually become net receivers. This suggests that some districts respond to the competitive threat by making changes that make the districts more attractive to parents. Having said this, as was the case in Minnesota, there is no direct evidence on the impact of this program on student outcomes.

Specialty Schools

One form of enhanced choice within the confines of the public system is the creation of specialty magnet or charter schools. Magnet schools tend to specialize in various academic and other specialty areas and, in general, enroll students from within public school district boundaries.⁶ These schools have a long history, dating back to the 1970s when they were used as a means of desegregation. Recent interest in magnet programs has grown significantly as educators have come to see these schools as a means to experiment within the confines of the public system. Today, most major urban districts have at least one magnet school (Blank, 1990).

There are few quantitative studies of the academic effects of magnet schools. Most of the existing literature focuses on program planning and implementation, or on what type of students are being served. One of the few magnet school studies to evaluate outcomes was a multi-year assessment of elementary magnet schools by Blank, Dentler, Baltzell, and Chabotar (1983). Fifteen large school districts with magnet schools submitted data on the following:

- Schooling outputs including reading and mathematics achievement, graduation rates, attendance, transfers, and suspensions.
- School and staff characteristics including school location, quality of facilities, student selection criteria, staff and student demographic information, and the theme and structure of schools.

The analysis of Blank et al.'s 1983 study showed that over 40% of the magnet schools had average reading and test scores equivalent to at least a grade level above the school district average, and a full 80% of the magnet schools had average reading and math achievement scores above their district average. Magnet school students also tended to gain more on standardized tests in year to year comparisons (Blank, 1990).

However, magnet schools may select students based on criteria such as test scores, teacher recommendations, interviews, and grades. The evidence of student selection is mixed:

- Moore and Davenport (1989) find that students at magnet schools are less likely to be at-risk than are students in non-magnet high schools.
- Blank's (1990) analysis of the Dallas school district indicates that magnet schools attract students who tend to score better on standardized tests than do non-magnet school students in Dallas.
- Several studies (Blair, 1985; Moore & Davenport, 1989; and Price, 1985) suggest that there are important differences between students even in the absence of explicit school selection criteria. In other words, students in magnet schools scored better than non-magnet school students, but these are students who would have scored better anyway.

Orfield (1990), in a review article, assesses the state of knowledge on magnet schools. He argues that the controls in magnet school research have failed to completely account for the potential of selection bias, and thus, "we have no reliable general findings" (p. 123) on the effects of magnet schools.

Charter schools represent a hybrid between a system of public school and public-private choice. Like magnet schools, charters utilize public funds, but they are generally subject to less regulatory control.

A recent report by the U.S. Department of Education Office of Educational Research and Improvement (OERI) shows that at the beginning of 1997, 428 charter schools were operating in 16 states and the District of Columbia (OERI, 1997).⁷ Charter school legislation was found to vary greatly from state to state, and as a result, there really are no "typical" charter schools. For instance:

- In some states the authority to grant a charter resides with the local school board, while in other states several agencies may grant charters.
- In some states teachers are considered employees of the local school district, while in others charter schools may act as employers in their own right.

Although charter schools are too new for quantitative assessments of the impact they might have on educational outcomes, it is clear that charter schools are, in fact, serving as a laboratory for education (Geske, Davis, & Hingle, 1997). Most are small, 60% serve less than 200 students (OERI, 1997), and they are highly diverse in terms of the types of programs they offer. For instance:

- There are charter schools that take a "back to basics approach," charter schools that focus on individual student learning plans, and charter schools that require significant parental involvement as a requisite for student attendance (Geske et al., 1997).
- There are schools designed to serve the needs of specific types of students, from dropouts and at-risk students, to homeless children and wards of the state, to the deaf and hearing impaired, to students for whom English is a second language (Geske et al., 1997).

Although charter schools do have a great deal more freedom to use alternative educational methods than do public schools, there are important limitations placed upon their autonomy. They typically are subject to state graduation requirements, funding formulas, and state accounting systems. This can be especially problematic for small charter schools who sometimes find it difficult to arrange credit plans that allow them to bridge the gaps in funding, and who have to devote a relatively large share of school resources to meeting accounting requirements. Corwin (1995) finds that in states that grant charter schools greater autonomy, more money is spent on instruction, teachers feel more freedom to teach in innovative ways, and there is greater parental involvement.

The early evidence on charter schools tends to confirm neither the greatest hopes of choice proponents nor the greatest fears of choice opponents. There are examples of anecdotal successes but no dramatic educational strategies have yet emerged from the experimentation taking place in these schools (Geske et al., 1997). On the other hand, charter schools do not appear to be the elite organizations that many

feared they would be, given that they enroll similar proportions of low-income students and have a racial composition roughly similar to statewide averages (OERI, 1997).⁸

Public-Private Choice and Vouchers

The version of choice that grants parents the greatest freedom of school selection, that provides the strongest test of competitive market effects on education, and that garners the greatest opposition, is public-private choice. And, as would be expected, in the case of vouchers, the issues on both sides of the debate are magnified. Voucher advocates contend that efficiency gains will only be made if the public schools are forced to compete with more efficient private schools. They suggest that public schools have a fundamentally different institutional structure than the private schools and currently are overly rule-bound and bureaucratic; only through competition with private schools will real change occur (Chubb & Moe, 1990).

Voucher opponents argue that, like other forms of choice, public-private choice would lead to increased economic

At this point, very little is known about the institutional response of public schools to the competitive threat of losing students and funding.

and racial stratification. They also suggest that vouchers really would not provide many a meaningful chance to attend quality schools. These schools may remain out of reach to many poorer families who cannot afford to subsidize the voucher with their own money, or for whom transportation costs are a significant barrier. For example, the \$2,600 voucher suggested in the 1993 California initiative constitutes less than half of the \$7,000 average tuition charged by private schools in California at the time (Gollner, 1993). Finally, there is the additional concern that vouchers would serve to undermine tax support for traditional public schools if vouchers led to a significant shift of students from public to private schools.

The research on differences between public and private schools, which provides indirect evidence on the potential effects of vouchers, is far more extensive than the research on the effects of charter and magnet schools. There have been numerous studies on such topics as the effects of private schools on achievement test scores, high school graduation rates, and college-going behavior.

The evidence on the impact of private schooling on test scores is decidedly mixed. Numerous large-scale studies have examined the relative performance of public and private schools starting with work carried out by Coleman, Hoffer, and Kilgore (1981). They found that private Catholic schools were more effective than public schools at educating students, and that Catholic schools were better at equalizing educational opportunities for students of differing racial, ethnic, and socioeconomic backgrounds. This work touched off a host of follow-up studies, many of which offered criticisms of the statistical techniques, findings, and

conclusions of Coleman et al.⁹ However, the most important criticism which applies equally to all of these early studies is that because they had only cross-sectional data, they failed to include a measure of students' initial academic achievement as a control variable. The conclusions of additional follow-up studies, which included a measure of initial achievement, were also mixed:

- Hoffer, Greeley, and Coleman (1985) and Chubb and Moe (1990) continued to find evidence suggesting a significant private school advantage.
- Willms (1985) and Alexander and Pallas (1985) found no significant differences between public and private schools.

The divergence in findings may be attributed to differences in methodology, or to the measures of achievement chosen. There are also disputes as to whether academic tracking, hours spent on homework, or advanced coursework should be included in the model. However, many of these older studies suffer from important methodological limitations in that they do not deal explicitly with the implications of student selection.

More recently, Sander (1996) found that, controlling for student selection, Catholic school students outperformed their public school counterparts on vocabulary, math, and reading achievement tests (he did not find a statistically significant difference between public and private schools in science). However, some of Sander's findings are difficult to reconcile. For instance, there was no Catholic school impact when students attended Catholic schools in Grades 1 through 7, but there was a large effect if they attended Catholic school in Grade 8. And, only non-Catholic students benefited from attending Catholic schools; for Catholic students, there was no statistically significant difference between attending a private Catholic school or a public school.¹⁰ These strange findings suggest that Sander may not have fully accounted for the fact that students self-select into Catholic schools, or that there are important differences between sectors in school resources (Sander does not account for school resources in his analysis).

By contrast, Goldhaber (1996), Gamoran (1996), and Figlio and Stone (in press), who all use the *National Educational Longitudinal Study of 1988* in examining the impact of private schooling on test scores, find little evidence that private schools outperform the public schools as a whole. In all of these studies, the large differences between public and private schools in mean math and reading standardized test scores are accounted for primarily by differences between the two sectors in student backgrounds, school resources, and student selection.

These latter findings do not imply that a given student who is moved from a public school to a private school would not benefit. For one thing, both public and private schools may vary considerably in terms of quality. For instance, D. Neal (1997) finds that Catholic schools are similar in quality to suburban public schools but considerably better than many urban public schools. Thus, choice might benefit students in select areas (e.g., inner cities), even if it did not have a large impact overall. Secondly, there may be important differences between the sectors in terms of available resources and the composition of the student bodies.

There are two possible effects of making a move from one school to another. The first effect is due to the fact that there may be important differences between the two schools in terms of the resources available at the school (e.g., class size, computers, teachers) or differences among the students who attend the schools. The second effect may result from differences in the way the two schools deliver education, holding resources and student bodies constant.¹¹

Here, it is important to make the distinction that what may be good for an individual may not be good public policy. For instance, Goldhaber (1996) finds that students do better when they have high socioeconomic status (SES) peers. However, he finds that there was no significant difference between the public and private sectors, as a whole, in terms of the efficiency of the delivery of education. That is, Goldhaber finds that *with a given set of schooling resources there is no reason to believe that an average private school would do a better job of educating a group of students than an average public school educating that same group of students*. Thus, a student moving from the public to private sector would be predicted to score higher if the student moved to a school with higher SES classmates, *even if there were no difference in the efficiency of the delivery of education between the two sectors*. But, if vouchers work well for all students, in the sense that an economically and racially diverse student body moves into the private sector, the demographics of private schools will begin to look more like the public schools and these type of gains will not be possible given that there will not be such dramatic demographic differences between the two sectors.

There is less evidence on the impact of private schools on high school and college graduation rates; however, this evidence is more definitive in showing positive private school effects:

- Evans and Schwab (1995), Sander and Krautmann (1995), and D. Neal (1997) all find that, holding student and family background characteristics constant, Catholic school students have a higher probability of graduating high school than do public school students.
- Evans and Schwab (1995) find that attending Catholic high schools raises the probability of attending a 4-year college, and D. Neal (1997) finds that Catholic high school students are more likely to graduate from college.

I do not report the magnitudes of these effects because they vary greatly both by study and the models used in each study. It is also important to note that all of these authors use various methodologies to attempt to account for the issue of student selection into private schools, and it is quite difficult to assess to what degree they are successful.

Underlying the argument that school choice will lead to increased efficiency is the assumption that parents make decisions that benefit their children academically and will "vote with their feet" in selecting the best school for their children. Empirical evidence suggests that parents do, in fact, select schools based on the quality of education. Both Goldhaber (1997) and Lankford and Wyckoff (1992) find the likelihood of attending either the public or private sector to be positively correlated with various measures of school quality. This fact tends to support the argument of school choice proponents that choice would create competition between schools based on quality. But, as discussed below,

parents may also weigh other “non-academic” factors when selecting schools.

Equity and the Public Schools

Two major concerns of voucher opponents are that (a) choice will lead to greater inequities among students, and (b) choice will lead to a loss of support for traditional public schools. Vouchers, actual and proposed, are small relative to both public school spending and the cost of tuition at elite private schools. This means many private school options may be out of reach for low-income families, who may also face significant hurdles in the form of information and transportation costs. And, if enhanced choice did lead to greater stratification in the school system, choice could undermine support for traditional public schools, as parents who have their children in private schools would likely have less direct incentive to support public schools.

However, as noted earlier, it is conceivable that choice could help reduce segregation by breaking the link between housing and schooling and stemming the flight from urban centers. And, private schools may be less “elite” than many imagine. For instance, Greene (1998), who analyzes a nationally representative sample of 12th-grade students, argues that private schools are actually more diverse (within classrooms), suffer from fewer racial conflicts, and are more likely than public schools to promote practice in citizenship and awareness of contemporary social issues. The likelihood of these events is ultimately an empirical issue that would in large part be determined by the particular design of a voucher plan.

Existing empirical evidence on “who chooses” generally shows choice (in any of its forms) to be highly correlated with SES (Archbald, 1988; Armer & Peiser, 1998; Godwin, Kemerer, & Martinez, 1998; Goldhaber, 1996; Willms & Echols, 1992). Many studies (Clotfelter, 1976; Goldhaber, 1996) also find that, controlling for achievement, parents tend to favor schools that have a higher proportion of White students. For instance, an examination of the effects of desegregation on private school enrollment in Boston found that parents tended to enroll their children in private schools after the public schools reached a given level of minority enrollment (Clotfelter, 1976). These findings lend credence to the notion that school choice could lead to increased income segregation and racial segregation in the school system. It should be noted, however, that most of the choice programs in place do target low-income families, so they would not tend to increase segregation in areas of the country that are already quite segregated.¹²

Hoenack (1997) addresses the second fear of voucher opponents, that the change in incentives brought about by vouchers could lead to a decrease in support for traditional public schools. He analyzes the supply of, and demand for, private schooling using data on an open enrollment program in Minnesota. His data allow for an estimation of the impact of alternative voucher plans on enrollment in, and financing of, the public and private sectors. He predicts that:

- A voucher of \$750 for primary schools (an amount considerably less than proposed and actual vouchers) would increase private school enrollment by 37%, and decrease public school enrollment by nearly 5%.¹³
- This 5% drop in public school enrollment, in turn, actually tends to slightly benefit (by less than 1% of the school budget) local school districts because the decrease

in state revenues associated with a drop in tax support is offset by the decrease in public school students.

It is necessary for Hoenack (1997) to make a great many assumptions when simulating the effects of vouchers. For instance, the model assumes that the reductions in local funding of public school districts are 50%, proportional to reductions in their enrollments, and that marginal costs of enrollments equal long-run average costs. In practice, neither of these assumptions is likely correct.

Goldhaber (1999) examines the relationship between private school enrollment and public school expenditure per pupil. The focus of this study is on accounting for the complexity of the relationship given that (a) parents may select the sector of enrollment based, in part, on public school expenditure in the district, and, (b) difficult-to-identify community preferences for education may bias the estimated relationship. Goldhaber’s findings tend to confirm those of Hoenack (1997) in that increases in private school enrollment do not result in a decrease in public school per-pupil spending.

The fact that these studies do not show increased private school enrollment leading to decreases in public school per-pupil spending does not necessarily imply that increases in private school enrollment have no effect on public schools. If there are significant fixed costs associated with schooling, an equal percentage loss of students and funding (implying no change in per-pupil spending) could result in significant decreases in real educational resources.

One possible way to mitigate any potential for vouchers to lead to decreases in support for public schools is to tie the value of vouchers to public school per-pupil spending. Then, those who get vouchers and opt to send their children to private schools will still have some (reduced) incentive to support public school spending. And, should those who are currently enrolled in private schools be eligible for vouchers, they would then have an increased incentive to support public school spending.

School Choice in Milwaukee

Milwaukee, Wisconsin is one of two cities that is currently experimenting with using taxpayer funding to provide low-income parents with vouchers that can be used at non-sectarian private schools.¹⁴ The Milwaukee Parental Choice Program began in the fall of 1990. Students living in Milwaukee who came from families with incomes not exceeding 1.75 times the national poverty line were eligible to attend private nonsectarian schools in the district.¹⁵ Further, students enrolling in the choice program could not have been in a private school in the immediate prior year or enrolled in public schools in districts outside Milwaukee (Witte, 1998). The total number of choice students in any year was limited to 1% of the Milwaukee Public School membership in the first 4 years and was increased to 1.5% for the 1994–95 school year.¹⁶ For each choice student enrolled, a private school received a payment equivalent to the Milwaukee Public School per-student state aid (this was about \$4,370 per student in 1996–97).

Private schools were required to limit choice students to 49% of their enrollment (this figure rose to 65% beginning in the 1994–95 school year), and schools that were over-subscribed were required to accept students based on a random selection.¹⁷ This last provision provided for a natural ex-

periment since several of the schools were oversubscribed, resulting in the random assignment of students between the public and private sectors.¹⁸ In other words, in several cases there was a greater demand for private schools participating in the choice program than there were slots available (given the specifications of the program) in those schools.¹⁹ The randomness of program participation allows researchers to compare students who applied for admission, were rejected, and therefore attended a public school, to those who applied, were accepted, and attended a private school.

Several studies have examined the effects of participation in the Milwaukee choice program on student achievement. Greene, Peterson, and Du (1998) and Rouse (1998) compare students who participated in the choice program with those who applied through the choice program to attend a private school but were rejected due to oversubscription (and thus attended a Milwaukee public school). If one assumes that students rejected from the program have similar non-observable characteristics (e.g., motivation) to those who applied and were accepted, then, in theory, the comparison of "selected" private school students to the "rejected" students avoids the problems associated with selection. The hypothesis is that the rejected students do not have unobservable characteristics that are systematically different from those who applied to the program and were accepted, because the rejection was based on a lottery.

Greene et al. (1998) find little evidence of a private school effect for students in the first 2 years of the program, but a large private school advantage in Years 3 and 4. For example, controlling for family background, they estimate a private school advantage on standardized tests of 5 to 8 percentile points (depending on model specification) in math in Year 3, and 3 to 9 percentile points in reading. The potential problem with this analysis is that attrition from the private schools averaged over 30% annually and the researchers compared only those students who remained in private schools consistently over time with all public school students who were not selected for the program (Levin, 1998). Because one can make the case that attrition is unlikely to be random, the large private school effect in Years 3 and 4 may simply be a reflection of the choice of comparison groups. This calls into question whether the straightforward approach of comparing the private school students with the rejected students is appropriate.

The methodology used by researchers to analyze the impact of private schools can greatly influence the findings. For instance, Rouse (1998) estimates more sophisticated statistical models that explicitly take account of the attrition out of the program. Using a variety of statistical techniques, she finds that students who attended a choice school scored about 1–2 percentage points higher per year in math than students who were not selected.²⁰ However, one weakness of both Greene et al.'s (1998) and Rouse's work is that it is inappropriate to make statistical inferences outside of the group of students who applied to be in the program given that applicants and non-applicants may be different in important ways.²¹ Witte (1998) uses an alternate methodology, comparing the students who enrolled in the choice program to a sample of students enrolled in the Milwaukee Public School System. He finds no case where private schools outperform public and, in one specification of the model, public school students outperform the choice students in reading.

Thus far, the research on Milwaukee has focused on the relative performance of public and private schools, as evidenced by the standardized test scores of voucher participants and non-participants. However, the question of whether or not the private schools are outperforming public schools is only a part of the story.

First, many would argue that even if the private schools in the Milwaukee experiment were only performing as well as the public schools, they are doing so at only a fraction of the cost. In fact, the value of the voucher in 1996–97 (\$4,373) was roughly 60% of the public school spending per pupil (\$7,628). However, Levin (1998) very effectively points out the difficulties in making comparisons of spending in public and private schools. He notes that private schools often rely heavily on supplements to tuition in the form of fundraising events, special activities fees, and in-kind contributions. Further, private school tuition does not account for transportation or food service costs, and private schools often don't serve as many students who are in more costly programs (e.g., special or vocational education) as do public schools. Levin's comparison of public and private school spending in Milwaukee suggests that "voucher schools in Milwaukee are receiving *at least* comparable allocations per student to those of the Milwaukee Public Schools, once the service mix is accounted for" (p. 384).

Second, voucher advocates claim that one of the benefits of competition would be to make the public schools more efficient, thus effectively helping all students regardless of the sector of enrollment. However, to this date there has not been any systematic quantitative investigation of whether or how actual voucher experiments affect policies and performance of competing public schools. The limitation on the number of students eligible for the voucher (the program was restricted to a set percentage of the Milwaukee Public School membership) may mean that the Milwaukee Public Schools felt little competition as a result of the voucher program. On the other hand, many voucher advocates argue that it is not necessary for many students to switch sectors to have an impact.

Where Are School Choice Policies Headed?

Public support for school choice has been growing throughout the 1980s and 1990s. Magnet schools have long been a form of choice within the confines of the public system and charter schools, which were backed by both Republicans and the Clinton administration, have become the norm in many school districts. More recently, the concept of choice has expanded to include private schools. Thus, the bounds of the debate have shifted rather dramatically from whether to enhance choice within the public system to the question of public funding for vouchers that could be used at private schools.

In 1999, for the first time, a plurality of survey respondents report favoring vouchers that could be used toward private school tuition (Rose & Gallup, 1999). Additionally, over one million children applied to be part of the privately funded Children's Scholarship Fund. Indeed, public-private choice appears to be the direction in which policy is headed. This is not surprising given that public-private choice programs have a built-in appeal among diverse political groups. First, on average, private school students outperform their public school counterparts in terms of standardized test scores, high school graduation rates, and the probability of attending college. This tends to lend credence to

the notion that private schools are doing a better job of educating students. Second, vouchers would serve to give more control over educational decisions to parents. By yielding more control to the consumers of education, those agents who may have the best knowledge of educational needs and desires are allowed to utilize their knowledge when selecting a school. Since most parents likely feel they know what is best for their children, it is difficult, politically, to argue against this position. Finally, and probably most importantly, public schools are commonly perceived to be in such a bad state that people are looking to implement any program that might help to bring about improvements.

Publicly funded voucher programs continue in Milwaukee and Cleveland. Recently the U.S. Supreme Court let stand a Wisconsin Supreme Court ruling allowing for the participation of religious schools in the voucher program. In declining to review the Wisconsin decision, the U.S. Supreme Court does not set a precedent; however, it may send a positive signal to other states and localities that wish to include private schools in publicly funded voucher programs. Additional court cases on this issue are currently pending.

Today over 30 cities have privately funded programs (Peterson, 1998). Most of these are on a relatively small scale and target low-income families. Ongoing studies have yielded somewhat mixed results; however, the powerful arguments in favor of choice suggest they will continue regardless of the ultimate findings. Indeed, recently passed and proposed legislation would significantly expand the scope of public-private choice programs. For instance, in 1997, Minnesota passed legislation allowing for tax deductions and tax credits for educational expenses at public or private schools (Peterson, 1998), and the Arizona Supreme Court upheld a similar tax credit. In 1998, similar legislation was proposed at the national level by Senator Coverdale from Georgia. In both 1992 and 1996, the Republican presidential nominee endorsed public-private school choice and most of the contenders for the 2000 Republican nomination have also endorsed this idea. Thus, it appears there will continue to be vigorous debate at the national level going forward into the 2000 electoral cycle. Finally, in June 1999, the Florida Opportunity Scholarship Program was signed into law, making Florida the first state to offer vouchers on a statewide basis.

Public Policy Implications

The arguments in favor of choice rest on the notion that the introduction of a market for education would lead to better educational outcomes. In analyzing this argument, it is useful to remember that (a) the free market, under certain conditions, guarantees efficiency but it does not guarantee equity, and (b) market efficiency refers to the maximization of utility, or happiness, not the efficiency of educational delivery. This implies that *only if what maximizes parental happiness coincides with what we would consider educational quality will competition bring about efficiency of educational delivery.*

The evidence presented does indicate that parents are able to distinguish between schools of varying quality, and that they respond positively to school quality by sending their children to schools that enhance the educational outcomes of their children. This lends credence to the notion that the competition between schools would be beneficial.

Additionally, satisfaction appears to be higher among parents who actively choose their school.²² However, enrollment in choice schools was also found to depend on racial/ethnic characteristics and SES of school students, independent of measured school quality. This indicates that the competition for students might also be based, in part, on demographic characteristics. Additionally, evidence shows that upper income and more educated families are clearly more likely to exercise choice.

These findings should sound a note of caution regarding the equity and demographic consequences of choice given that unfettered school choice would likely lead to increased racial and economic segregation. Several steps might be taken to mitigate these potential negative demographic consequences. First, choice programs could be well publicized with a particular emphasis, as is currently the case, on low-income families who may have less knowledge about the workings of the educational system and the value of education. Second, regulations could be placed on schools accepting choice students prohibiting them from rejecting students who apply. As it now stands, most public schools must accept all comers within a school attendance zone, and this is part of the reason that many private schools appear to be outperforming the public schools. The restriction that choice schools must accept all applicants limits the potential for schools to "look good" simply because they tend to accept high achieving students.

In the case of public-private choice, the structure and size of a voucher program will be crucial in determining who benefits from choice. For instance, if vouchers were offered to families across-the-board, as was proposed under the 1993 California ballot initiative, most of the benefits would go to those who are already in private schools. To offset this, vouchers could be made progressive by targeting the voucher to low-income families (as is the case in the Milwaukee program). This would better guarantee that the students who are most in need of help, inner-city students in poorer neighborhoods, are provided with a meaningful choice. Also, vouchers could be linked to the level of public school per-pupil spending to ensure that those who opt out of the public system still have some incentive to support it.

There is much left to be learned about choice. The fact that charter, magnet, and private schools tend to serve different student populations makes assessing them difficult, and there is also relatively little empirical evidence on the impact of public school choice on student outcomes. Additionally, in comparing achievement in different types of schools, researchers (due mostly to a lack of good data) typically do not consider the costs of different types of schools. To make accurate judgements about educational efficiency it is vital to carefully assess all the costs associated with schooling, including capital, transportation, and information costs.

Finally, most (but not all) of the research on school choice focuses on short-term gains in student test scores. To fully understand the implications of enhanced choice, we need to look over the longer term at a broader array of student outcomes, such as high school graduation, college-going behavior, and earnings, given that it may take a significant amount of time to determine how, or if, schools respond to competition. At this point, very little is known about the institutional response of public schools to the competitive

threat of losing students and funding. This is an important area for future research.

The existing body of evidence on choice is somewhat conflicting, which suggests that enhanced school choice is unlikely to be a panacea. Ultimately, little is known about what makes some schools more successful than others. By contrast, most researchers treat different types of schools as if they are monolithic when in fact there is far more variation in achievement within school types than between them. This suggests that we may learn more from figuring out what makes for successful schools within a type than from comparing differences between types of schools.

Notes

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¹ A pure form of choice now exists in the form of home schooling and estimates indicate that the number of home schooled students has increased markedly over the last 15 years such that today there are between 500,000 to 1,000,000 home schooled children (Lines, 1999).

² Even if a choice program is specifically designed to help low-income families, parents have widely differing access to and ability to process information about choice programs. Many parents may be ill informed regarding schooling decisions, and could make poor decisions.

³ The program grew out of a report by the Center for the Study of Public Policy, which, in 1969, was given a grant by the U.S. Office of Economic Opportunity (OEO) to study and design a voucher program (Kirkpatrick, 1990). The Center issued its report to the OEO in 1970, and the voucher plan was subsequently tested under a 5-year pilot project. Kirkpatrick provides a review of the OEO proposal and an appraisal of the Alum Rock experiment with vouchers.

⁴ The seven program models were Classical Studies, Future Studies, Gifted and Talented, International Studies, Montessori, University Lab, and Whole Language (Chriss, Nash, & Stern, 1992).

⁵ Examples of other open enrollment programs include Boston, MA; Seattle, WA; and District 4 in New York City. There is also currently a privately funded voucher experiment in New York City that is being studied by Paul Peterson and others.

⁶ There are, however, examples of magnet schools, such as the Thomas Jefferson High School for Science and Technology in Fairfax, Virginia, that do enroll students from outside of public school boundaries.

⁷ A substantial proportion of these charter schools are located in Arizona, an early state to experiment with this form of school choice.

⁸ They also tend to enroll a slightly lower proportion of students with disabilities and a lower proportion of limited-English proficient students.

⁹ See for instance, Cain and Goldberger (1983) and Noell (1983).

¹⁰ When the non-Catholics are excluded, the result is positive, but not statistically significant.

¹¹ Note that most previous studies did not control for differences in school resources or the demographics of the student body.

¹² Additionally, in the case of choice in any form, Schneider, Scheller, and Coleman (1996) find that, controlling for opportunity to choose, Hispanics and African Americans are more likely than Whites and Asian Americans to take advantage of choice opportunities.

¹³ The results are more dramatic in public school districts in the lowest quartile of per capita income, where a \$750 voucher would increase private school enrollment by about 70% and decrease public school enrollment by 6.3%.

¹⁴ The other city using public funds for vouchers is Cleveland, OH. Numerous cities have privately funded voucher initiatives.

¹⁵ Initially, sectarian private schools could not participate in the program; however, the Wisconsin Supreme Court has recently ruled that sectarian private schools can receive taxpayer-funded vouchers.

¹⁶ The program began with an enrollment of 341 students in seven schools. By 1995, enrollment had risen to 830 students and 12 schools participating in the program (Witte, 1998).

¹⁷ Schools were required to admit choice students without discrimination based on race, ethnicity, or prior academic performance, but were not required to admit disabled students (Witte, 1998).

¹⁸ It is quite likely that the private schools that opted to participate in the Milwaukee program are not representative of private schools in the city as a whole.

¹⁹ The school choice program was amended in a number of ways in June 1995. For details of the changes to the program see Witte, 1998.

²⁰ She uses two techniques to try to account for non-random attrition from the program. The first is an instrumental variables technique that treats the initial selection into the program as the exogenous instrument. The second is the estimation of an individual fixed effects model.

²¹ Goldhaber, Brewer, Eide, and Rees (1999) investigate this issue in the context of the initial selection into the choice program. They find little evidence that students who apply to participate in the program differ systematically from non-participants in ways that are not captured by quantifiable data, such as test scores and parental income.

²² For a review on the literature showing "choosers" are more satisfied, see *Learning From School Choice*, edited by Paul E. Peterson and Bryan C. Hassel.

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