

DR. CHRISTOPHER A. LUBIENSKI

WRITTEN TESTIMONY FOR THE HEARING ON “THE VALUE OF EDUCATION
CHOICES FOR LOW-INCOME FAMILIES: REAUTHORIZING THE D.C. OPPORTUNITY
SCHOLARSHIP PROGRAM”

SENATE COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS

NOVEMBER 4, 2015

Please Note: The views expressed in this testimony are those of the author and should not be seen as representing the positions of the University of Illinois, nor the organizations that have funded his research (including but not limited to the William T. Grant Foundation and the Institute of Education Sciences), nor other organizations with which he is affiliated.

CHAIRMAN JOHNSON, RANKING MEMBER CARPER, & DISTINGUISHED
COMMITTEE MEMBERS,

Thank you for the opportunity to speak with you about this topic. My name is Chris Lubienski, and I am a professor at the University of Illinois, where I study education policy. My research over the past two decades has focused on education reform, and specifically on the impacts of school choice policies — such as vouchers and charter schools — in the US as well as in other nations around the world.

As we all know, this is a contentious issue, with serious questions about public schooling, private interests, parental control, church and state, individual rights and democratic accountability. And reasonable people often disagree on how to address those questions. Unfortunately, we are too often seeing the politicization of the research on these programs as well.

Research on school choice has typically focused on three areas: 1) academic achievement; 2) more recently, a focus on other academic outcomes, such as degree attainment; and 3) to a much smaller degree, the social impacts. The questions of academic outcomes typically get the most attention and are the most contentious; the third consideration is the least studied, particularly with respect to vouchers, but still quite important.

Academic Achievement¹

Aside from older “tuitioning” programs in Maine and Vermont, publicly funded voucher programs have been operating since 1990. Since that time, numerous studies have been conducted on student achievement in different programs. As part of the first publicly funded voucher program, in Milwaukee, the Wisconsin Legislature mandated a formal annual evaluation of the program, which focused on student achievement, and tended to find no significant impact of vouchers on students in the program. Indeed, in a peer-reviewed study summarizing his research, the evaluator found “no substantial difference over the life of the program between the Choice and MPS [Milwaukee Public Schools] students” (Witte, 1998, pp. 237-8).² Similarly, the official evaluation of the Cleveland voucher program concluded that, after controlling for demographic differences like family income, “there are virtually no differences in performance between students who use a scholarship and students who attend public school” (Metcalf, West, Legan, Paul, & Boone, 2003, p. 11).

¹ This section draws on Lubienski and Brewer (forthcoming).

² Recent research from Milwaukee indicates that there is still very little statistical difference between groups over the course of the study, except for an aberrant spike in reading scores, but not in math, in the final year of the program, possibly due to the introduction of a high-stakes policy for voucher-accepting private schools prior to the final test (Wolf, 2012). Still, the program continues to grow, although there is still substantial attrition typical of both voucher programs and urban schools in general.

Reports by voucher proponents subsequently challenged those results from the official evaluation studies, and instead presented findings of significant benefits for students using vouchers in these programs (Greene, Howell, & Peterson, 1997; Greene, Peterson, & Du, 1996; Greene, Peterson, & Du, 1998). These findings were then challenged in turn (Witte, 1996). Such patterns were then also evident in subsequent debates about the impacts of privately funded programs in New York City, the District of Columbia and Dayton, with proponents first findings gains, while others challenged the methods and found no impact from the voucher program on student achievement (Howell & Peterson, 2002; Howell, Wolf, Peterson, & Campbell, 2000; Krueger & Zhu, 2004).

One way forward from this unfortunate and often ideological morass is to use a “nomination strategy.” With that approach, the strength of an intervention is evaluated based on the research that proponents put forward as the best evidence for a given intervention. Recently, Jameson Brewer and I used such a strategy, looking at the studies listed as such by the Friedman Foundation for Educational Choice — founded by the economist and intellectual author of the modern voucher movement. We analyzed this select set of studies to determine how solid and consistent the findings on vouchers effects are with respect to student achievement, and the findings are relevant to the discussion we are having today at this hearing.

There are some eleven studies listed as evidence of the positive effects of vouchers on the academic achievement of those using vouchers.³ These cover programs in five cities, including Washington, DC, and typically (but not always) report results separately in reading and in math, and by different sub-groups of students. While these are considered the best evidence on voucher impacts, there is substantial variation among the findings regarding voucher impact on student achievement.

In most of the overall and subgroup analyses conducted for these reports, there were no measurable impacts of voucher use on academic achievement. Moreover, if impacts are evident, those impacts are inconsistent, varying by group (race, gender, prior school performance, etc.), city, year, and subject. For instance:

- Howell and Peterson (2002) found no overall impact in Washington D.C., Dayton, and New York City. While finding no statistically significant impact for other ethnic groups, the authors find statistically significant impacts for African-American students in New York in Years 1 and 3, but not Year 2; in Washington in Year 2 (after losing 25% of the sample from Year 1), but not

³ Although the Foundation’s total list is slightly larger, but we excluded studies from our review if they were focused not on the direct K-12 achievement effects of vouchers, but on other issues such as effects in higher education, or competitive effects on non-voucher schools.

Years 1 and 3; and never in Dayton. Reported results were not disaggregated by subject.⁴

- Rouse (1998a) found no impact in reading in the Milwaukee voucher program, but a positive impact in math after four years.⁵
- Barnard et al. (2003) in New York found no statistically significant impacts in reading, and in math for students applying for the voucher program at grade 1, and not those applying at grade 2, 3, or 4
- In a reanalysis of these data, Jin worked with Barnard and Rubin (2010) on an alternative approach, finding that a significant impact from vouchers appeared in reading but disappeared in math for grade 1 applicants coming from high-performing schools, while also finding an impact in reading for grade 4 applicants coming from low-performing schools. No other statistically significant impacts were found.
- In the official evaluation of the District of Columbia Opportunity Scholarship Program, Wolf et al. (2013) found no overall impact from vouchers. While there were no impacts on math achievement (a subject generally considered a better measure of school effects) overall, nor for any of the subgroups, they report “suggestive” evidence in reading (which is more closely associated with home factors) after at least four years of the program. Results from the third year of the evaluation were statistically significant at conventional levels, although subsequently declined, possibly due to program completion. These benefits were evident for three of the six sub-groups: girls, students with higher initial achievement, and students who left higher performing public schools.

Overall, based on the research highlighted by proponents, vouchers have no measurable impact in most cases, and in the minority of instances where they appear to have an effect, it is often minor and rather haphazard, thus failing to reflect any underlying logic of program effects that we might expect from the clear theory of vouchers as change agents in education. Moreover, as I discuss below, any effects are likely at least partially a result of factors not accounted for in the voucher studies.

Academic Attainment

Given that evidence of achievement gains has been somewhat illusive, some

⁴ This is unfortunate because, as one of the authors had previously noted elsewhere, “Math tests are thought to be especially good indicators of school effectiveness, because math, unlike reading and language skills, is learned mainly in school” (Peterson, 1998, p. 3). See also Heyneman (2005).

⁵ In a separate study not cited by the Friedman Foundation, Rouse (1998b) found that students using vouchers had achievement gains in mathematics similar to, but reading gains lower than, those of public school students in a program that provided the public schools with smaller class sizes. The implication that any voucher benefit is explained by smaller class sizes in private schools is aligned with other work indicating that one of the main factors explaining any advantages of private school attendance is their smaller average class size (Lubienski & Lubienski, 2014).

research has recently turned to other indicators of voucher effects in terms of other academic behaviors. There are fewer studies on the Friedman list devoted to this topic than to student achievement, mirroring research on these topics overall. From this smaller research basis, we see similarly mixed findings on the effects of vouchers in increasing graduation rates, college attendance, and college persistence. Wolf et al. (2013) found a very significant difference in graduation rates: 82% as opposed to 70%, respectively, for the treatment and control groups. Students from poorly-performing schools,⁶ students who had higher levels of academic performance on application, and girls saw benefits from the voucher program for their likelihood of graduating from high school; boys, student who applied to the program from better performing schools, or students with higher levels of academic performance, did not. More recently, Chingos and Peterson (2015, p. 10) found “no overall impact of the voucher intervention in New York City on college enrollment and attainment,” but found disparate impacts various subgroups, such as for children of US-born mothers.

This, of course, raises important questions about why we see no consistent impacts of vouchers on academic growth, but may see impacts in school attainment. That is, there appears to be no underlying logic of causation for the effects of vouchers on a student’s learning in a classroom, but there may be on a student’s academic aspirations extended into higher education. The evidence available in the set of voucher studies explored here does little to explain the factors that might account for this disjuncture, since it is essentially focused on vouchers as treatments, and does not look at specific causal mechanisms in schools. However the broader research evidence suggests that peer-effect sorting — clustering students by academic inclinations and abilities — may play a substantial role in this. I take up this question in the concluding discussion.

Societal Impacts

While a substantial volume of research has investigated academic achievement in voucher programs, and a few recent studies have looked at academic attainment, the question of the social effects of voucher programs has been severely under-examined.⁷ Although there is insufficient research so far in this regard on voucher programs for private schools, research on more controlled and regulated programs such as public charter schools suggests cause for concern. Indeed, there appear to be a growing consensus that these programs are linked to greater social segregation, by race, social class, and academic ability (Elacqua, 2004, 2012; Frankenberg, Siegel-Hawley, & Wang, 2011) (Fiske & Ladd, 2000; Garcia, 2008) (Rotberg, 2014). This is particularly unfortunate for two reasons. First, choice programs have a unique potential to allow students trapped in segregated and failing public schools to cross

⁶ This is in contrast to the students from higher-performing schools, who saw a benefit in the achievement findings noted in the previous section.

⁷ The School Choice Demonstration Project has considered social impacts in Milwaukee, but focuses only on race in an overwhelming minority city, and foregoes any analyses of sorting by social-economic status or ability (Wolf, 2012).

attendance zones and/or district boundaries. Second, evidence suggests that more integrated learning environments can lead to better overall outcomes — boosting in particular the achievement of less advantaged students, while not impeding the achievement of students from more affluent families (Kahlenberg, 2000; Mickelson & Bottia, 2010; Perry & McConney, 2010) (Spencer & Reno, 2009).

Nonetheless, the research on choice and segregation is pointing to clearer patterns of school segregation, whether through self-sorting by families, through schools' selection of students, or through other school practices, such as marketing, that may facilitate social sorting.⁸ For instance, evidence indicates that private and charter schools tend to serve proportionately fewer students with special needs or limited English proficiency (Lubienski & Lubienski, 2014). Even in cases where basic measures suggest that private or charter schools are serving higher proportions of disadvantaged students, as determined, for instance, by subsidized lunch eligibility (as is the case with charter schools in Washington, DC), more nuanced research indicates that these tend to be more advantaged of the disadvantaged or minority student populations (Lubienski & Lubienski, 2014; Witte, 2000).

This echoes evidence on school choice and segregation elsewhere. The OECD analysis of 2012 PISA data found that mathematics performance across countries is not related to whether or not schools compete for the choices of students; even within school systems, the OECD found no advantage in the performance of schools that complete for students (Organisation for Economic Co-Operation and Development, 2014). However, the OECD noted that competition between schools is linked to greater socio-economic segregation. The PISA data suggest that this is because, for affluent parents, “cost-related factors weigh less than the quality of instruction in their choice of schools... for disadvantaged parents, cost-related factors often weigh as much as, if not more than, the factors related to the quality of instruction.” Thus, “in systems where parents can choose schools, and schools compete for enrollment, schools are often more socially segregated.”⁹

Discussion

While school choice programs may entail potentially substantial equity costs, in terms of benefits, we see patterns where voucher programs have no overall impact on student learning, but may have inconsistent benefits for some groups in some sporadic instances. This is evident across cities, sub-populations, and subjects studied, although particularly disappointing in math, since that subject is seen as a better measure of school effects. On the other hand, some researchers report notable advantages for students offered a voucher in terms of later academic behaviors, such as high school completion and college persistence.

⁸ For instance, with charter schools, see the comprehensive review by Rotberg (2014); for causal factors in such patterns, see Bifulco and Ladd (2006); in DC, see Schneider and Buckley (2002).

⁹ See OECD, 2014.

Since these studies highlighted by proponents tend not to examine the specific mechanisms by which these later outcomes are attained, outside of the offer or use of a voucher, we do not really know what factors are involved in causing these outcomes, and whether they can be replicated or scaled up. The research reviewed here is not designed in ways to give us any certainty that behavior outcomes are simply a matter of program effects — for example, if there is better college counseling in schools that accept vouchers. Moreover, the nature of these studies means that the results, whether positive or negative, “cannot be easily generalized to other settings” (Chingos & Peterson, 2015, p. 10). These programs do not just study the effects of the program, but the effects of the program on the types of students from families who typically apply for these programs — families whose interest in applying for the voucher suggests characteristics associated with academic success.

While we may like to think that any positive effects are the result of better teaching, curricula, or programs in the voucher schools, the data do not support that conclusion. Instead, a lengthy literature of research would strongly suggest that these outcomes are in no small part a matter of peer-group influences: the profile of the people with whom a student is learning (Coleman et al., 1966; Hanushek, Markman, Kain, & Rivkin, 2003; Jencks et al., 1972; Kahlenberg, 2000). One could argue that families are choosing not just private schools, but also peer groups for their children. But that could have a diminishing effect, as Chingos and Peterson (2015, p. 10) suggest: “scaling up voucher programs can be expected to change the social composition of private schools. To the extent that student learning is dependent on peer quality, the impacts ... could easily change.” Moreover, the implication is that benefits are at least partly a result of social segregation. In all likelihood, this is detrimental to the peer-effect in schools of children left behind, although those impacts have not been well studied. As Rouse and Barrow (2008) note, “the research designs for studying the potential impacts of vouchers on students who remain in the public schools are far from ideal” (p. 3).

Conclusions

The academic impacts of vouchers on student achievement are generally lacking, and sporadic and inconsistent, at best. Even focusing only on the studies highlighted by the pro-voucher Friedman Foundation, most found no effect for the clear majority of overall and subgroup analyses. However, for both achievement and attainment, the problem is that findings of impact that do exist reflect no underlying causal logic. In the exceptional cases where researchers report an impact, they appear to have an effect for one group in one grade in one subject, but not with that same group in a different subject, or year, or in a different city — or even if examined in a different study, even by the same researchers. Indeed, the equity premise for vouchers — that private schools offer students a better educational opportunity — may be misguided, since nationally representative evidence indicates that private schools are no more effective (and often less so) than public schools (Braun, Jenkins, & Grigg, 2006; Lubienski & Lubienski, 2014; Reardon, Cheadle, & Robinson, 2009). So there are reasons for caution in hearing claims

about the impact of vouchers. Said another way, there are better arguments for vouchers than their academic impacts.

At the same time, while we have evidence on the academic benefits (or lack thereof) of vouchers, policymakers and researchers may also need to attend to the question of potential social costs. Research points to concerns about social segregation from choice programs that may further hinder educational opportunity for disadvantaged students, relative to their more advantaged peers, even though disadvantaged students are often the intended beneficiaries of voucher policies. As the OECD noted:

School competition can involve costs and benefits that may not be equally distributed across students. Some of the intended benefits of competition... are not necessarily related to student achievement, and must be weighed against the possible cost in equity and social inclusion. (Organisation for Economic Co-Operation and Development, 2014)

Weighing the potential costs and benefits of education policies is a contentious and difficult exercise, with serious implications for individuals, schools, families, and communities. While there is an obvious appeal to interventions that may appear to be a panacea for the deep-seated problems facing urban schools, the best evidence in this case indicates that this approach is not particularly effective, and should be treated by policy makers with a reasonable degree of caution.

Thank you Mr. Chairman and Members of the Committee for this opportunity to share my professional assessment with you.

CHRISTOPHER LUBIENSKI is a professor of education policy, and the Director of the Forum on the Future of Public Education at the University of Illinois, and Sir Walter Murdoch Visiting Professor at Murdoch University in Australia. He is also a Fellow with the National Education Policy Center, and co-chair of the K-12 Working Group with the Scholars Strategy Network at Harvard University. Lubienski held post-doctoral fellowships with the National Academy of Education and with the Advanced Studies Program at Brown University. He was recently a Fulbright Senior Scholar in New Zealand, where he studies schools' organizational behavior and student enrollment patterns. Lubienski has published over 80 academic papers, including peer-reviewed articles in the *American Journal of Education*, the *Oxford Review of Education*, the *American Educational Research Journal*, and *Educational Policy*, as well as in other outlets, such as *Education Week* and the *Congressional Quarterly Researcher*. In addition to *The Charter School Experiment: Expectations, Evidence, and Implications* (with Peter Weitzel, Harvard Education Press), Lubienski recently published *The Public School Advantage: Why Public Schools Outperform Private Schools* (with Sarah Theule Lubienski, University of Chicago Press), which won the 2015 PROSE Award for Education Theory from the American Publishers Awards for Professional and Scholarly Excellence. His upcoming book is *The Global Education Industry* (with Antoni Verger & Gita Steiner-Khamsi). The Lubienskis live in Urbana, Illinois, where they are licensed foster parents with the Catholic social service agency.

REFERENCES

- Barnard, J., Frangakis, C. E., Hill, J. L., & Rubin, D. B. (2003). Principal Stratification Approach to Broken Randomized Experiments: A Case Study of School Choice Vouchers in New York City. *Journal of the American Statistical Association*, 98(462), 299-324.
- Bifulco, R., & Ladd, H. F. (2006). School Choice, Racial Segregation, and Test-Score Gaps: Evidence from North Carolina's Charter School Program. *Journal of Policy Analysis and Management*, 26(1), 31-56.
- Braun, H., Jenkins, F., & Grigg, W. (2006). Comparing Private Schools and Public Schools Using Hierarchical Linear Modeling. Washington, DC: National Center for Education Statistics.
- Chingos, M. M., & Peterson, P. E. (2015). Experimentally Estimated Impacts of School Vouchers on College Enrollment and Degree Attainment. *Journal of Public Economics*, 122, 1-12.
- Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of Educational Opportunity*. Washington, DC: National Center for Educational Statistics.
- Elacqua, G. (2004). School Choice in Chile: An Analysis of Parental Preferences and Search Behavior (pp. 1 - 34). New York: National Center for the Study of Privatization in Education.
- Elacqua, G. (2012). The Impact of School Choice and Public Policy on Segregation: Evidence from Chile. *International Journal of Educational Development*, 32(3), 444-453.
- Fiske, E. B., & Ladd, H. F. (2000). *When Schools Compete: A Cautionary Tale*. Washington, DC: Brookings Institution Press.
- Frankenberg, E., Siegel-Hawley, G., & Wang, J. (2011). Choice without Equity: Charter School Segregation. *Educational Policy Analysis Archives*, 19(1), <http://epaa.asu.edu/ojs/article/view/779>.
- Garcia, D. R. (2008). Academic and Racial Segregation in Charter Schools: Do Parents Sort Students into Specialized Charter Schools? *Education and Urban Society*, 40(5), 590-612.
- Greene, J. P., Howell, W. G., & Peterson, P. E. (1997). An Evaluation of the Cleveland Scholarship Program: Program on Education Policy and Governance, Harvard University.
- Greene, J. P., Peterson, P. E., & Du, J. (1996). The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation (pp. Retrieved on February 18, 1997 from the World Wide Web: <<http://hdc-www.harvard.edu/pepg/op/evaluate.htm%3E>): Program on Education Policy and Governance, Harvard University.
- Greene, J. P., Peterson, P. E., & Du, J. (1998). School Choice in Milwaukee: A Randomized Experiment. In P. E. Peterson & B. C. Hassel (Eds.), *Learning from School Choice* (pp. 335-356). Washington, DC: Brookings Institution Press.
- Hanushek, E. A., Markman, J. M., Kain, J. F., & Rivkin, S. G. (2003). Does Peer Ability Affect Student Achievement? *Journal of Applied Econometrics*, 18(5), 527-544.

- Heyneman, S. P. (2005). Student Background and Student Achievement: What Is the Right Question? *American Journal of Education*, 112(1), 1-9.
- Howell, W. G., & Peterson, P. E. (2002). *The Education Gap: Vouchers and Urban Schools*. Washington, DC: Brookings Institution Press.
- Howell, W. G., Wolf, P. J., Peterson, P. E., & Campbell, D. E. (2000). Test-Score Effects of School Vouchers in Dayton, Ohio, New York City, and Washington, D.C.: Evidence from Randomized Field Trials. Cambridge, MA: Harvard Program on Education Policy and Governance.
- Jencks, C., Smith, M., Acland, H., Bane, M. J., Cohen, D. K., Gintis, H., . . . Michelson, S. (1972). *Inequality: A Reassessment of the Effect of Family and Schooling in America*. New York: Basic Books.
- Jin, H., Barnard, J., & Rubin, D. B. (2010). A Modified General Location Model for Noncompliance with Missing Data: Revisiting the New York City School Choice Scholarship Program Using Principal Stratification. *Journal of Educational and Behavioral Statistics*, 35(2), 154-173. doi: 10.3102/1076998609346968
- Kahlenberg, R. D. (2000). *All Together Now: Creating Middle-Class Schools through Public School Choice*. Washington, DC: Brookings Institution Press.
- Krueger, A. B., & Zhu, P. (2004). Another Look at the New York City School Voucher Experiment. *American Behavioral Scientist*, 47(5), 658-698.
- Lubienski, C., & Brewer, T. J. (forthcoming). An Analysis of Voucher Advocacy: Taking a Closer Look at the Uses and Limitations of "Gold Standard" Research. *Peabody Journal of Education*.
- Lubienski, C., & Lubienski, S. T. (2014). *The Public School Advantage: Why Public Schools Outperform Private Schools*. Chicago: University of Chicago Press.
- Metcalf, K. K., West, S. D., Legan, N. A., Paul, K. M., & Boone, W. J. (2003). Evaluation of the Cleveland Scholarship and Tutoring Program: Summary Report 1998-2002. Bloomington, IN: Indiana University.
- Mickelson, R. A., & Bottia, M. (2010). Integrated Education and Mathematics Outcomes: A Synthesis of Social Science Research. *North Carolina Law Review*, 88, 993-1090.
- Organisation for Economic Co-Operation and Development. (2014). *PISA 2012 Results: What Makes Schools Successful (Volume IV)* (Vol. Paris): OECD Publishing.
- Organisation for Economic Co-Operation and Development. (2014). PISA in Focus: #42. Organisation for Economic Co-Operation and Development.
- Perry, L., & McConney, A. (2010). Does the SES of the School Matter? An Examination of Socioeconomic Status and Student Achievement Using Pisa 2003. *Teachers College Record*, 112(4), 1137-1162.
- Peterson, P. E. (1998). School Choice: A Report Card. In P. E. Peterson & B. C. Hassel (Eds.), *Learning from School Choice* (pp. 3-32). Washington, DC: Brookings Institution Press.
- Reardon, S. F., Cheadle, J. E., & Robinson, J. P. (2009). The Effects of Catholic School Attendance on Reading and Math Achievement in Kindergarten through Fifth Grade. *Journal of Research on Educational Effectiveness*, 2(1), 45-87.

- Rotberg, I. C. (2014, February). Charter Schools and the Risk of Increased Segregation. *Phi Delta Kappan*, 95, 26-30.
- Rouse, C. E. (1998a). Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program. *Quarterly Journal of Economics*, 113(2), 553-603.
- Rouse, C. E. (1998b). Schools and Student Achievement: More Evidence from the Milwaukee Parental Choice Program: Princeton University and the National Bureau of Economic Research.
- Rouse, C. E., & Barrow, L. (2008). School Vouchers and Student Achievement: Recent Evidence, Remaining Questions. New York: National Center for the Study of Privatization in Education.
- Schneider, M., & Buckley, J. (2002). What Do Parents Want from Schools? Evidence from the Internet. *Educational Evaluation And Policy Analysis*, 24(2), 133-144.
- Spencer, M. L., & Reno, R. (2009). The Benefits of Racial and Economic Integration in Our Education System. Columbus, OH: Kirwan Institute for the Study of Race and Ethnicity.
- Witte, J. F. (1996). Reply to Greene, Peterson and Du: "The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation". Madison, WI: Department of Political Science and The Robert La Follette Institute of Public Affairs, University of Wisconsin-Madison.
- Witte, J. F. (1998). The Milwaukee Voucher Experiment. *Educational Evaluation And Policy Analysis*, 20(4), 229-251.
- Witte, J. F. (2000). *The Market Approach to Education: An Analysis of America's First Voucher Program*. Princeton, NJ: Princeton University Press.
- Wolf, P. (2012). The Comprehensive Longitudinal Evaluation of the Milwaukee Parental Choice Program: Summary of Final Reports. Fayetteville, AK: School Choice Demonstration Project, University of Arkansas.
- Wolf, P. J., Kisida, B., Gutmann, B., Puma, M., Eissa, N., & Rizzo, L. (2013). School Vouchers and Student Outcomes: Experimental Evidence from Washington, Dc. *Journal of Policy Analysis & Management*, 32(2), 246-270. doi: 10.1002/pam.21691