

Improving educational outcomes for poor children

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Introduction

One of the best ways to avoid being poor as an adult is to obtain a good education.¹ People who have higher levels of academic achievement and more years of schooling earn more than those with lower levels of human capital. This is not surprising, since economists believe that schooling makes people more productive and that wages are related to productivity.

Yet in modern America, poor children face an elevated risk for a variety of adverse educational outcomes. According to the 2007 National Assessment of Educational Progress, only 16 percent of fourth-grade students eligible for free lunch score at proficient levels in reading, compared with 44 percent of fourth graders whose family incomes are above the eligibility cutoff for free lunch.² The disparity in math scores between those above and below the eligibility threshold for free lunch is even larger.³ Equally large disparities in achievement test scores are observed between whites and minority racial or ethnic groups, with test score gaps that show up as early as three or four years of age.⁴ In fact, the black-white test score gap among twelfth graders may not be all that different in magnitude from the gap observed among young children when they first start school.⁵

Understanding why children's outcomes vary so dramatically along race and class lines in America is central to formulating effective education policy interventions. Disagreements about how to improve schooling outcomes for poor children stem in part from different beliefs about the problems that underlie the unsatisfactory outcomes in many of our nation's public schools. Broadly speaking, critics tend to invoke, at least implicitly, one of the following explanations for why children in high-poverty schools are not performing as well as we would like:

1. Schools serving poor and minority students have fewer resources than they need. In this case, a potential solution would be to provide more money to disadvantaged schools.

2. High-poverty schools lack the capacity to substantially improve student learning, independent of financial resources. Potential solutions to this problem would involve helping schools improve the quality of their standard operating practices, or increasing the instructional capacity of staff in these schools through professional development or more selective hiring.
3. High-poverty schools do not have sufficient incentives or flexibility to improve instruction. Proponents of this perspective argue that without clarifying key objectives and holding key actors accountable, additional spending will be squandered.
4. Schools matter only so much. The real problem rests with the social context in which schools operate—namely, the family, neighborhood, and peer environments that under this perspective make it difficult for low-income children to take advantage of educational opportunities. Adopting accountability or market-oriented reforms without changing social policy more broadly will punish educators for factors beyond their control, and potentially drive the most able teachers toward schools serving less-disadvantaged students.

For some reason, current education policy debates often seem to be argued as if the problems listed above are mutually exclusive. In contrast, we believe that there is likely some truth to each of these major explanations; schools confront no single problem that can be addressed with just one solution. Identifying the optimal policy response to the mix of problems that plagues our public schools is complicated by the possibility that these problems might interact with each other. For example, it may be the case that certain curriculum reforms are effective only if they are accompanied by an increase in resources such as student support services, or by an increase in teacher quality generated by reforms to hiring and tenure policies. Social science theory and common sense are likely to carry us only so far in identifying the most effective—and cost-effective—mix of education policy changes. For almost every education intervention that some theory suggests might be effective, another plausible theory suggests that the intervention is likely to be ineffective or even harmful. Education policy also needs to be guided by rigorous evaluation evidence about what actually works in practice.

Research over the past four decades has unfortunately fostered the impression that “nothing works” to improve schools for poor children. One of the first studies to contribute to this sense of pessimism was the landmark 1966 report by sociologist James Coleman and his colleagues.⁶ Drawing on a large, nationally representative sample, the Coleman Report found that most of the variation in student test scores occurs within rather than across schools, that family background is the strongest predictor of academic achievement, and that most measurable school inputs like student-teacher ratios are only weakly correlated with student outcomes. Subsequent evaluation studies of different educational interventions also

tended to be disappointing, and helped contribute to a sense of pessimism about the ability of schools to improve poor children's life chances.⁷

In contrast, we offer a message of tempered optimism. Over the past few decades, the technology of education-policy evaluation has improved dramatically, making it much easier to detect moderately-sized program impacts within the complex environment that determines schooling outcomes. The available evidence reveals a number of potentially promising ways to improve the learning outcomes of low-income children. This is not to say that everything works: many current and proposed education policies either have no empirical support for their effectiveness, or in some cases have strong empirical evidence for their ineffectiveness. The most successful educational interventions will reduce, but not eliminate, racial and social class disparities in educational outcomes. This is not a reason for either despair or inaction. The appropriate standard of success for policy interventions is that they generate net benefits, not miraculous benefits. Education policies that are capable of improving poor children's schooling outcomes by enough to justify the costs of these policies are worth doing, even if these policies or programs by themselves are not enough to equalize learning opportunities for all children in America.

School resources

The question of whether "money matters" has been the subject of contentious debate in the research literature for the past 40 years. Isolating the causal effects of extra school funding is complicated by the possibility that compensatory spending may be directed towards schools serving the most disadvantaged students, and adequately controlling for all aspects of student disadvantage is quite difficult in practice. The weight of current evidence provides fairly weak support for the idea that increases in unrestricted school funding on average improve student outcomes.⁸ There is, however, stronger evidence that some targeted increases in specific school inputs can improve student outcomes. Three areas in which we believe increased resources may yield important benefits for poor children are (1) increased investments in early childhood education; (2) class-size reductions in the early grades; and (3) targeted salary bonuses to help disadvantaged schools recruit and retain better teachers.⁹

Early childhood education

Disparities in academic achievement by race and class are apparent as early as ages three and four—well before children enter kindergarten. Recent research in neuroscience, developmental psychology, economics, and other fields suggests that the earliest years of life may be a particularly promising time to intervene in the lives of low-income children.¹⁰ Studies show that early childhood educational programs can generate learning gains in the short-run and, in some cases, improve the long-run life chances of poor children. Moreover, the benefits generated by these programs are large enough to justify their costs.

Although preschool interventions represent a promising way to improve the life chances of poor children, their success is not well reflected in federal government budget priorities, which allocate nearly seven times as much money per capita for K–12 schooling as for pre-kindergarten, other forms of early education, and child care subsidies for three- to five-year-olds.¹¹ Most social policies attempt to make up for the disadvantages poor children experience early in life. But given the substantial disparities between poor and nonpoor children that already exist among very young children, it is perhaps not surprising that many disadvantaged children never catch up.

Class-size reduction

Reducing average class sizes may enable teachers to spend more time working with individual students, tailor instruction to match children's needs, and make it easier for teachers to monitor classroom behavior. Class-size reductions are expensive, as they require hiring additional teachers and in some cases expanding a school's physical space. However, the best available evidence suggests that class-size reduction, holding teacher quality constant, can improve student outcomes by enough to justify these additional expenditures, with benefits that are particularly pronounced for low-income and minority children. Some research has suggested that class-size reduction might be most effective if focused on low-income districts or schools.¹²

Bonuses for teaching in high-needs schools or subjects

Research has identified substantial variation across teachers in the ability to raise student achievement, both within and across schools. These studies attempt to isolate the value that a teacher adds to student achievement, referred to as "value-added" measures of teacher effectiveness. If disadvantaged children were taught by the most effective teachers, disparities in schooling outcomes might be narrowed.

Value-added measures of teacher effectiveness are not very strongly correlated with the easiest-to-observe characteristics of teachers. Novice teachers are less effective than more experienced ones, but this experience premium disappears after the first few years of teaching.¹³ Teachers who have higher scores on the SAT or various teaching exams are generally more effective than others.¹⁴ Still, many other observable teacher characteristics, such as whether teachers hold traditional teacher certifications or advanced degrees, are not systematically correlated with student learning.¹⁵

The policy challenge in this domain is to induce more effective teachers to teach in schools serving the most disadvantaged children, knowing that effectiveness cannot easily be measured. The dramatic variation in effectiveness that we observe among teachers highlights the great potential value of successful policies in this area.

Changing school practices

Some observers of America's schooling system remain skeptical that additional spending is needed to improve the

learning outcomes of poor children. They argue that improving the ways in which schools are organized, including the way they deliver instruction, could improve student achievement with few additional resources. This line of reasoning assumes there is good evidence on which practices are most effective, but that school personnel do not have the capacity to identify or implement these programs on their own.

Some low-cost changes in school operating practices that seem to improve student outcomes include changes to school organization, classroom instruction, and teacher hiring and promotion. What remains unclear is why these “best practices” have not been more widely adopted—presumably the answer is some combination of lack of information, political resistance, bureaucratic inertia, or other factors.

Curricular and instructional interventions

In 2002, the Institute for Education Sciences within the U.S. Department of Education created the What Works Clearinghouse (WWC) in order to collect and disseminate scientific evidence on various educational interventions. Thus far, there is a lack of convincing evidence on curricular interventions. A more recent approach to school improvement known as Comprehensive School Reform (CSR) attempts to improve many different aspects of the school at the same time. Unfortunately, the evaluation evidence about the effectiveness of CSR programs is also somewhat limited.

Nevertheless, at the elementary school level a few models have been shown to improve student outcomes. One of the more promising interventions seems to be Success for All (SFA), a comprehensive whole-school reform model that operates in more than 1,200 mostly high-poverty Title I schools.¹⁶ SFA focuses on reading, with an emphasis on prevention and early intervention. A random assignment evaluation of SFA documented that at the end of three years, students in the treatment schools scored roughly 0.2 standard deviations higher than students in the control schools on a standardized reading assessment, a difference equivalent to about one-fifth of the gap between low and high socioeconomic-status children.¹⁷

Teacher labor markets

A key policy challenge for school districts is to induce more effective teachers to teach in high-poverty schools. There are a variety of potential inefficiencies in the way schools hire, promote, and dismiss teachers, and at least some of these problems might be addressed without substantial increase in resources.¹⁸

One promising approach is to promote alternative pathways into teaching. Traditional certification requirements impose a high cost (both in money and time) on individuals interested in teaching, particularly on those with the best outside labor market options. Studies exploring the relative effectiveness of teachers with traditional versus alternative (or no) certification have generally found that differences between the groups are relatively small, and that in certain grades and subjects, teachers with alternative certification may actually outperform those with traditional certification.¹⁹

Whatever system is used to hire teachers, it is inevitable that some teachers will not perform well in the classroom. Recognizing that the hiring process is imperfect, virtually all school systems place new teachers on probation. However, in practice, public schools typically do not take advantage of the probationary period to obtain additional information about teacher effectiveness and weed out lower-quality teachers. One possible solution is to raise the tenure bar for new teachers, and to deny tenure to those who are not effective at raising student achievement. We suggest that this type of high-stakes decision should be based on a variety of teacher performance measures that include, but are not limited to, measures of effectiveness at raising student test scores. Principal evaluations should be included as one factor in teacher tenure ratings, both because they may add additional information beyond student test scores, and also because they reduce potential negative effects of relying solely on an output-based measure.

Incentives and accountability

Class size reduction is an “input-based” educational intervention, based on the assumption that schools will perform better with additional resources. Comprehensive School Reform is based on the assumption that schools are not using best practices, and therefore seeks to improve schooling outcomes by prescribing a more effective instructional approach based on the knowledge of centralized decision makers. Both strategies assume that educators are willing to work as hard as they can given their resource constraints.

An alternative approach to school reform focuses on enhancing both the incentives and flexibility enjoyed by school personnel. While the theories underlying school choice and school accountability differ in important ways, both strategies rely on the core notions of incentives and flexibility. The available evidence to date is probably strongest on behalf of the ability of school accountability systems to change the behavior of teachers and principals, although one lesson from that body of research is the great importance of getting the design of such policies right.

Teacher merit pay

Most public school teachers are paid according to strict formulas that incorporate years of service and credits of continuing education including Master’s and doctorate degrees, despite the fact that research consistently finds that advanced degrees are not associated with better student performance and that experience only matters in the first few years of teaching. For this reason, reformers have suggested that a teacher’s compensation should be tied directly to productivity as measured by student performance or supervisor evaluation. Proponents of “pay-for-performance,” also known as “merit” or “incentive” pay, argue that it would not only provide incentives for current teachers to work “harder” or “smarter,” but also could affect the type of people who enter the teaching force and then choose to remain.

Incentive pay has a long history in American education, though few systems that directly reward teachers on the ba-

sis of student performance have lasted very long.²⁰ There is some evidence that incorporating incentive pay along with pay for additional professional development activities and other service may improve student performance on standardized tests.²¹ Given this tentative but positive evidence, we believe that it is worthwhile for schools and districts to continue experimenting with, and evaluating, pay for performance.

School accountability systems

Recent studies suggest that accountability reforms can foster positive changes in behavior by school administrators, teachers, and students. At the same time, research provides some warnings that incentive-based reforms often generate unintended negative consequences, such as teachers neglecting certain students, cutting corners, or even cheating to artificially raise student test scores. The fact that actors within the school system do respond to changes in incentives highlights both the promise and pitfalls of accountability reform, and underscores the importance of the specific design details of accountability policies.

A recent review of simple national time trends suggests that No Child Left Behind (NCLB) may have improved student achievement, particularly the math performance of younger children.²² However, to our knowledge, there has not been any systematic investigation of the impact of NCLB at a national level that attempts to account for prior achievement trends or the presence of other policies. Even without any direct evaluation evidence of NCLB, the available accountability research suggests a number of modifications to NCLB that seem likely to do some good. First, we would encourage the adoption of a single achievement standard for all districts in the country. Second, we recommend moving away from a single proficiency level—that is, holding schools accountable for the share of students with scores above some single cutoff value—since this provides students an incentive to neglect students who are far above or below this threshold. Third, we suggest that if the current level of federal funding is not increased substantially, states and districts be provided the flexibility to focus on the schools most in need of improvement.

School choice

Another way to clarify goals or change incentives is to provide parents greater choice of schools for their children through public magnet schools, charter schools, or vouchers for students to attend private schools. Proponents suggest that by creating a marketplace in which parents can select schools, a choice-based system might generate competition among schools that would improve the quality of schools throughout the marketplace. This theory rests on several assumptions, including that the degree of choice will be large enough to generate meaningful competition. A choice system must permit relatively easy entry into the market by potential suppliers, which includes individuals and organizations wishing to open schools. There must also be easy “exit” from the market that allows (and, indeed, forces) unsuccessful schools to close.²³

The second set of assumptions involves the information available to parents and the preferences they have for

their children’s education. Parents must have sufficient information to make an informed choice. Data on school performance must be transparent, accessible, and easily understood by parents with varying degrees of sophistication.

There is mixed evidence on whether the opportunity to attend a choice school has substantial academic benefits for poor children, as well as on the question of whether large-scale choice programs might improve the productivity of schools in general. In our view, the main risk associated with expanded choice opportunities is the possibility of exacerbating the segregation of poor, minority, or low-performing students within a subset of schools. Thus, the effects of any choice plan are likely to depend crucially on the details of key design questions, such as whether schools are allowed to select the best students from their applicant pools.²⁴

The role of student background

Some believe that the disappointing performance of our public schools stems in large part from the challenges that poor children face outside of school. Clearly, differences in family background help explain a large share of the variation in academic achievement outcomes across children. Poor children have substantially lower achievement test scores than nonpoor children as young as ages three or four, before they even start school.

More relevant for present purposes is whether the challenges of living in poverty cause poor children to benefit *less* than nonpoor children from similar types of schooling experiences. Our reading of the available evidence instead suggests that improving the quality of academic programs is at the very least sufficient to make noticeable improvements in poor children’s educational outcomes. In fact, studies of early childhood education programs typically find that disadvantaged children benefit even *more* from these interventions than do nonpoor children. As a result, social policy changes outside the realm of education that reduce child poverty in America, as desirable as they may be on their own merits, are not a necessary condition for enacting education reforms that improve poor children’s outcomes by enough to justify the costs of these reforms.

At the same time, the fact that poor children are geographically concentrated in neighborhoods that are segregated by race and social class presents special challenges for education policy, given that children have traditionally attended neighborhood schools. For example, research suggests that, all else equal, teachers tend to prefer to work in schools that serve more affluent and less racially diverse student bodies.²⁵ In addition, systems that fail to adequately account for the confounding influence of family background may help drive the most effective teachers out of high-poverty schools. Peer characteristics may also directly affect student learning, if teachers set the level or pace of instruction to match the average student ability in their classroom.

In theory, education policies could overcome the burden that concentrated poverty imposes on poor children by breaking

the link between place of residence and school assignment. Some evidence suggests that earlier desegregation efforts did improve the schooling outcomes of disadvantaged children.²⁶ However, the potential for contemporaneous desegregation policies to achieve large gains in student outcomes remains unclear. First, there are substantial barriers—both logistical and political—to further integrating schools along race or class lines. Second, both schooling and social conditions for poor children have changed substantially since the initial desegregation efforts, which may limit the effectiveness of desegregation efforts today. For example, although still far from equal, the difference in resources across poor and nonpoor schools has greatly narrowed since the early 1970s.

A different approach to addressing the problem of concentrated poverty is to use housing policy to help poor families move into different neighborhoods, though it is still unclear how effective such policies would be at changing neighborhood environment, or whether such a change would be sufficient to improve a child's academic outcomes.²⁷

Reducing the prevalence of either child poverty or the geographic concentration of poverty in America is difficult. Although the persistence of these social problems is not beneficial for the well-being of children, improving the educational opportunities of poor children in their current neighborhoods still has the potential to help them escape from poverty.

Conclusions

The release of the landmark Coleman Report in 1966 fostered pessimism about the ability of schools to improve the life chances of poor children. This report and subsequent research pushed policymakers to consider outcome-based measures of success and spurred interest in reform strategies that focus on changing the incentives within the public school system.

A careful review of the empirical evidence, however, suggests a variety of policies that are likely to substantially improve the academic performance of poor children. We found examples of successful programs or policies within each of three broad categories. Targeted investment of additional resources in early childhood education, smaller class sizes, and bonuses for teachers in hard-to-staff schools and subjects seem likely to pass a cost-benefit test, even without a fundamental reorganization of the existing public school system. At the same time, researchers have identified some ways of changing standard operating procedures within schools that can improve the outcomes of poor children even without large amounts of additional spending. Finally, policies that seek to change incentives within schools offer some promise of improving schooling for poor children.

Given limited financial resources and perhaps even more limited political attention, it is unlikely that policymakers could adopt all of the “successful” practices discussed in this article. Based on our read of the empirical literature, we believe that the following should be the highest priorities for education policies to improve the academic achievement of poor children:

1. Increase investments in early-childhood education for poor children. Even though short-term gains in IQ or achievement test scores diminish over time, there is evidence of long-term improvement in a variety of outcomes, including educational attainment, that will help children escape from poverty as adults. Increased investment in early childhood education is particularly important given the limited investment our society currently makes in the cognitive development of very young children. This should be the top priority for new spending in public education.
2. Take advantage of the opportunity provided by No Child Left Behind (NCLB) to better utilize accountability reforms to improve outcomes for poor children. NCLB was enacted in 2001 with bipartisan support, although it has received considerable criticism in recent years. In our view, the debate over the existence of NCLB misses a fundamental lesson we have learned about accountability in the past decade: the specific design of the program matters enormously. It would be a shame if the current (often legitimate) concerns with how NCLB has been implemented lead to a retreat from outcome-oriented accountability in education. Instead, we would recommend several changes to NCLB as well as co-existing state or district accountability systems: adopting common achievement standards across states, focusing accountability on student growth rather than proficiency levels, providing states and districts with the flexibility to focus limited resources on the neediest schools, and reconciling federal and state accountability systems.
3. Provide educators with incentives to adopt practices with a compelling research base while expanding efforts to develop and identify effective instructional regimes. One of the lessons from the accountability movement is that highly disadvantaged schools (and districts) often lack the capacity to change themselves. State and district officials should ensure that disadvantaged schools, particularly those that have continued to fail under recent accountability systems, adopt instructional practices and related policies with a strong research base. There is no need to reinvent the wheel. At the same time, the federal government could help spur such advantages through more focused research and development spending, and governments at all levels could help increase the supply of high-quality practices by requiring schools to use programs that have been rigorously evaluated.
4. Continue to support and evaluate a variety of public school choice options. Although we believe that the current evidence on the benefits of public school choice is limited, we also think that the risk associated with these policies is small so long as they are implemented in ways that do not substantially exacerbate school segregation along race or class lines. We encourage states to facilitate the expansion of magnet and charter schools, and to carefully evaluate the impact of these schools on the students they serve as well as the surrounding schools.

Most antipoverty policies focus on lifting adults out of poverty. These policies are often controversial because of an unavoidable tension between the desire to help people who have been unlucky and the motivation to encourage hard work and punish socially unproductive behavior. In contrast, successful education policies can not only help reduce poverty over the long term by making poor children more productive during adulthood, but also foster economic growth that expands the “pie” for everyone. Educational interventions also benefit from a compelling moral justification. Disadvantaged children should not be punished for the circumstances into which they are born, and improved education policy is one of the best ways to prevent this from happening. ■

¹This article draws upon “Improving Educational Outcomes for Poor Children,” in *Changing Poverty, Changing Policies*, eds. M. Cancian and S. Danziger (New York: Russell Sage Foundation, 2009).

²National Center for Education Statistics, “The Nation’s Report Card, Reading 2007: National Assessment of Educational Progress at Grades 4 and 8,” NCES 2007-496. U.S. Department of Education, Institute of Education Sciences.

³National Center for Education Statistics, “The Nation’s Report Card, Mathematics 2007: National Assessment of Educational Progress at Grades 4 and 8,” NCES 2007-494. U.S. Department of Education, Institute of Education Sciences.

⁴C. Jencks and M. Phillips, *The Black-White Test Score Gap* (Washington, DC: Brookings Institution Press, 1998). Note that these disparities in schooling outcomes along race and class lines are not simply due to immigration into the United States by those with low initial levels of English or other academic skills, since, for example, reading and math disparities in National Assessment of Educational Progress scores are large among fourth and eighth graders even between non-Hispanic whites versus non-Hispanic blacks (www.nces.ed.gov/nationsreportcard/nde, accessed on August 4, 2008).

⁵J. Ludwig, “The Great Unknown: Does the Black-White Test Score Gap Narrow or Widen through the School Years? It Depends on How You Measure,” *Education Next* (Summer 2007): 79–82.

⁶J. S. Coleman, E. Q. Campbell, C. J. Hobson, F. McPartland, A. M. Mood, F. D. Weinfeld, et al., *Equality of Educational Opportunity*, Washington, DC: U.S. Department of Health, Education, and Welfare, Office of Education/National Center for Education Statistics, 1966.

⁷See, for example, N. Glazer, “Education and Training Programs and Poverty,” in *Fighting Poverty: What Works and What Doesn’t*, eds. S. Danziger and D. Weinberg (Cambridge, MA: Harvard University Press, 1986), pp. 152–172.

⁸See, for example, C. Jencks, “Education and Training Programs and Poverty,” in *Fighting Poverty: What Works and What Doesn’t*, eds. S. Danziger and D. Weinberg (Cambridge, MA: Harvard University Press, 1986), pp. 173–179.

⁹See the book chapter for details of the evidence in support of these interventions.

¹⁰See, for example, E. I. Knudsen, J. J. Heckman, J. L. Cameron, and J. P. Shonkoff, “Economic, Neurobiological, and Behavioral Perspectives on Building America’s Future Workforce,” *Proceedings of the National Academy of Sciences* 103 (2006): pp. 10155–10162.

¹¹J. Ludwig and I. Sawhill, “Success by Ten: Intervening Early, Often and Effectively in the Education of Young Children,” Hamilton Project Discussion Paper 2007-02, Washington, DC: Brookings Institution.

¹²C. Jepsen, and S. G. Rivkin, “What is the Tradeoff between Smaller Classes and Teacher Quality?” NBER Working Paper 9205, National Bureau of Economic Research: Cambridge, MA, 2002.

¹³J. Rockoff, “The Impact of Individual Teachers on Student Achievement: Evidence from Panel Data,” *American Economic Review, Papers and Proceedings* 94, No. 2 (2004): 247–252.

¹⁴C. T. Clotfelter, H. F. Ladd, and J. L. Vigdor, “Teacher-Student Matching and the Assessment of Teacher Effectiveness,” *Journal of Human Resources* 41 (2006): 778–820.

¹⁵See, for example, D. Boyd, P. Grossman, H. Lankford, S. Loeb, and J. Wyckoff, “How Changes in Entry Requirements Alter the Teacher Workforce and Affect Student Achievement,” NBER Working Paper No. 11844, National Bureau of Economic Research: Cambridge, MA, 2005.

¹⁶Several other elementary school models show promise, including Direct Instruction (CRSQ 2006). One of the only other reform models that has been rigorously evaluated is the Comer Schools program, although one problem identified by the research is the limited degree of difference between Comer treatment schools and control schools in the implementation of Comer-style school practices. See T. D. Cook, H. Farah-Naaz, M. Phillips, R. A. Settersten, C. S. Shobha, and S. M. Degirmencioglu, “Comer’s School Development Program in Prince George’s County: A theory-based evaluation,” *American Educational Research Journal* 36 No. 3 (1999): 543–597. See also T. D. Cook, H. D. Hunt, and R. F. Murphy, “Comer’s School Development Program in Chicago: A Theory-Based Evaluation,” *American Educational Research Journal* 37 No. 2 (2000): 535–597.

¹⁷G. D. Borman, R. E. Slavin, A.C.K. Cheun, A. M. Chamberlain, N. A. Madden, and B. Chambers, “Final Reading Outcomes of the National Randomized Field Trial of Success for All,” *American Educational Research Journal* 44 No. 3 (2007): 701–731.

¹⁸There has been little research on teacher “demand” policies. One reason is the perception that disadvantaged school districts are in a state of perpetual shortage, and thus hire anyone that walks through the door. In reality, while there are often shortages in certain subjects and grade levels, many disadvantaged districts have an ample supply of teachers for most positions. For example, the Chicago Public Schools regularly receives 10 applications for each position.

¹⁹See, for example, S. Glazerman, T. Silva, N. Addy, S. Avellar, J. Max, A. McKie, et al., “Options for Studying Teacher Pay Reform Using Natural Experiments,” No. ED-04-CO-0112/0002, Mathematica Policy Research, Inc.: Washington, DC, 2006.

²⁰R. Murnane, and D. Cohen, “Merit Pay and the Evaluation Problem: Why Most Merit Pay Plans Fail and a Few Survive,” *Harvard Educational Review* 56 (Spring 1986): 1–17.

²¹M. G. Springer, D. Ballou, and A. Peng, “Impact of the Teacher Advancement Program on Student Test Score Gains: Findings from an Independent Appraisal,” National Center on Performance Incentives Working Paper No. 2008-19, Vanderbilt University: Nashville, TN, 2008.

²²E. A. Hanushek and M. E. Raymond, “Does School Accountability Lead to Improved Student Performance?” *Journal of Policy Analysis and Management* 24 No. 2 (2005): 297–327.

²³If the administrators and teachers in a public school that loses half of its students to a nearby charter school continue teaching the smaller group of students, or are merely reassigned to other schools in the district, they may not change their practices despite the pressure exerted by the nearby charter.

²⁴This point is made by both D. A. Neal, “How Vouchers Could Change the Market for Education,” *Journal of Economic Perspectives* 16 No. 4 (2002): 25–44; and by H. F. Ladd, “School Vouchers: A Critical View,” *Journal of Economic Perspectives* 16 No. 4 (2002): 3–24.

²⁵E. A. Hanushek, J. F. Kain, and S. G. Rivkin, “Why Public Schools Lose Teachers,” *Journal of Human Resources* 39 No. 2 (2004): 326–354.

²⁶For an extensive review of the segregation literature, see J. Vigdor and J. Ludwig, “Segregation and the Black-White Test Score Gap,” in *Stalled Progress*, eds. K. Magnuson and J. Waldfogel (New York: Russell Sage Foundation, 2008).

²⁷E. O. Olsen, “Housing Programs for Low-Income Households,” in *Means-Tested Transfer Programs in the United States*, ed. R. A. Moffitt (Chicago: University of Chicago Press, 2003), pp. 365–442.