

## Example 6.1

# Education Vouchers

Many Americans are critical of elementary and secondary public education in the United States. They express two main concerns, one general and one specific. The general concern is that American students score lower, often much lower, on standardized math and reading tests than students in most of the other industrialized market economies, leading to fears that the U.S. workforce will not be competitive in the 21<sup>st</sup> century. The specific concern is one of equity – that low-income and minority students are often poorly served by the public education system, especially in the inner city schools.

Proposals to address these concerns take one of three approaches. One view is that improved educational outcomes simply require more spending on educational resources. Unfortunately, there is little evidence that higher spending per pupil leads to higher student achievement. A second view is that accountability is the key to improved outcomes. Accountability was the foundation of President Bush's 'No Child Left Behind' program, in which schools are penalized if too many students fail standardized tests and students have to pass standardized tests to graduate from high school. This, too, is controversial, subject to criticisms that it gives teachers an incentive to teach to the tests rather than pursuing more meaningful educational goals. Cheating on the reporting of test scores has also been uncovered. The third view, and the focus of this example, is that educational vouchers are the way to improve U.S. public education. Vouchers are the most radical of the three approaches in the sense that they introduce market-style incentives and discipline into a service that resides largely in the public sector because of the externalities associated with a basic education in a democratic society.

A voucher is a subsidy given to students in poorly performing schools to pay for tuition at private schools that are willing to accept them. They can be targeted to low-income students so that these students have the same option to attend a private school that high-income students have if they are dissatisfied with their public schools. A voucher system is seen to have two positive effects, one direct and one indirect. The direct effect is to improve the educational outcomes of the students receiving the vouchers by placing

them in better schools. The indirect effect is that vouchers will cause the public schools to improve their performance. Most public elementary and secondary schools enjoy a virtual monopoly position because students who live nearby a school are simply assigned to them. Metropolitan public school systems have already introduced some competitive pressures by establishing charter schools, but adding educational vouchers takes the competition a step further. The idea is that the public schools would have an incentive to improve their performance to retain the students who are offered vouchers. The indirect effect is by far the more important of the two hoped-for effects, since realistically only a small percentage of students in poorly performing schools will receive vouchers.

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## U.S. Voucher Programs

The United States has had some experience with educational vouchers, although limited. In 1990, Milwaukee became the first metropolitan school district (MSD) to introduce vouchers with its Parental Choice Program. Vouchers were offered to students whose parents had income less than or equal to 175% of the federal poverty level of income. At first the vouchers were offered to about 1% of the MSD student population. Then, in 1995, the program was expanded to include about 15% of the MSD student population. By 2007–08, 18,882 students were receiving vouchers.

Within the next 15 years, voucher programs were started in Ohio, Florida, and the District of Columbia so that, by 2007–08, 55,000 students in the U.S. were receiving vouchers to attend private schools or higher rated public schools.

### Ohio

- *Cleveland Scholarship and Tutoring Program (1996–97)*: Students in the Cleveland MSD in grades K–8 are eligible to apply, with priority given to low-income students. (6,017 vouchers accepted in 2007–08).
- *EdChoice Scholarship Program (2006)*: An extension of the Cleveland program that makes vouchers available to students throughout Ohio to pay for private schools if they attend a school rated as underperforming. There is no income restriction. (6,580 vouchers accepted in 2007–08).

### Florida

- *A+ Opportunity Scholarship program (2000)*: Students are eligible to apply if they attend a school that the state has given an F grade to in its grading system and has also received an F grade in one of the past four years. The vouchers were to be used to attend private schools until 2006, when the Florida Supreme Court ruled that this was unconstitutional. The vouchers can now be used only to attend a higher graded public school. (1,305 vouchers accepted in 2007–08).

- *McKay Scholarships for Students with Disabilities (1999-2000)*: Students are eligible who have an individual education plan as a result of a diagnosed learning or other disability. (19,439 accepted vouchers in 2007–08).

### Washington, D.C.

- *DC Opportunity Scholarship Program (2004)*: Students in grades K-12 are eligible who attend public schools that have failed to make satisfactory progress as defined by the ‘No Child Left Behind Act’, with preference given to low-income students who qualify for the free or reduced-price lunch program. The assignment of available vouchers is random within that set of students. (1,903 vouchers accepted in 2007–08).

There are also three smaller privately funded programs, in New York City (1,200 vouchers currently available), Dayton Ohio (530 vouchers currently available), and Washington, DC (1000 vouchers currently available). Vouchers under all three programs are targeted to low-income students.

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## The Effects of Vouchers

A number of economists and other researchers have attempted to assess the effectiveness of the public and private voucher programs. Lisa Barrow and Cecelia Rouse reviewed the evidence relating to the direct and indirect goals of vouchers in a 2008 article in *Economic Perspectives*<sup>1</sup>. Sad to say, the results to date are not very encouraging.

### Direct Effect

Most research on vouchers has focused on the direct effect on academic performance. The effect is measured by comparing the performance of voucher recipients and all other students on standardized tests given at various grade levels, usually tests of mathematics and reading ability. The tests are created either by the National Center for Education Statistics within the U.S. Department of Education under its National Assessment of Educational Progress, or by the states. The improvement on the tests is measured as a proportion of a standard deviation ( $\sigma$ ) instead of an increase in the raw score, because the distribution of the scores varies from test to test. A five-point improvement on a test with a tight distribution around the mean score is more impressive than a five-point improvement on a test with a broader distribution around the mean score.

Researchers measure the voucher-induced improvement in test scores in one of two ways. One is to compare the test improvement of all students who were offered vouchers relative to the other students, whether or not the vouchers were accepted. This is called the *intention-to-treat* effect. The other is to compare the test improvement of those

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<sup>1</sup> L. Barrow and C. Rouse, ‘School Vouchers: Recent Findings and Unanswered Questions’, *Economic Perspectives*, Third Quarter, 2008. The public voucher programs are described in Table 1, pp. 4–5, and the private programs in Table 2, p. 9. This example draws heavily from their article.

students who accepted vouchers relative to the other students. This is called the *treatment-on-the-treated* effect. The latter would seem to be the more intuitive measure of the direct effect of vouchers – but the former has policy relevance as well, because the success of a voucher program depends in part on how many students who are offered vouchers accept them, and acceptance of a voucher is voluntary.

There is a difficulty in obtaining a clean measure of either direct effect, however. The ideal situation would be if the available vouchers were offered randomly to students, in which case there would be no difference, on average, between the personal characteristics of the voucher and non-voucher students, such as average parental income, motivation, parental educational background, and other factors thought to affect student performance. Then the estimate that the offer of a voucher had on subsequent test performance would be an unbiased estimate of the direct effect on the voucher students. The assignment of vouchers is generally not random, though, as noted above; most of the voucher programs target students from low-income households. Therefore, the personal characteristics of the voucher and non-voucher students undoubtedly differ and available data are seldom able to capture all the differences that might affect student performance. For instance, a measure of motivation is absent from even the most detailed data sets. As a result, the estimates of the direct effect of the vouchers may be biased in unknown ways.

The potential biases notwithstanding, Barrow and Rouse characterize the estimated direct effect of vouchers on test scores from the various studies as ‘lackluster’. Carolyn Hill, *et. al.*, summarized the improvement in test scores from randomized studies of all types of educational interventions in elementary schools as of 2007 and reported an average improvement of .33σ (most of the voucher studies are also of elementary students)<sup>2</sup>. The improvements in the voucher studies are nowhere near that, and sometimes even *negative* rather than positive – that is, the voucher students do worse on the tests. Here are some examples reported by Barrow and Rouse:

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- The lackluster characterization appears in *Ibid.*, p. 12.
  - The Hill, *et. al.* result is reported on p.6. of C. Hill, H. Bloom, A. Black, and M. Lipsey: ‘Empirical Benchmarks for Interpreting Effect Sizes in Research’, *Working Paper*, Manpower Demonstration Research Corporation, July 2007. The results of the voucher studies reported below appear on pp. 7 and 8.
- The studies of the direct effect of the public programs discussed below in this example are:
- C. Rouse: ‘Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice program’, *Quarterly Journal of Economics*, Vol. 113, No. 2, Part 1, 1998, 533–602
  - C. Belfield: ‘Achievement Effects of the Cleveland Scholarship and Tutoring Program’, *unpublished mimeo*, City University of New York, Queens College, 2007.
  - P. Wolf, B. Gutmann, M. Puma, B. Kisida, L. Rizzo, and N. Eissa: *Evaluation of the DC Opportunity Scholarship Program: Impacts after Two Years*, Report No. NCEE 2008-4023, U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, June 2008.
  - P. Wolf, B. Gutmann, M. Puma, L. Rizzo, N. Eissa, and M. Silverberg: *Evaluation of the DC Opportunity Scholarship Program: Impacts after One Year*, Report No. NCEE 2007-4009, U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, June 2007.

- Rouse’s study of the Milwaukee program yields a range of estimates of the intention-to-treat effect of (.06 $\sigma$  to .11 $\sigma$ ) in math and (-.03 $\sigma$  to .03 $\sigma$ ) in reading, and the reading estimates are not statistically different from zero. Rouse also reports a point estimate of a .14 $\sigma$  treatment-on-the-treated effect in math, but no statistically significant effect in reading.
- Clive Belfield studied the 1996 Cleveland program – he tested second graders and fifth graders who first received vouchers as kindergarteners in 1997. The results are dismal. The point estimates of the intention-to-treat effects relative to all other public school students in the 3<sup>rd</sup> year of the program (second graders) are -.08 $\sigma$  for math and -.05 $\sigma$  in reading. The treatment-on-the-treated point estimates relative to rejected applicants three years out are -.11 $\sigma$  in math and -.05 $\sigma$  in reading. The point estimates of the treatment-on-the-treated effect five years out (fifth graders) are -.08 $\sigma$  in math and .07 $\sigma$  in reading, although neither estimate is statistically different from zero.
- The Washington, D.C. program gives the best chance of obtaining unbiased estimates of the direct effect because the voucher assignments are random. Patrick Wolf *et. al.* studied the intention-to-treat effect relative to the rejected applicants (1,387 won vouchers, 921 were rejected) one and two years out. The range of estimates is:
  - 1 year after: (-.01 $\sigma$  to .08 $\sigma$ ) in math and (-.02 $\sigma$  to .03 $\sigma$ ) in reading.
  - 2 years after: (-.02 $\sigma$  to .01 $\sigma$ ) in math and (.05 $\sigma$  to .08 $\sigma$ ) in reading.

None of these estimates is statistically different from zero at the 5% level, however.<sup>3</sup> That said, these are clearly not the kinds of direct effects that proponents of vouchers are hoping for.

### Indirect Effect

As noted, the indirect effect on the public schools as they respond to the threat of vouchers is the ultimate hoped-for payoff from vouchers. One would not expect to find much of an indirect effect from the existing voucher programs, however, simply because they are so small. Also, attempts to measure the indirect effects suffer from potential biases similar to those of the direct effects. The ideal experiment here would be a random

<sup>3</sup> The results from studies of the private programs are equally disappointing, with one possible exception – the direct effects on African American students. One study reported an average achievement gain for these students of .23 $\sigma$  across all three programs, and a gain of .26 $\sigma$  in New York City. These studies classify a student as African American if both parents are African American. But a follow up study that broadened the classification to include students for whom either parent is African American or ‘other’ (not Hispanic or white) found no achievement effects that were statistically significantly different from zero. *Ibid.*, p. 8. The referenced studies are:

- W. Howell, P. Wolf, D. Campbell, and P. Peterson: ‘School Vouchers and Academic Performance: Results from Three Randomized Field Trials’, *Journal of Policy Analysis and Management*, Vol. 21, No. 2, Spring 2002, 191-217.
- D. Mayer, P. Peterson, D. Myers, C. Tuttle, and W. Howell: ‘School Choice in New York City After Three Years: An Evaluation of the School Choice Scholarships Program’, *Report No. 8404-045*, Mathematica Policy Research Inc., 2/19/2002.
- A. Krueger and P. Zhu: ‘Another Look at the New York City Voucher Experiment’, *American Behavioral Scientist*, Vol. 47, No. 5, January 2004, 658-698.

selection of separate education markets (such as metropolitan districts), some that institute a voucher program and others that do not. But this is far from the current situation, with only four U.S. cities having instituted vouchers.

The most promising study to date is of the Milwaukee public schools. Caroline Hoxby compared test scores of students in the Milwaukee public schools that faced the most competitive pressure from vouchers (i.e. those with the highest percentage of low-income students) with a sample of Wisconsin public schools in the rest of the state. Her point estimates are improvements of  $.12\sigma$  in math and  $.07\sigma$  in reading in the Milwaukee schools. But the possibility of bias looms large because the students in the two sets of schools are quite different, on average: the non-Milwaukee schools have far fewer minority students and much wealthier students. Not surprisingly, another study by Martin Carnoy *et. al.* found no statistically significant indirect effect on the Milwaukee public schools post-2002<sup>4</sup>.

Another potentially promising outcome occurred following the introduction of vouchers in Florida. Florida grades the performance of its public schools each year from A to F and, as noted above, students in schools with F grades currently and for one of the past four years were eligible for vouchers to attend private schools when the voucher program began in 2000. In 1999, 70 schools had F grades and by the end of 2001–02 school year, no school received an F grade. Many attributed the improvement to the threat of vouchers and hailed the program as a huge success.

But a comprehensive study of the Florida public schools by Rouse *et. al.* suggests a different explanation<sup>5</sup>. Florida's grading system was put in place in 1996, four years before the introduction of the vouchers. By 2000, the number of F schools had already dropped to four even though the vouchers had just been introduced that year. This raises the possibility that the receipt of F grades generates a stigma effect that induces failing school principals to make improvements. Even after 2000, stigma is still the more plausible explanation for the grade improvements because an entire school district bears the financial costs of students with vouchers leaving the district schools whereas the individual schools themselves bear the stigma of a failing grade. The most direct effect of the stigma is on local property values, which fall following the receipt of an F grade. Rouse *et. al.* found that school principals do make useful educational interventions after receiving an F grade, such as focusing more attention on low-performing students, lengthening the hours of instructional time, providing smaller class sizes, expanding

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<sup>4</sup> The discussion and analysis of the indirect effect is in *Ibid.*, p. 8-11. The studies referenced are:

- C. Hoxby: 'School Choice and School Productivity: Could School Choice be a Tide That Lifts All Boats?', in C. Hoxby (ed.) *The Economics of School Choice*, (Chicago: University of Chicago Press), 2003, pp. 287-341.
- M. Carnoy, F. Adamson, A. Chudgar, T. Luschei, and J. Witte: *Vouchers and Public School Performance: A Case Study of the Milwaukee Parental Choice Program* (Washington, D.C.: Economic Policy Institute), 2007.

<sup>5</sup> C. Rouse, J. Hannaway, D. Goldharber, and D. Figlio: 'Feeling the Florida Heat: How Low-Performing Schools Respond to Voucher and Accountability Pressure', *Working Paper 13*, National Center for Analysis of Longitudinal Data in Educational Research, Urban Institute, November 2007. The number of failing schools reported above is on p. 8.

summer school opportunities, and the like. These interventions appear to work<sup>6</sup>. Their study suggests that providing accountability for schools may be more important than vouchers in improving low performing schools, which is essentially the approach taken by the ‘No Child Left Behind’ program.

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## Conclusion

Barrow and Rouse speculate that vouchers remain popular despite the disappointing evidence of their effectiveness because theory suggests that they ought to provide strong incentives for public schools to improve their performance.<sup>7</sup> Vouchers have other advantages as well. One is that they address the equity concern about the public schools by providing low-income students with opportunities to attend private school that only high-income students would otherwise have. A second advantage is that the private schools may provide a safer environment for students – a factor noted in surveys of parents of the Washington, D.C. voucher students. Still another advantage is that they may lead to an increase in overall utility if voucher students and their parents are happier with the private schools, although the evidence here is somewhat mixed. In the Milwaukee program, the participating private schools are not the high-end private schools, and many parents have been unhappy with the voucher schools and returned the vouchers. Still, one can presume an increase in satisfaction among voucher recipients overall.

Three final considerations are worth noting when thinking about vouchers as a strategy for improving public education. First, vouchers may have positive long-term effects of higher high-school graduation rates and college attendance even if the short-run improvements in test scores are unimpressive. This is the general finding regarding Catholic schools, which are often considered to be the best of the inner city schools, on average. Studies of Catholic schools tend to show little or no improvement in scores on standardized tests in the short and intermediate run, but the Catholic city high schools have much higher graduation rates and college attendance than their public school counterparts. There are as yet no studies of the long-term effects of vouchers, however.

Second, the supply response is crucial to the success of any large-scale use of vouchers, because voucher students must have sufficient options if the program is to put pressure on the existing public schools. Students cannot use the vouchers if there are no private schools, or higher performing public schools, to accept them. Whether the necessary supply response would be forthcoming under a nationwide implementation of vouchers is uncertain.

Finally, voucher programs entail considerable monitoring and administrative costs that have to be weighed against the benefits of the programs. It is unclear whether

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<sup>6</sup> See *Ibid.*, pp. 29–35 for a discussion of the principals’ interventions and their effectiveness.

<sup>7</sup> The reflections on the voucher programs and conclusions in the example can be found in more detail in Barrow and Rouse, *op. cit.*, pp. 11-12.

vouchers are the most cost-effective way of improving the academic performance of students and of public schools generally. To offer one possible counter-example, Florida's grading system is not very costly to administer and may generate better performance outcomes than its voucher programs. The jury is still out on the effectiveness of educational vouchers, both absolutely and relatively.