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State Takeover, School Restructuring, Private Management, and Student Achievement in Philadelphia

Brian Gill, Ron Zimmer, Jolley Christman, Suzanne Blanc

Supported by the Annenberg Foundation, the William Penn Foundation, and
the Accountability Review Council for the School District of Philadelphia

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Preface

Frustrated by a history of low student achievement and financial crises, the state of Pennsylvania took charge of the Philadelphia public schools in 2002. Within months of the takeover, a newly created School Reform Commission had launched the nation's largest experiment in the private management of public schools. The commission, which replaced the local school board, turned over 45 elementary and middle schools to seven private for-profit and nonprofit managers. In addition, the school district, under a new CEO, implemented wide-ranging and ambitious reforms in district-managed schools. This monograph examines student achievement outcomes for the district as a whole and for privately managed and district-managed "restructured" schools during the first four years after the takeover (through spring 2006).

This research has been conducted collaboratively by RAND Education (a unit of the RAND Corporation) and Research for Action. It was funded by the Annenberg Foundation, the William Penn Foundation, and the Accountability Review Council for the School District of Philadelphia. It is part of a larger body of RAND work addressing high-stakes accountability systems and strategies for school and district improvement.

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Summary

Introduction

In 2002, the state of Pennsylvania, frustrated by years of low achievement and a decade of budget crises in the School District of Philadelphia (SDP), took charge of the city's 200,000-pupil system. The state replaced Philadelphia's nine-member school board with an appointed School Reform Commission (SRC) composed of three members appointed by the governor and two appointed by the city's mayor. The SRC then hired a new CEO who immediately instituted sweeping changes, including the implementation of districtwide common curricula and a system of frequent benchmark assessments to be used for diagnostic purposes. More controversially, the SRC adopted a "diverse provider" model as it turned over management of 45 of the district's lowest-performing elementary and middle schools to seven for-profit and nonprofit organizations, including two local universities; the private managers were given additional per-pupil funding to support their work. For the last four years, Philadelphia has been the site of the nation's largest experiment in the private management of public schools. Philadelphia's experience may have implications for schools and districts across the country: State takeover and private management are two of the interventions that can be applied to chronically low-achieving schools and districts under the federal No Child Left Behind Act (NCLB).

In addition to privately managed schools, the diverse provider model in Philadelphia also included two groups of low-achieving schools that were given special support and/or funding while remaining under district management. At the same time the SRC brought in the private managers, it "restructured" an additional 21 low-performing schools, providing intensive staff support and extra per-student funding, and provided 16 other schools that were perceived as improving (and became known as the "sweet 16") with increased funding but no additional intervention.

This monograph analyzes achievement differentials associated with Philadelphia's privately managed, restructured, and sweet 16 schools, and examines whether different private providers had different effects. Prior to examining differences among treatments within SDP, it sets the context for analysis by examining districtwide achievement trends in the first four years following the state takeover (through spring 2006). This monograph does not aim to provide a rich and comprehensive assessment of all aspects of Philadelphia's school improvement efforts since 2002; it merely evaluates, to the extent possible, the achievement impacts of some of those efforts, as measured by results on annual assessments in reading and mathematics.

The Diverse Provider Model

Philadelphia's diverse provider model borrows from theoretical models by which districts promote internal competition through school choice and the establishment of clearly distinguished alternatives, but the district's implementation diverged from the theory in important ways. The Philadelphia model was characterized by little competition among providers and by the absence of parental choice among the educational models offered. In addition, continued district involvement in provider schools and mandated districtwide initiatives constrained provider autonomy. As a result, the providers' education improvement strategies looked more similar than might have been predicted. Consequently, Philadelphia's experience should not be viewed as a definitive test of private management under competitive conditions.

Districtwide Achievement Trends in Philadelphia

The proportion of elementary and middle-school students achieving proficiency in reading and math has increased substantially in Philadelphia in the years since the state takeover, according to the state achievement test (the Pennsylvania System of Student Assessment, or PSSA). From the 2001–2002 school year to the 2005–2006 school year, an additional 11 percent and 23 percent of students reached proficiency in fifth-grade reading and math, respectively. Similarly, an additional 20 percent and 19 percent of students reached proficiency in eighth-grade reading and math, respectively. (We use fifth- and eighth-grade reading and math proficiency levels because these two grades were tested consistently in both subjects across the time horizon of the study.)

Whether those improvements exceed the gains of similar schools elsewhere in Pennsylvania and whether they can be attributed to the interventions implemented by the SRC since 2002 are harder questions. We gauge the impact of the SRC's interventions by comparing the proficiency results, before and after the state takeover, of schools in Philadelphia to those of a comparison group of schools elsewhere in Pennsylvania. This is necessarily an imperfect analysis because it must rely on imprecise, school-level achievement results and because there are no other school districts in Pennsylvania quite like SDP. The results therefore require caution in interpretation.

Although it is impossible to find perfect matches for Philadelphia schools elsewhere in Pennsylvania, we can reduce the differences between Philadelphia and the comparison schools by examining only schools in which achievement results were in the state's lowest quartile in both 2001 and 2002, immediately prior to the creation of the SRC. This includes most of Philadelphia's elementary and middle schools.

An examination of net improvements over the four-year period since the state takeover of the district shows that Philadelphia's low-quartile schools outgained low-quartile comparison schools by a statistically significant margin in eighth-grade reading. In fifth-grade reading, fifth-grade math, and eighth-grade math, the four-year gains among Philadelphia's low-quartile schools, as compared with pretakeover baseline scores, were indistinguishable from the gains of low-quartile schools elsewhere in Pennsylvania.

In sum, Philadelphia has seen substantial districtwide gains in the proportion of students achieving proficiency since the 2002 state takeover. But after four years, the gains of its low-

achieving schools (constituting most of the schools in the district) have generally not exceeded the gains of low-achieving schools elsewhere in Pennsylvania.

Achievement Effects of Diverse Providers

Turning to the diverse provider model, we examine how the change in management affected the achievement of students in the privately managed, restructured, and sweet 16 schools. Each of these management models can be viewed as a “treatment,” for which it is possible to examine effects on students in treated schools. We examine the achievement of students in schools under different treatments, before and after the state takeover, and compare their trends with the trends of other students in Philadelphia. This “fixed-effect” approach allows each student to serve as his or her own control, thereby factoring out characteristics of students (such as race, ethnicity, and other unchanging family and student characteristics) that may affect student achievement results. It also allows each *school* to serve as its own control, which is particularly important because schools were selected for treatment because they had a history of low achievement.

The major findings of the analysis of achievement effects under the diverse provider model in its first four years of operation are as follows:

- Sweet 16 schools: There were no statistically significant effects, positive or negative, in reading or math, in any of the four years in which they received additional resources.
- Privately managed schools (as a group): There were no statistically significant effects, positive or negative, in reading or math, in any of the four years after takeover.
- Restructured schools: There were significantly positive effects in math in all three years of implementation and in reading in the first year. In the fourth year, after the Office of Restructured Schools had been disbanded and the additional resources for the schools had ceased, the former restructured schools maintained a substantial (though only marginally statistically significant) effect in math.

In short, after four years of intervention, achievement gains in privately operated schools and sweet 16 schools, on average, are no different from SDP districtwide gains. Meanwhile, restructured schools outgained the rest of the district in math in all three years of restructuring, with evidence that the gain persisted a year after the conclusion of restructuring. These positive effects for restructured schools in math (ranging from 0.16 to 0.22 standard deviations) are moderate to large in size, when compared with effects seen in educational interventions generally.

When grouping the external managers as universities, other nonprofits, and for-profits, we find no statistically significant effects, positive or negative, of any of the three provider types. Results for individual providers likewise show few statistically significant effects, though two providers show cause for concern: Four-year results were significantly and substantially negative for Temple University schools in both subjects and for Victory schools in math.

We find no clear indications of any notable differences in effects on particular at-risk subgroups of students, such as special education students or those with limited English skills.

Conclusions and Implications

Different interpretations of the results of this study may lead to different judgments about whether Philadelphia's experiment in the private management of public schools has succeeded and whether it should be continued. On the negative side of the ledger, despite additional per-pupil resources, privately operated schools did not produce average increases in student achievement that were any larger than those seen in the rest of the district. Meanwhile, district-managed restructured schools outpaced the gains of the rest of the district in math.

Nonetheless, it is impossible to know definitively how the privately managed schools would have done if they had been restructured or remained under conventional district management. Whether the district could have replicated the gains of the restructured schools in three times as many schools—as it would have needed to do if the 45 schools turned over to private management had been restructured instead—is an open question. The private managers were given some of the lowest-achieving schools in the district. Although their trajectories did not exceed those of the district, they improved alongside the rest of the district at a time when achievement levels districtwide were increasing substantially. We found little reason to believe that the districtwide improvement was a consequence of competition from private providers, but we cannot rule out the possibility that the assistance from private providers was an important part of the total reform effort in Philadelphia.

Even so, although it is theoretically possible that the introduction of the providers increased districtwide capacity for improvement and that the schools they managed would have done worse without them, we find no evidence supporting this view. If the privately managed schools had remained under district management instead, it seems likely that the district could have replicated the gains of other schools that received no special interventions—getting results similar to those actually achieved by the private providers without expending additional resources. *In sum, with four years of experience, we find no evidence of differential academic benefits that would support the additional expenditures on private managers.* The private managers may be producing other benefits that are not measurable in terms of student achievement results in math and reading, but that question is beyond the scope of this study.

The larger implications of this study's findings for the most aggressive sanctions of NCLB are less clear. With respect to state takeover, results are ambiguous: Subsequent to the state's takeover of the district, proficiency percentages increased districtwide, but the total increase over four years was not substantially greater than the increase of other low-achieving schools in the state, in most cases. Philadelphia provides no evidence to support private management as an especially effective method of promoting student achievement, but it does not represent a clear test of full private management in a competitive market. Whether a model of private management that involves more autonomy to managers, parental choice, and competition for students would produce better results remains an open question.

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Abbreviations

AYP	adequate yearly progress
EMO	education management organization
IEP	individualized education program
K-x	kindergarten through x grade, where x is a school grade (third, eighth, ninth, or twelfth)
LEP	limited English proficiency
NCLB	No Child Left Behind Act
ORS	Office of Restructured Schools
PSSA	Pennsylvania System of Student Assessment
SDP	School District of Philadelphia
SRC	School Reform Commission

Introduction

In response to years of poor academic achievement and perennial fiscal crises, the state of Pennsylvania ousted Philadelphia's local school board in 2002 and replaced it with an appointed School Reform Commission (SRC). The SRC hired a new CEO, Paul Vallas, who immediately instituted sweeping changes, including the implementation of districtwide core curricula and a system of frequent benchmark assessments to be used for diagnostic purposes. More controversially, the SRC adopted a "diverse provider" management model and turned over 45 of the district's lowest-performing schools to seven for-profit and nonprofit organizations, including two local universities and Edison Schools, Inc., the nation's largest for-profit education management organization (EMO). The aim was to capitalize on the know-how of the private sector to improve the performance of the city's lowest-achieving schools. For the past four years, Philadelphia has been the site of the nation's largest experiment in the private management of public schools.

The diverse provider model also included two groups of low-achieving schools that were given additional resources while remaining under district management. At the same time private managers were brought in for 45 schools, 21 other low-achieving schools were "restructured" under district management, with intensive professional development and close oversight. In addition, 16 schools were given additional resources (as were the privately managed and restructured schools) without any management intervention. In total, 86 low-achieving schools were given some sort of special treatment or new management under the diverse provider model.¹

Philadelphia's diverse provider model is of national importance for several reasons. First, rather than limit outsourcing to noneducational work, such as janitorial or cafeteria services, this outsourcing involves the core functions of public schools: the design and delivery of education programs. Second, the scale of private management in Philadelphia—involving 45 schools—is far greater than in any other district in the nation to date. Third, Philadelphia offers a window into what could happen in other low-achieving schools around the country in response to the accountability directives of the federal No Child Left Behind Act (NCLB).

State takeover, school restructuring, and private management are three of the interventions that NCLB advises for chronically low-achieving schools. NCLB—the most ambitious

¹ This monograph examines 82 of the 86 schools, excepting the four schools that were "transitional" charter schools. See Herold and Riffer (2005) for a complete breakdown.

federal intervention in primary and secondary education in the nation's history—requires states to create high-stakes testing systems that provide for progressively stronger interventions in schools and districts that fall short of achievement standards. Few schools and districts across the country have yet reached the phase of NCLB that involves state takeover, school restructuring (including the replacement of principals and teachers), and private management, but many will soon be subject to such interventions. In Philadelphia, the interventions were imposed by the state well in advance of the NCLB requirement. Philadelphia therefore may provide an early test of some of the most aggressive interventions of NCLB.

There is yet little rigorous evidence on the impact in Philadelphia of the diverse provider model and of the districtwide changes implemented since the state takeover. Publicly available school- and district-level results indicate that test scores have risen across the district—in conventionally managed district schools, in restructured schools given special attention by the district, and in the privately managed partnership schools. But districtwide trends have not been compared systematically to achievement trajectories of schools elsewhere in Pennsylvania, and publicly available school-level test results provide only limited and crude information about the academic effectiveness of different providers and interventions within Philadelphia. Only one study has used student-level data to examine differences in achievement trajectories of schools operated by different providers in Philadelphia, and that study had access to achievement results in only two grades, permitting an assessment of trends from only fifth grade to eighth grade (see MacIver and MacIver, 2006).

This monograph uses longitudinal, student-level achievement data provided by the School District of Philadelphia (SDP) to examine differential achievement effects in the 45 privately operated schools, in the 21 schools that were restructured and given additional resources in 2002, and in the 16 schools (known as the “sweet 16”) that received additional resources but no other specific intervention. Prior to examining differences among “treatments” within Philadelphia, this monograph sets the context for the analysis by using statewide school-level achievement data to assess whether Philadelphia's schools, districtwide, were in fact improving at greater rates than were comparison schools in the first three years following the state takeover. Specifically, the study addresses the following research questions:

1. How have districtwide achievement levels in Philadelphia changed since 2002, both in absolute terms and relative to other low-achieving schools in Pennsylvania?
2. In the schools selected for intervention, what have been the effects on student achievement in each of the first four years of treatment? Have any of the treatment types (private management, restructuring, and sweet 16 classification) produced results that differ significantly from those of the rest of the district? Among private providers, have particular types (for-profit, university, and other nonprofit) or particular individual providers produced positive or negative effects compared with the rest of the district?
3. Have any of the different treatments produced differential effects on particular populations of disadvantaged students, including racial or ethnic minorities, students with limited English proficiency, or students receiving special education services?

This monograph does not aim to provide a rich and comprehensive assessment of all aspects of Philadelphia's school improvement efforts since 2002; it merely evaluates, to the extent possible, the achievement impacts of some of those efforts, as measured by results on annual assessments in reading and mathematics. Other outcomes may well be of interest to policymakers and the public, and readers should keep in mind the narrow focus of the research presented here.

This monograph is organized as follows: Chapter Two describes Philadelphia's policy changes in greater detail, relating the history of the state takeover, the districtwide changes implemented since 2002, and characteristics of each of the private providers. Chapter Three presents the analysis of Philadelphia's districtwide achievement trends relative to the rest of Pennsylvania since the state takeover (i.e., the results of the first research question). In Chapter Four, we turn to the analysis of differential achievement effects of privately managed schools, restructured schools, and sweet 16 schools (i.e., the second and third research questions). Chapter Five presents conclusions and implications.

The Diverse Provider Model and School Reform in Philadelphia, 2002–2006

The Seeds of the Diverse Provider Model

The diverse provider model in Philadelphia is one result of a long history of political conflict between the state and city governments. As state funding for Philadelphia schools declined in the 1990s—despite rising enrollments in the 200,000-student system—then-Superintendent David W. Hornbeck went so far as to label the state’s funding policies as racist, thus alienating state officials and some of the city’s prominent corporate leaders. While leaders within the Republican-controlled legislature and governor’s office maintained that market-driven models of education could invigorate the public education system, Hornbeck did not share their confidence in market remedies (Christman and Corcoran, 2002). In 1998, a standoff over funding led to legislation—directed at Philadelphia—that permitted state takeover of any district in financial and/or academic distress (Boyd and Christman, 2003; Maranto, 2005). In May 2000, the legislature passed additional takeover legislation affecting Philadelphia and ten other school districts in which students performed poorly on state assessments; one month later, Superintendent Hornbeck resigned.

In the summer of 2001, Pennsylvania Governor Tom Ridge hired Edison Schools, the nation’s largest for-profit EMO, to review district operations and make recommendations for improvements and reorganization. In a 2006 interview, Charles Zogby, Governor Ridge’s former secretary of education, explained the state’s perspective: “More than 150 [Philadelphia] schools had over 50 percent of their students performing at the below basic level [on the state assessment]. . . . We believed that there was not the capacity on the ground to turn that situation around. We needed outside expertise. . . . We believed that the private sector could do a better job” (Zogby, 2006).

In October 2001, the state’s new governor, Mark Schweiker, who took office when Governor Ridge was appointed head of the U.S. Department of Homeland Security, announced a plan for state takeover of Philadelphia schools that drew heavily on Edison’s report. The plan called for Edison to run many functions of the district’s central office and to manage 60 low-performing schools (Schweiker, 2001; Maranto, 2005).

Student and community groups reacted strongly against Edison and privatization of the school district. Their protests gave Democratic Philadelphia Mayor John Street leverage to renegotiate the terms of the takeover. The original plan called for the replacement of the school board with a newly established SRC comprising four gubernatorial appointees and one mayoral appointee. Street negotiated a shifting of one appointee from the governor to the mayor

and struck a deal in which the state would release approximately \$75 million to the district while the city agreed to release \$45 million and approve a \$317 million bond issue.

Against this contentious backdrop, the SRC solicited proposals from other private school management organizations to provide alternatives or additions to Edison. For some educators and policymakers, the idea of multiple providers was a pragmatic compromise to the volatile political arguments over school funding and accountability that had dominated city-state politics for years.

While national EMOs and local nonprofit organizations were preparing their proposals, district staff prepared a plan for an internal district reform model. In spring 2002, the SRC selected seven external providers to manage 45 low-achieving schools. The SRC also designated 21 schools for “restructuring” in accordance with the district’s internally generated model. In the view of the SRC, the restructured schools were low performing, but not as low achieving, on average, as the 45 assigned to external providers (SRC, 2002), a view confirmed by the achievement data, as demonstrated in Chapter Four. The restructured schools were put under the control of a newly created Office of Restructured Schools (ORS).

In July 2002, the SRC hired Paul Vallas, former CEO of the Chicago public schools, to take the helm in Philadelphia. Vallas and the SRC demanded that a portion of the state funds designated for private providers be distributed more widely to district-run schools and efforts. After much debate, an agreement was reached to direct \$37.5 million to 86 schools identified for special intervention, including the 45 privately managed schools, 21 ORS schools, and 16 schools identified as low performing but showing improvement (the sweet 16).

On July 31, 2002, just over a month before the schools were to open for the school year, five-year contracts were issued to three for-profit companies (Edison Schools, Victory Schools, and Chancellor Beacon Academies) and two nonprofit organizations (Foundations and Universal Companies) allotting \$650 to \$881 per pupil in additional funds. Three-year memorandums of understanding were signed with Temple University and the University of Pennsylvania for \$450 in additional per-pupil funding. (See Table 2.1 for a summary of the providers, the number of schools assigned to each, and the additional per-pupil funding received in the first three years of the diverse provider model.)

While the university providers received flat funding of \$450 per pupil, additional funding for other private providers was derived from a formula using three components: (1) a teacher differential to provide supplemental funding equal to the total difference between the district’s average teacher salary and the actual teacher salaries for that school; (2) a per-pupil equity supplement that was calculated on the basis of ensuring a full complement of staff, providing on-site coaching and mentoring for teachers, enhancing student support services, and purchasing enhanced classroom materials and technology; and (3) funds needed to cover the fair share of EMO administrative costs that would otherwise have been covered by the district. The restructured and sweet 16 schools received additional funding under the same formula for the first two of these components. Additional funding for restructured schools terminated with the dissolution of the ORS at the end of the 2004–2005 school year; sweet 16 schools and privately managed schools continued to receive additional funding through 2005–2006, as shown in Table 2.1.

Table 2.1
Provider Summary

Provider	Provider Type	Extra Per-Pupil Funds, 2002–2003 (\$)	Extra Per-Pupil Funds, 2005–2006 (\$)	Number of Schools, 2002–2003	Number of Schools, 2005–2006
Edison Schools, Inc.	For profit	881	750	20	22
Victory Schools, Inc.	For profit	857	750	5	6
Chancellor Beacon Academies, Inc.	For profit	650	n/a	5	0
Foundations, Inc.	Nonprofit	667	750	5	6
Universal Companies, Inc.	Nonprofit	656	750	3	3
Temple University	University	450	450	5	4
University of Pennsylvania	University	450	450	3	2
Office of Restructured Schools	District	550	0 ^a	21	0
Sweet 16	District	550	450	16	15

NOTE: n/a = not applicable due to the termination of the contract with Chancellor Beacon Academies after the 2002–2003 school year.

^a Intervention concluded 2004–2005.

The specific method by which schools were assigned to specific providers or to restructuring was not made explicit by the SRC, but the general understanding was that private providers were given the lowest-achieving schools in the district, while restructured schools were slightly higher achieving. This perception is confirmed by data on student achievement, as we describe in the next chapter.

The Diverse Provider Model in Theory and in Practice

The theoretical literature on the diverse provider model in education, for which Paul Hill is the most notable proponent, describes flexible, competitive school marketplaces in which districts manage a varied portfolio of schools, providers have wide rein to innovate, and both are held accountable for student outcomes by strong contracts and through the availability of meaningful choices for students and parents (Hill, 2002, 2006). It diagnoses urban school failure as the result of a lack of sound management practices by district and school leaders, union contracts that impose narrow work restrictions, and a rigid professional bureaucracy that eschews innovative practices. As an alternative, Hill proposes a diverse provider model that has the following key features (Hill, 2002, 2006):

- Districts build portfolios of schools, which may include charter schools, district-run schools, and schools managed by external providers with which the district contracts.

- Districts select and assign providers based on a match between the strengths of the providers and the needs of students.
- Districts write and monitor provider contracts, which include clear performance indicators and performance measures.
- Providers receive fixed per-pupil amounts and have increased budgetary discretion.
- Providers, not districts, employ their teachers and principals.
- Quality options and meaningful choice exist for students and families.

The financial and educational viability of a contracting model is not a settled matter (see, for example, Lamdin, 2001; Levin, 2002). But research suggests that, if external partnerships are to succeed, certain conditions are necessary. Research on the role and contributions of external partners in school improvement indicates that the value of the partnership depends in large part on the level of relevant knowledge and experience of the outside partner (American Institutes for Research and SRI International, 2004; Wasley et al., 2000). Research also shows that the quality and collaboration of school district administration matters in making such cross-sectoral collaborations work (Cohen, 2001; Berends, Bodilly, and Kirby, 2002). Districts must pay close attention to developing a systemwide environment that truly supports school partnerships with external organizations. They must remove bureaucratic obstacles, monitor performance, ensure that partnerships are sustainable despite turnover of school and district administrators, and create a productive tension between centralization and autonomy. Finally, research suggests that districts must also get to know each external partner well so that they can capitalize on the strengths of each organization and mitigate the weaknesses. The Philadelphia model's likelihood of creating successful and diverse educational options was dependent, to a large extent, on the district's flexibility and vigilance in managing its relationships with the private sector.

In practice, the diverse provider model in Philadelphia departed from the theoretical model in several important ways.¹

Limited Competition and Choice

Initial competition among private providers was constrained by the fact that few experienced organizations applied for contracts with the district. Operationally, competition was further constrained by the fact that, although schools had new managers, they kept the same students and the same neighborhood attendance zones. The absence of parental choice in selecting schools and providers represented a fundamental departure from the theoretical model. Additionally, there was not meaningful public input into the selection of education providers; families and community members had no voice in decisions about which provider would be paired with their neighborhood school.

Constraints of "Thin Management"

SDP describes its approach to outsourcing as "thin management." Under thin management, schools were not turned over lock, stock, and barrel to providers, as would happen in the ideal

¹ These findings are described in greater depth in Christman, Gold, and Herold (2006).

diverse provider model. In response to legal, political, and administrative concerns, the district retained responsibility for staffing, facilities management, school safety, food services, the overall school calendar, decisions about holiday closures, altering grade configurations, and teacher and student codes of conduct. Regional instructional support staff in the district continued to provide support to privately managed schools after the management change.

Most importantly, the principals and teachers in provider schools remained district employees. Providers had joint authority with the district over the appointment of principals in the schools they managed. Departures (voluntary and forced) of popular principals who did not want to serve in externally managed schools further increased instability as teacher turnover in some schools soared. Teacher transfer rates shot up in schools assigned to Edison (from 19 percent to 40 percent), Victory (17 percent to 40 percent), and Universal (14 percent to 36 percent) (Neild, Useem, and Farley, 2005; Spiridakis, 2003).

However, unions representing teachers and principals did not mount a vigorous public campaign against privatization, and the providers agreed to honor the district's union contracts, including provisions for salaries, teacher transfer policies, time allotted for professional development and meetings, working conditions, and other rules. Providers also followed the district's highly centralized and cumbersome procedures for hiring new teachers. Not surprisingly, restrictions on providers' authority created ambiguity and inevitable conflicts about lines of authority (Bulkley, Mundell, and Riffer, 2004; Gill et al., 2005).

Strong Influence of Districtwide Initiatives

Upon his arrival in the summer of 2002, CEO Vallas immediately initiated a series of centralized reforms designed to improve the performance of the entire district. Vallas modernized efforts to hire and retain qualified teachers, began an ambitious program of school construction and renovation, and pushed vigorously for upgraded curriculum and instruction (see Table 2.2 for a summary of the Vallas-SRC reforms that coincided with the emergence of the diverse provider model). These districtwide initiatives were accompanied by a balanced budget and increases in district revenues and expenditures. While provider schools received extra per-pupil funds of \$450 to \$881, there was also an overall increase in districtwide per-pupil spending of around \$1,900 between 2002 and 2005.

Many of the new initiatives—such as the zero-tolerance discipline policy, intervention or assistance teams for low-performing schools, mandated extended-day and summer school for poorly performing students, and the dismantling of middle schools in favor of K–8 schools—applied equally to all schools, including those operated by private providers. The district also developed a K–8 core curriculum in English and language arts, mathematics, science, and social studies with six-week benchmark tests assessing student mastery in all areas except social studies. This curriculum was adopted in some or all subject areas by most providers. A reduction in class size in early grades was another key reform initiated by the district and was also implemented by most of the providers.

Table 2.2
Calendar of Initiatives

Initiative	School Year Enacted
Zero-tolerance disciplinary policy, including a uniform discipline code and new emphasis on placement of disruptive students in alternative disciplinary schools	2002–2003
Mandatory extended-day and summer school programs	2002–2003
Dramatic increase in teacher recruitment and retention efforts	2002–2003
Districtwide reduced class size for mathematics and literacy instruction, grades K–3	2003–2004
Expanded preschool programs	2003–2004
Establishment of districtwide core curriculum, grades K–9	2003–2004
Introduction of districtwide instructional management system, including benchmark assessments, grades 3–9.	2003–2004
Escalated initiatives to train and support current and aspiring principals	2003–2004
Initial implementation of plan to create K–8 schools to replace large middle schools	2003–2004
Expanded site-based hiring of teachers through new collective bargaining agreement with Philadelphia Federation of Teachers	2004–2005

Diversity and Autonomy Within the Diverse Provider Model

The diverse provider model brought together organizations with different motivations and agendas; different capacities, histories, and cultures; and different levels of investment in the experiment. Research on alliances between the public and private sectors suggests that the distinctive missions and interests of the different economic sectors—public, for-profit, and nonprofit—shape their respective contributions to any alliance (Wohlsetter et al., 2004). This research notes that effectively managing complex cross-sectoral alliances, such as the diverse provider model, poses significant challenges. These challenges are not addressed in the theoretical model proposed by Hill and his colleagues, which posits that school districts’ primary role should be to monitor the performance of schools operated by third parties (see Hill, 2006). In contrast, the literature about public-private alliances describes the public sector as still a relative novice in determining how to make the new systems work (Wohlsetter et al., 2004).

Three years of qualitative research on a sample of ten schools across all management providers suggests that thin management and the district’s own initiatives have created an environment in which the reforms of the school district shape provider schools as much as or more than the demands and initiatives of the individual providers (Christman, Gold, and Herold, 2006).

In contrast to the theoretical model, Philadelphia’s approach to consumer choice, outsourcing, and mandated districtwide initiatives, together with the directives of NCLB, constrained provider autonomy. As a result, the education improvement strategies of the providers looked more similar than might have been predicted. To illustrate some of the organizational

variation within Philadelphia's diverse provider model, we provide snapshots of the original providers.

For-Profit Education Management Organizations

Edison Schools. Edison Schools is the nation's largest EMO. At the time that it began operations in Philadelphia, it managed approximately 100 schools nationwide (Gill et al., 2005). Of the EMOs, Edison had the most riding on both its performance and the ultimate success of the diverse provider model. It entered the Philadelphia market just as the firm was receiving harsh criticism for its performance in other states and on Wall Street. Philadelphia became a test case for Edison's financial and educational viability.

Edison entered its assigned schools with well-developed literacy and mathematics curricula and a sophisticated system of computer-based benchmark assessments for tracking student achievement. Of all the providers, Edison has the most distinct curricula and the most clearly defined expectations for principals and other members of school leadership teams. In literacy, Edison uses *Success for All*, a reading curriculum that focuses on phonics, phonemic awareness, vocabulary, and comprehension. For elementary-school students, Edison uses *Everyday Mathematics*, the same curriculum as the district; in the middle grades, it employs a different, more traditional mathematics program than the district. All Edison schools have literacy curriculum coordinators (fully released from teaching requirements) and mathematics curriculum coordinators (release time varies) who attend monthly professional development with Edison's Philadelphia content experts and provide information and materials to the classroom teachers.

Victory Schools. Victory Schools is a small, privately owned, for-profit school management organization with operations in New York and Baltimore. Victory recruited a former district employee who had helped design the diverse provider model to head its Philadelphia effort during the first year. Since then, Victory's partnership has been led by a national expert in gender-specific approaches to education. In Philadelphia, Victory has made an early literacy program and single-sex classrooms its hallmark. Since becoming a manager in the Philadelphia system, Victory adopted many elements of the district's curriculum. Victory also uses *Step-Up-to-Writing*, is the only provider with a comprehensive writing program, and introduced a new benchmark system during the fall of 2006. Victory's staff provide professional development for teachers and leadership teams at its schools, collect weekly instructional reports from teachers, and review online student benchmark data. In addition to the support provided directly by Victory, its schools have been restructured into multigrade academies designed to foster learning communities for both students and staff. Victory is also the only provider that has pursued single-sex classrooms and schools.

Chancellor Beacon Academies. At the time of the state takeover, Chancellor Beacon Academies was the nation's second-largest privately owned, for-profit EMO, but it was far behind Edison in the number of schools it managed. The district canceled its contract with Chancellor Beacon Academies after the first year based on reports by school staff that the group was not developing a strong presence in the schools.

Nonprofit Providers

Foundations. Foundations designs and runs after-school programs across the country and provides technical assistance to charter schools. Of all the providers, Foundations had the most knowledge of the district and its operations. The organization's founder, Rhonda Lauer, is a former associate superintendent in Philadelphia, and many of its staff members are former employees of the district. Foundations views its involvement with the school district as supportive of the community development work of influential State Representative Dwight Evans, a strong proponent of charter schools and state takeover, with whom it had worked on other projects. Foundations schools used the district's literacy and mathematics curricula and implemented the core curricula and benchmarks when they became available. In contrast to most other providers, which put some emphasis on developing school-based content leaders, Foundations curricular coaches rotate among the Foundations schools. Other notable aspects of the Foundations program are *Success Maker*, a computer-based program in which students move through a series of math and literacy exercises at their own rate of progress, and an "advocate" program that provides the lowest-performing students with additional individualized attention.

Universal Companies. Universal Companies is a community development corporation founded and led by rhythm-and-blues music mogul Kenny Gamble. Universal Companies embraced the management of local schools as part of an overall effort to spark neighborhood improvement. It brought a deep knowledge of the local community and a strong web of relationships to its work with the schools. However, Universal Companies had limited school management experience and needed to build a staff that could lead its educational efforts. Janice Butler, a former Philadelphia district administrator, became the executive vice president of education at Universal Companies. Retired Philadelphia teachers and principals serve as consultants and coaches in the Universal schools. In its overall approach to school improvement, Universal Companies most resembles the school district. It adopted the district's core curriculum and encourages schools to follow the curriculum closely. Likewise, its use of the district's benchmark assessment system is central to its strategy for improving student achievement. In addition, Universal schools participate in the *100 Book Challenge*, a program designed to encourage students' independent reading that involves activities in both the classroom and at home. Universal's *Homelinks* provides parents and guardians with training and materials to help their children with homework assignments that are aligned with the Pennsylvania System of Student Assessment (PSSA) tests.

University Providers

As powerful stakeholders in their neighborhoods, two local universities joined in Philadelphia's public schools experiment. Temple University, a state-assisted university in North Philadelphia, and the University of Pennsylvania, a private research university in West Philadelphia, have historical connections to schools in their immediate neighborhoods and view their involvement with the diverse provider model as congruent with goals of community revitalization. Both use neighborhood schools as laboratories for training student teachers and providing research and development opportunities for faculty. In contrast to the for-profit providers, the University of Pennsylvania and Temple University are considerably less invested in

the diverse provider model as a strategy for urban school reform. They describe their role more in terms of service provision—curriculum development, professional development for teachers and administrators, tutoring for students—than as school managers. As a result, they sought less management authority than did other providers.

Temple University. The leading supplier of Philadelphia teachers, Temple aims to raise student achievement in its partnership schools by improving the quality of instruction in reading and math. The university developed the *Temple Literacy Framework* as a central element of its improvement effort. Like the district’s literacy curriculum, the Temple framework uses a “balanced approach” to literacy that incorporates both phonics and “whole language” strategies, but the Temple program insists that students work at their instructional level rather than at their grade level in all phonics and reading activities. Temple Partnership schools use the district’s core curriculum in other subject areas. Temple staff and consultants from nearby Drexel University’s Math Forum—a leading provider of math learning and teaching resources—provide in-depth professional development and classroom coaching in mathematics, and students receive the forum’s online math problem of the week. Teachers have access to courses in literacy and math education at Temple. Acting on the belief that healthy children learn best, Temple also runs Surroundcare, with university faculty and students in medicine, nursing, social work, and counseling psychology providing services in the schools.

University of Pennsylvania. The University of Pennsylvania’s approach to school improvement emphasizes the importance of teacher leadership and a strong professional community in which there are high expectations for teachers’ continuing education. Teachers in its partner schools signed an agreement to participate in at least 80 hours of professional development per year. Penn schools use the district’s core curriculum, though the university developed extensive supplementary materials for literacy instruction. University staff provide on-site support, meeting regularly with school-based teacher leaders and leading grade group meetings; modeling lessons; and leading and contributing to group meetings, professional development sessions, and study groups of teachers. Much of its work is focused on the use of formal and informal assessments of student learning that can show teachers what content their students have mastered and where they continue to struggle.

Restructured Schools

The district also designated 21 schools (17 elementary and four middle schools) as “restructured.” These low-performing schools were subject to district-developed interventions under the supervision of a newly created ORS. For these 21 schools, the district expended an additional \$550 per pupil. By using the restructured schools to pilot district-designed interventions, the district, in effect, created a comparison group against which the success of the external providers could be measured.

The intervention in the restructured schools began in the summer of 2002 with intensive professional development for their principals and leadership teams. That fall, the restructured schools were the first in the district to implement the newly developed core curriculum in literacy and mathematics, as well as the first to use the district’s bimonthly benchmarks. The ORS also stressed the use of other assessments to monitor student growth in reading. Every ORS school was assigned an assistant principal and one or more rotating coaches who

worked with teachers and leadership teams to use data for school improvement. In addition, teachers in ORS schools initially received monthly professional development during school hours; mathematics and literacy leaders also participated in professional development provided by regional content coaches.

In sum, restructuring in Philadelphia involved a focused educational program supported by a new diagnostic assessment system and several types of central and school-based professional development. This contrasts with restructuring as contemplated by NCLB, which anticipates “significant changes in the school’s staffing and governance” that might involve wholesale replacement of staff and programs, converting the school to a charter school, or allowing a private manager to take over (NCLB, 2002). Most of Philadelphia’s restructured schools did not experience large-scale changes in teachers or principals, unlike the kinds of “reconstitutions” that appear to have been the model for restructuring under NCLB (see, for example, Rice and Malen, 2003; Rice and Croninger, 2005). The restructured schools in Philadelphia therefore represent an important treatment to examine in contrast to privately managed and sweet 16 schools, but they do not represent a clear test of the more aggressive intervention of restructuring under NCLB.

Table 2.3 presents a timeline of the events leading up to the state takeover and implementation of the diverse providers model in the Philadelphia public schools.

Table 2.3
Timeline of State Takeover and Private Management in Philadelphia

Year	Event
1993	State freezes school funding formula
1995	New Superintendent Hornbeck begins Children Achieving reform Newly elected Republican Governor Ridge starts first of three major (unsuccessful) pushes for school voucher programs
1997	District, city, and community leaders file a lawsuit against the state contending that Pennsylvania does not provide a “thorough and efficient” education
1998	Hornbeck and city leaders “draw a line in the sand,” refuse to cut more programs—threatening to adopt an unbalanced budget District, city, and community leaders file a federal civil-rights suit against the state, arguing that the state’s funding practices discriminate against school districts with large numbers of nonwhite students Pennsylvania legislature responds by passing Act 46, a state takeover law aimed specifically at Philadelphia
1999	School district presents budget to city council with projected \$94 million deficit for 1999–2000 school year, refuses to make further cuts Heated mayoral race with education as a central issue
2000	New mayor, John Street, selects new school board, appoints the city’s first secretary of education Pennsylvania legislature passes and Governor Ridge signs Act 16—the Education Empowerment Act—a state reform and “takeover” bill affecting 11 school districts State takeover is averted through a financial settlement reached between SDP and the state Still facing a deficit, the school board cuts the budget and Superintendent Hornbeck resigns in protest

Table 2.3—Continued

Year	Event
2001	<p>School board adopts budget with \$216 million deficit, creating a new fiscal crisis with state takeover of the district possible</p> <p>Governor Ridge hires Edison Schools, for \$2.7 million, to make recommendations for state takeover</p> <p>Ongoing student and community protests against privatization of schools</p> <p>Governor Ridge joins the Bush administration as director of U.S. Department of Homeland Security</p> <p>Lieutenant Governor Schweiker becomes governor and presents takeover plan drawn heavily from Edison report calling for private management of up to 60 schools</p> <p>Strong community opposition prompts Governor Schweiker to negotiate a new plan; the state takeover becomes a “friendly takeover” negotiated between Mayor Street and Governor Schweiker, includes additional funds; agreement promises \$75 million from the state and \$45 million from the city for Philadelphia schools</p> <p>City agrees to put a hold on the federal civil rights suit against the state charging discrimination.</p> <p>Five-member SRC appointed to replace school board (three gubernatorial and two mayoral appointees)</p>
2002	<p>Public opposition to Edison’s extensive role in proposed reforms continues</p> <p>SRC calls for an open process to select diverse providers and invites applications</p> <p>SRC chooses seven providers to manage 46 low-performing schools, giving each provider \$450–\$881 in additional funds per pupil, beginning the diverse provider model</p> <p>Paul Vallas hired as SRC CEO</p> <p>District creates ORS to manage 21 schools; contracts with providers are finalized</p> <p>Vallas halts discussion of Edison assuming \$18 million role as lead consultant to the district’s central office</p> <p>Twenty-two schools meet all NCLB-mandated adequate yearly progress (AYP) targets.</p>
2003	<p>For 2004, Vallas implements core curricula in math and literacy with increased instructional blocks</p> <p>SRC terminates contract of one provider; affected schools redistributed to three other providers</p> <p>District creates Office of Development to serve as single point of contact for providers</p> <p>Fifty-eight schools meet all of their NCLB-mandated AYP targets</p>
2004	<p>SRC publishes Declaration of Education, a blueprint of district goals to be reached by 2008</p> <p>Pennsylvania relaxes criteria for meeting some AYP targets during 2003–2004; 160 schools meet all of their NCLB-mandated AYP targets (30 of which would not have met their targets without these relaxed criteria)</p>
2005	<p>District announces pairing of 12 high schools with private “transition managers” to assist with their conversion into smaller schools</p> <p>District disbands ORS and assigns schools to regions</p> <p>SRC announces that Edison will manage two more schools</p> <p>After six years of failing to meet AYP, 11 schools are assigned to the newly created CEO region, where they will get intensive intervention</p> <p>Use of the private sector expands to high schools: Microsoft Corporation, the Franklin Institute, the National Constitution Center, and others are engaged as partners to develop new high schools</p> <p>Performance targets rise as scheduled, and 132 schools meet all NCLB-mandated AYP targets</p>

Districtwide Achievement Trends in Philadelphia

Because the diverse provider model is just one of a wide range of interventions initiated since the SRC took control of the district in 2002, an assessment of whether this model produced differential effects on student achievement must be accompanied by an understanding of achievement trends across Philadelphia as a whole. For example, one possible effect of bringing in private providers to manage some of Philadelphia's lowest-achieving schools was that it may have created additional pressure for improvement in district-managed schools, even though creating competitive pressure was not an explicit aim in Philadelphia; if so, examining within-district achievement differences while ignoring districtwide trends could underestimate the effects of private management. We therefore begin with an examination of achievement trajectories for schools across Philadelphia since the state takeover. This analysis can provide contextual information on districtwide results during the period of SRC management, but it cannot tell us whether any particular component of the reform (including the diverse provider model) is responsible for observed changes in achievement.

Descriptive Achievement Trends in Philadelphia

The proportion of students achieving proficiency in reading and math has increased substantially in Philadelphia in the years since the state takeover, according to the state achievement test (the PSSA). Table 3.1 shows the trends in the percentage of students reaching proficiency in fifth- and eighth-grade reading and math from spring 2002 to spring 2006 throughout SDP. We use fifth- and eighth-grade reading and math proficiency levels because these two grades were tested consistently in both subjects across the time horizon of the study.¹ From the 2001–2002 school year to the 2005–2006 school year, an additional 10.9 percent and 22.7 percent of students reached proficiency in fifth-grade reading and math, respectively. Similarly, an additional 20.4 percent and 19.1 percent of students reached proficiency in eighth-grade reading and math, respectively.

¹ Until the 2002–2003 school year, students were tested in math and reading in grades five, eight, and 11 only. We omit eleventh-grade scores because the interventions of interest did not include high schools.

Table 3.1
Percentage of Philadelphia Students Achieving Proficiency on the PSSA, 2002–2006

Year	Percentage Achieving Proficiency			
	5th-Grade Reading	8th-Grade Reading	5th-Grade Math	8th-Grade Math
2002	20.8	24.1	18.7	17.9
2003	23.4	30.4	23.1	19.7
2004	31.6	41.2	30.7	30.9
2005	35.1	39.6	45.8	39.4
2006	31.7	44.5	41.4	37.0

The districtwide improvements in student achievement in Philadelphia reflected in Table 3.1 have been widely reported. Whether those improvements exceed the gains of similar schools elsewhere in Pennsylvania and whether they can be attributed to the interventions implemented by the SRC since 2002 are harder questions. It is impossible to answer these questions definitively because Philadelphia is unique among Pennsylvania school districts: Other schools in the state are only imperfectly comparable to Philadelphia schools. Nonetheless, in the remainder of this chapter we aim to provide tentative answers to these questions with a statistical analysis of the statewide, school-level proficiency data that attempts to account for underlying differences between Philadelphia and the rest of the state. Although the analysis cannot provide definitive causal inferences about the effects of Philadelphia's districtwide reforms, it can at minimum provide a useful context for interpreting the results of the analyses of student-level achievement impacts of Philadelphia's diverse providers in the next chapter.

Districtwide Trend Analysis Approach

We gauge the impact of the SRC's interventions on districtwide achievement using a regression model that controls for school characteristics. Ideally, this type of analysis would include individual student achievement test scores in consecutive grades across the state. Using individual data allows researchers to examine the performance of the same students over time, eliminating potential biases related to systematic changes in student populations (Hanushek, Rivkin, and Taylor, 1996). But longitudinal student-level data are unavailable on a statewide basis in Pennsylvania. Until 2006, the state of Pennsylvania did not test students in successive grades; moreover, the state is only now in the process of developing a longitudinal database that will link achievement results of individual students from grade to grade. Consequently, for the statewide analysis, we rely upon trends in PSSA proficiency results in fifth- and eighth-grade reading and math from 2000–2001 through 2005–2006.²

² We had hoped to use average PSSA scaled scores for this analysis because they are more sensitive to changes at all points in the achievement distribution and because they are less likely to be plagued by floor effects. But PSSA scaled scores were

The analysis compares the average achievement of Philadelphia schools prior to the state takeover relative to their average achievement in each year after the takeover. Using a school fixed-effects approach, it controls for school characteristics, measured and unmeasured, that make schools more likely to be chronically low or high performing, including student demographics, parental support, and the quality of facilities and teachers (to the extent that those factors are constant over the period under examination). In addition, we control for changes over time in the percentage of African-American, Hispanic, and white students that a school serves. The analysis approach is formally specified as follows:

$$A_{st} = \alpha P_{st} + x_{st}\beta + \phi_j + \psi_t + v_{st}, \quad (3.1)$$

where A_{st} is a measure of the achievement of the s th school in the t th year; P_{st} is a vector of dichotomous variables indicating whether a school is in SDP and if it is in the first, second, third, or fourth year of reform;³ x_{st} is a vector of time-varying school characteristics including racial or ethnic makeup for each school;⁴ ϕ_j captures school fixed effects; ψ_t captures state-wide trends in test scores; and v is the random disturbance term.⁵ We examine effects separately for math and reading.

Prior to the state takeover, Philadelphia's average PSSA scores were far below those of most schools in the rest of the state: 2002 proficiency percentages in grades five and eight ranged from 18 to 24 percent in Philadelphia, while statewide averages ranged from 51 to 60 percent. It is possible that, across the state, schools with lower initial scores had different achievement trajectories from other schools. In particular, proficiency percentages were so low in many Philadelphia schools that they could hardly decline much further. To compare schools that were similarly low achieving in Philadelphia and outside of Philadelphia, our analysis includes only schools that were in the lowest quartile of schools statewide (for each test separately) for two years prior to the reform (i.e., the 2000–2001 and 2001–2002 school years).

To reduce the likelihood of selecting schools that had one bad year due to random fluctuation in test results, we include schools that were in the lowest quartile for two consecutive years. In any particular year, many of the schools in the lowest quartile of the achievement distribution in the state have scores that reflect random variation—one bad year—rather than chronically low achievement. Such schools are likely to revert to their typical—higher—achievement levels in subsequent years. In contrast, many of Philadelphia's schools were chronically low achieving. Comparing their subsequent trends to those of schools with one bad year

unavailable for 2005 and 2006. We ran an analysis using PSSA scaled scores for results through spring 2004, and they were generally consistent with the results for proficiency levels.

³ Therefore, the effect of the reform effort is identified by the switching status of Philadelphia schools from pre-reform years to first, second, third, or fourth year of the reform.

⁴ The interaction of race/ethnicity and year allows for the possibility that changing racial/ethnic characteristics could have different effects over time.

⁵ Because school observations within districts may not be independent, the analysis clusters schools in districts to create robust standard errors.

could therefore underestimate any improvement in Philadelphia. Selecting a comparison group of schools based on two years of scores substantially reduces this problem.

Most of Philadelphia's elementary and middle schools had proficiency levels that fell in the lowest quartile statewide in 2001 and 2002:

- In fifth-grade reading, 83 percent of Philadelphia's schools were in the lowest quartile statewide in 2001 and 2002.
- In fifth-grade math, 79 percent of Philadelphia's schools were in the lowest quartile statewide in 2001 and 2002.
- In eighth-grade reading, 72 percent of Philadelphia's schools were in the lowest quartile statewide in 2001 and 2002.
- In eighth-grade math, 65 percent of Philadelphia's schools were in the lowest quartile statewide in 2001 and 2002.

In short, examining the schools in the lowest quartile of the achievement distribution statewide allows us to include the majority of Philadelphia's schools while restricting the comparison group of schools to those that, likewise, had low initial proficiency rates.

Districtwide Achievement Results

In the first year after the state takeover, achievement trajectories in Philadelphia's low-achieving schools (i.e., those that had been in the bottom quartile of the state's achievement distribution in both 2001 and 2002) were indistinguishable from the trajectories of low-achieving schools elsewhere in the state. After two years (i.e., in spring 2004), Philadelphia's low-quartile middle schools had surpassed the gains of low-quartile schools outside of Philadelphia. In spring 2005, three years after the state takeover, Philadelphia's low-quartile schools had outgained low-achieving schools elsewhere in the state in both reading and math at both the elementary (fifth-grade) and middle-school (eighth-grade) levels. The Philadelphia advantage as of spring 2005 was significant and substantial, ranging from 6 to 10 percentage points in terms of the proportion of students achieving proficiency.

But the Philadelphia advantage almost disappeared in spring 2006. When examining net improvements over the four-year period since the state takeover of the district, Philadelphia's low-quartile schools outgained low-quartile comparison schools by a statistically significant margin only in eighth-grade reading. In fifth-grade reading, fifth-grade math, and eighth-grade math, the 2006 results for Philadelphia's low-quartile schools, as compared with pre-takeover baseline scores, were indistinguishable from the results of low-quartile schools elsewhere in Pennsylvania, as shown in Table 3.2.

Table 3.2
Achievement Differences for Philadelphia Versus the Rest of the State,
Among Schools in the Lowest Quartile of the State's Achievement Distribution
in 2001 and 2002

Year	Math Coefficient (t-statistic)	Reading Coefficient (t-statistic)
Grade 5		
One-year effect (2003)	-2.81 (-1.64)	-1.52 (-1.70)
Two-year effect (2004)	1.39 (0.83)	0.72 (0.47)
Three-year effect (2005)	7.88* (2.64)	6.16* (4.73)
Four-year effect (2006)	2.65 (0.97)	2.58 (1.86)
Number of observations	1,753	1,834
Grade 8		
One-year effect (2003)	-1.40 (-0.85)	2.44 (1.92)
Two-year effect (2004)	8.59* (5.34)	9.70* (5.29)
Three-year effect (2005)	9.25* (5.58)	9.89* (4.71)
Four-year effect (2006)	2.71 (1.09)	5.18* (2.85)
Number of observations	871	872

NOTE: Effects reported in terms of PSSA percentage-proficient differences. * = statistically significant at the 5-percent level.

In sum, Philadelphia has seen substantial districtwide gains in the proportion of students achieving proficiency since the 2002 state takeover. But after four years, the gains of its low-achieving schools (constituting most of the schools in the district) have generally not exceeded the gains of low-achieving schools elsewhere in Pennsylvania. The reasons why Philadelphia's consistent advantage over comparison schools in 2005 largely vanished in 2006 are worthy of further inquiry.

Diverse Providers and Student Achievement

We now turn our attention to the diverse provider model. Specifically, we examine how the change in management affected the achievement of students in the privately managed, restructured, and sweet 16 schools, as well as any differences in achievement among different privately managed schools. This analysis relies on longitudinal student-level achievement data for students in grades 2–8 within SDP (comparable data are not available for the rest of the state).¹

Several studies have attempted to gauge the achievement effects of the private management of schools in other locations around the country. A 2003 U.S. General Accounting Office report examined student achievement in schools under private management in six major urban districts, finding mixed results (GAO, 2003). Other studies have focused specifically on Edison schools, because Edison has been the largest private manager of public schools across the country as well as in Philadelphia. Again, findings have been mixed (see Gomez and Shay, 2000; Miron and Applegate, 2000; AFT, 1998; Nelson, 2000; Nelson and Van Meter, 2003; Hoxby, 2003; Dryden, 2004; Gill et al., 2005). The largest and most ambitious evaluation of Edison, published by RAND (Gill et al., 2005), found that its schools did not, on average, exceed the achievement gains of comparison schools in the first three years of Edison operation, but that a majority of Edison schools matched or exceeded the gains of comparison schools after four to five years of operation.

One previous study has used longitudinal student-level data to examine achievement differences among schools with different managers in Philadelphia. MacIver and MacIver (2006) examined achievement gains from fifth grade to eighth grade in middle schools and K–8 schools in Philadelphia by eighth-graders in 2003, 2004, and 2005. They divided the external providers into two groups: Edison and all others. They found no statistically significant differences between the achievement gains of Edison middle-school students and district middle-school students in any of the three cohorts, but district middle-school students outgained students in middle schools operated by other external providers in all three cohorts. Results for K–8 schools were mixed, depending on provider types (and they typically had only small numbers of students in relevant comparisons), but likewise suggested that, in most instances, students in district-managed K–8 schools were gaining at least as much from grade five to grade eight as were students in the externally managed schools. Although this analysis provides useful information about the current effectiveness of schools operating under different treat-

¹ High school grades were excluded.

ments in Philadelphia, it does not address how the treatments *changed* the effectiveness of the schools, which is the policy question of interest here.

Analytic Approach

Longitudinal student-level data permit the use of a quasi-experimental analysis that examines the relative achievement of students in “treated” schools before and after the management change, comparing their trends with the trends of other students in Philadelphia. This student fixed-effects approach allows each student to serve as his or her own control, thereby factoring out characteristics of students that may affect student achievement results (as long as those characteristics do not vary over time) and permitting stronger causal inferences about the effects of school management changes. This approach is often used by researchers to control for selection bias (see Wooldridge, 2001), and it has been used specifically in studies of charter schools (see Booker et al., forthcoming; Bifulco and Ladd, 2006; Sass, 2006; Zimmer and Buddin, 2006; Hanushek et al., 2005; and Zimmer et al., 2003).

Analysis of longitudinal data can control for unobservable differences among schools as well as among students (again, to the extent that those unobservable differences do not vary over time). In Philadelphia, this is particularly important because schools were not randomly selected, but instead were chosen because they had chronically low achievement levels. A direct comparison to other schools in the district could therefore produce misleading results. The longitudinal data allow us to address selection bias at the school level by comparing schools to themselves via the use of a school fixed effect: They are compared to other schools in the district only as a second-order difference, after first comparing their own results pre- and post-treatment.

To incorporate student and school fixed effects simultaneously, we ran a model with a combined student and school fixed effect known as a “spell” effect, which represents each unique student-school combination. Each student’s time of enrollment in a particular school is viewed as a “spell.” Treatment effects are estimated by comparing the achievement of the same students in the same schools during the treatment period and the nontreatment period. Therefore, if there were unobservable characteristics of these schools that made them low performing prior to treatment, and, if these characteristics persisted after treatment, these characteristics would be factored out because we are looking at the same students and schools before and after treatment.

The analysis of the effects of different types of school-level treatment (external managers, restructured, sweet 16) on student achievement levels is captured by the following equation:

$$A_{jt} = \alpha PM_{jt} + \delta R_{jt} + \gamma S_{jt} + \mu_j + \theta_{gt} + \nu_{jt}, \quad (4.1)$$

where A_{jt} is a measure of the achievement of the j th student in the t th year; PM_{jt} , R_{jt} , and S_{jt} are indicators of whether student j in year t attended a privately managed, restructured, or sweet 16 school in the first, second, third, and fourth year of treatment; μ_j captures unique

student or school fixed effects; θ_{gr} captures grade-by-year fixed effects; and v is the random disturbance term.²

The measure of achievement, A_{jt} , is not an absolute measure, but rather a student's normalized rank among all students taking the same test in that subject and grade in Philadelphia. In the period under examination (2000–2001 through 2005–2006), students in Philadelphia took three different kinds of annual achievement tests in reading and math, varying with the school year and grade. Consequently, we have no consistent scale on which to gauge absolute changes in student achievement over time. We therefore converted all scaled test-score results into rank-based z-scores, by year and grade, with a mean of zero and a standard deviation of one. Specifically, we sorted all student scores by rank and converted them to z-scores normed across the entire districtwide population of tested students in that subject and grade. This conversion does not require that students have the same rank on one test as on another, but it assumes that differences in the distribution of students on different tests are not correlated with the treatment of interest.³ Random differences in student ranks across different tests would introduce noise, but not bias, to the analysis.

We cannot make claims about the absolute amount of learning in one school or another—there is no common, developmentally valid scale across the three tests used in the district over the period of interest. Converting the scores to a common scale is essential to examine changes in the achievement of individual students over time. Using a method that involves the standardized scaling of student ranks across the district permits an assessment of achievement effects with fewer assumptions than would be needed under other kinds of scaling.⁴

The second set of analyses also uses Equation 4.1, but subdivides privately managed schools into those managed by for-profit firms, universities, and other nonprofit organizations to assess whether different types of operators produce differential achievement effects. We further examine the effects of each individual provider separately—though caution is warranted when interpreting results for individual providers, for reasons discussed later.

A third set of analyses expands Equation 4.1 to include an interaction between demographic categories and attendance in diverse provider schools to examine whether the performance of different managers varies for different kinds of students. Demographic categories examined include race/ethnicity, gender, special education (or individualized education program [IEP]) status, and limited English proficiency (LEP).

Our analysis examines trends over time for the first four years of the operation of the diverse provider model. Existing research on educational management organizations (including RAND's analysis of Edison schools in Gill et al., 2005), charter schools, and comprehensive reforms has suggested that student achievement effects may become evident only after several years following implementation (Slavin et al., 1994; Ross, Nunnery, and Smith, 1996;

² Because individual student observations within schools may not be independent, we ran the analysis by clustering students by schools to create robust standard errors.

³ The within-student correlations of Terra Nova and PSSA results were 0.71 in reading and 0.67 in math, which is consistent with other research that has combined test scores (see May, Supovitz, and Perda, 2004).

⁴ For further discussion of the use of rank-based z-scores, see Gill et al. (2005).

Catterall, 1995; Sass, 2006; Booker et al., forthcoming; Bifulco and Ladd, 2006; Hanushek et al., 2005; Zhang, Shkolnik, and Fashola, 2005). Consequently, it is important to examine whether trends in achievement effects are evident over time and to distinguish one-year effects from four-year effects rather than combining them in a crude average.

Distinguishing between effects observed after one year, two years, three years, and four years involves interpreting each year after the state takeover as a separate treatment in the model. Because each year is viewed as a separate treatment, the model makes use of information on a larger number of students than would otherwise be included. A spell fixed-effect model that did not distinguish years would include only students who were enrolled in the school (in tested grades) both before and after the initiation of the intervention in 2002. By 2006, the sample sizes would shrink dramatically because most of the students enrolled in any particular school in 2006 were not enrolled in tested grades in the same school in 2002. An estimate that did not distinguish years of treatment would be very heavily weighted toward the first years of implementation.

By separating each year into its own treatment category, however, the model makes use of information on students enrolled in the school (in tested grades) for a minimum of two years after 2002. Algebraically, the model expressed in Equation 4.1 assumes that the net four-year effect of a treatment represents not only the measured effect for students enrolled in the school for the entire period, but also the following:

- the effect observed for three years (2002–2005) for students enrolled during that period, plus the one-year effect for students enrolled from 2005 to 2006
- the effect observed for two years (2002–2004) for students enrolled during that period, plus the two-year effect for students enrolled from 2004 to 2006
- the effect observed for one year (2002–2003) for students enrolled during that period, plus the three-year effect for students enrolled from 2003 to 2006.

Because each of these sums represents the first four years of the school's treatment, the model assumes that they are equivalent and calculates an effect that averages them.

In short, with separate treatment indicators for each year, the spell fixed-effect model assumes that achievement effects are transitive. It assumes that the four-year effect for a student enrolled for the entire period (2002–2006) should be equivalent, for example, to the sum of the effects observed for students enrolled during the first two years (2002–2004) and for students enrolled during the last two years (2004–2006).

Admittedly, this is a fairly strong assumption. We therefore conducted sensitivity tests in which the students contributing to effect estimates were limited to only those who were enrolled in the school both before and after treatment. These tests had far less statistical power (especially in the fourth year), but the point estimates (not presented here), while rarely achieving statistical significance, were generally consistent with those in our primary analyses, providing no evidence that our assumption of transitivity was false. Nonetheless, the fact that

student populations inevitably change over time, as students move out of their original schools and into others, inevitably means that we must have less confidence in the estimates for periods that are further from the beginning of the intervention. This should be considered when interpreting the results of this research.

Some schools ceased or changed treatments between 2002 and 2006—a fact that complicates the interpretation of the year of implementation. For example, the Chancellor Beacon contract was canceled after the first year, and Chancellor Beacon lost all of the schools under its management. Later, treatments were terminated for the restructured and sweet 16 schools: At the conclusion of the 2004–2005 school year, the ORS was disbanded and the additional funding was discontinued for restructured and sweet 16 schools. At the same time, two Temple University schools were closed and Edison was given two additional (formerly restructured) schools to manage. A few other individual schools changed management at different points as well. (All of the changes are documented in Herold and Riffer, 2005.)

For schools entering new treatments subsequent to 2002, we start the implementation clock at the beginning of the new treatment. Thus, for example, the two schools added to Edison’s portfolio in 2005–2006 are included in the estimate of *first-year* (not fourth-year) treatment effects for Edison specifically and for private managers generally.

In contrast, schools exiting a treatment prior to 2006 are retained in the treatment group through 2006 for analysis purposes. From a policy perspective, we believe that this is the appropriate method. Policymakers who are considering an educational intervention need to know the long-term effects of adopting that intervention, accounting for the likelihood that not all schools will continue the intervention. Excluding the period after the conclusion of the intervention could bias the results: Schools that drop the intervention may be those that were not doing well with it. Moreover, initiating and stopping an intervention may have transitional costs that should be incorporated in the estimate of the net effect of the intervention. Finally, policymakers might reasonably expect these interventions to produce increases in capacity in schools and their staffs that would create benefits that can be sustained after the conclusion of the intervention. Indeed, an analysis that removes schools from treatment status at the conclusion of the formal treatment would implicitly assume that effects are confined to the treatment period.

For all of these reasons, our analysis permanently assigns schools to their initial treatment group for all subsequent years, regardless of whether the schools remain in treatment.⁵ This approach is directly analogous to an “intent-to-treat” analysis in medical research, in which subjects assigned to a treatment are deemed to remain in the treatment condition for analytic purposes even if they discontinue the treatment (see, for example, Lee et al., 1991; Rubin, 1992). In interpreting the results, it is important to keep this in mind. Fourth-year results for restructured schools, for example, are results for the year following the official conclusion of the intervention.

⁵ This implies that a small number of schools are classified as participating in two different treatments in the same year. The two schools that moved from restructuring to Edison, for example, are classified, in 2005–2006, as in their first year with Edison and in their fourth year of restructuring.

Data

SDP provided longitudinal student-level achievement data for the 2000–2001 through 2005–2006 school years. These data permit the observation of students and schools for up to two years prior to the initiation of the various interventions and up to four years after the interventions began. Included in the data is an identifier to track each student over time, his or her test scores, race/ethnicity, and special education/IEP and LEP status, and an identifier for the school each student attended.

We created an indicator variable for each external provider (i.e., Chancellor Beacon, Edison, Foundations, University of Pennsylvania, Temple University, Universal, and Victory) and management type (i.e., privately managed, district restructured, and sweet 16 schools) for each year based on information provided by the district.

The student-level achievement data include the following test results:

- PSSA test scores in math and reading for grades 5 and 8, annually, beginning in spring 2001, and grades 3 through 8 in spring 2006
- Stanford 9 test scores in math and reading in grades 3, 4, and 7 in spring 2001 and spring 2002⁶
- Terra Nova scores in math and reading in grades 2 through 8, annually, in the spring of 2003 through the spring of 2005, and in grades 1 and 2 in spring 2006.⁷

Prior Achievement in Treated Schools

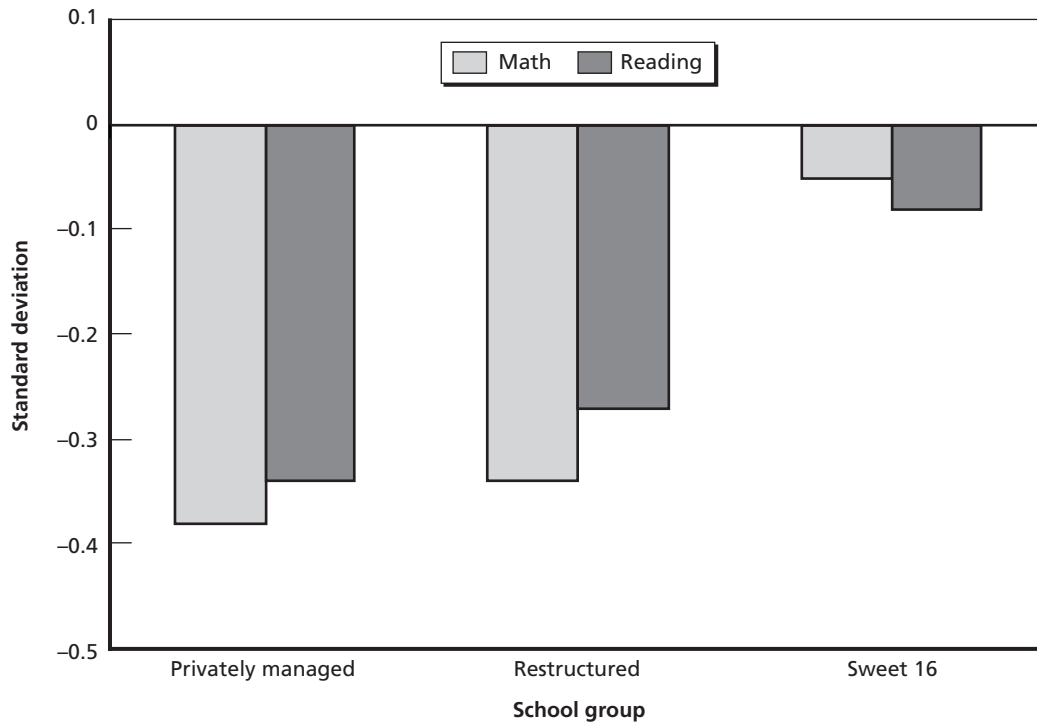
All of the schools analyzed here—whether externally managed, restructured, or sweet 16—were low-achieving schools prior to the district’s interventions. It is generally agreed that the schools assigned to external providers were the lowest-achieving schools within the district, an impression confirmed in the achievement data from the period preceding the state takeover. Figure 4.1 shows the average achievement of each of the three groups, in z-scores, where the districtwide average is zero and the standard deviation is one. All groups of treated schools had scores below districtwide averages, but the restructured schools’ scores were substantially lower than those of the sweet 16, and the privately managed schools’ scores were lower still. Figure 4.2 shows the average test scores of the various types of privately managed schools, suggesting that Chancellor Beacon, Edison, and Victory were given the lowest-achieving schools.

The key question is whether this achievement analysis can account for the difference in the quality of schools prior to treatment across the various providers. The spell-effects approach

⁶ In the spring of 2002, Stanford 9 data are limited to about one-fifth of the district’s total population of fourth-grade students. This is because the district gave the fourth-grade test only to K–4 schools and not to K–5 or K–8 schools in that year.

⁷ In cases in which we have both a PSSA test score and a Terra Nova test score for individual students in the same year, we use the Terra Nova test score because students were more consistently tested using the Terra Nova than the PSSA over the time frame of the study.

Figure 4.1
2002 Pretreatment Achievement Levels of Different School Groups



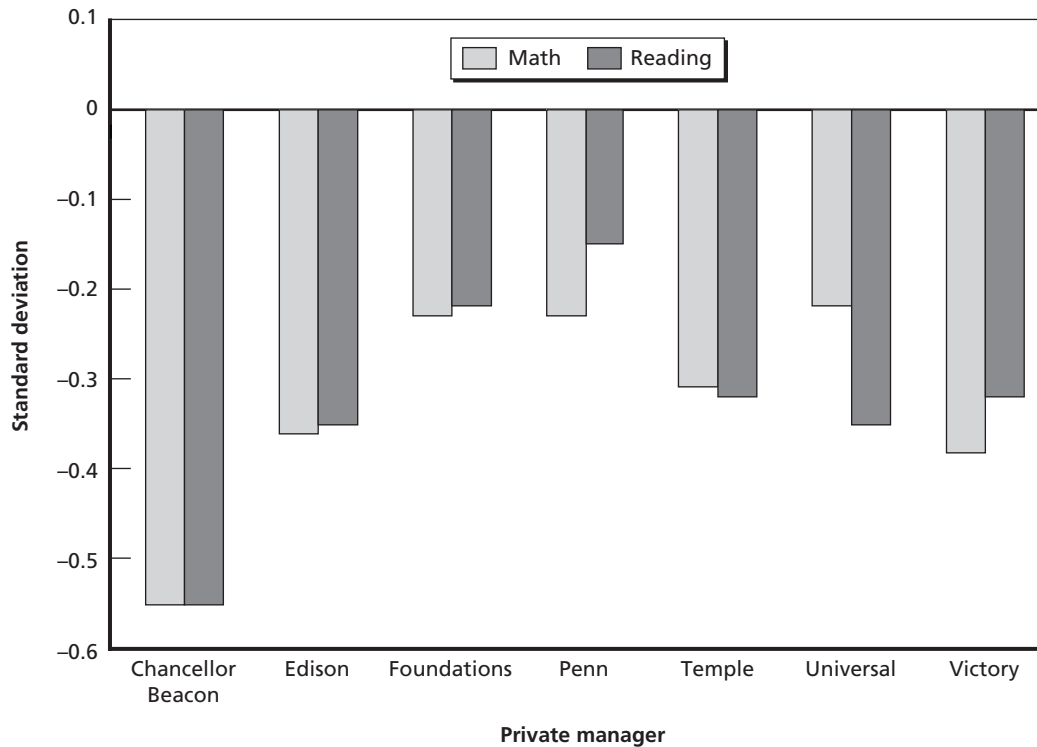
RAND MG533-4.1

accounts for differences in achievement *levels* prior to the treatment year because it tracks the achievement of a consistent set of students before and after each treatment year begins. Students are measured against themselves, in the same schools; if their achievement levels show improvements for each year under management (relative to improvements shown by other students), we will detect a positive effect of the management change.

Still, it is possible that schools were producing different *gains* in student achievement prior to the treatment. This would be more problematic because our research approach relies on an analysis of achievement levels rather than annual gains. If the privately managed, restructured, or sweet 16 schools had lower achievement gains than the districtwide average prior to the management changes, then an analysis relying on achievement levels could underestimate the effects of new management. If the schools had previously been producing declines in relative achievement, then eliminating those declines—keeping students at the same relative achievement levels—would be an improvement. But we will be unable to recognize it as such if we are not examining gains and observe only the lack of improvement in achievement levels.

Ideally, we would address this issue by using students' annual gains in achievement, rather than their achievement levels, as an alternate outcome measure. Formally, a gains analysis examines the achievement level of a student in year t relative to the same student achievement level in the prior year (i.e., $A_t - A_{t-1}$). A fixed-effects model with achievement gain as the outcome examines the average annual gain in the nontreatment period relative to the average

Figure 4.2
2002 Pretreatment Achievement Levels of Privately Managed Schools



RAND MG533-4.2

annual gain in the treatment period. Using a variation of Equation 4.1 that examines gains would account for the possibility that students with similar baseline achievement scores have different underlying achievement trajectories.

An analysis of gains, however, excludes large numbers of students because it requires a minimum of three years of achievement data for a particular student. This is especially problematic for a spell-effects analysis, which derives its power from students observed in the same school both before and after each examined year of treatment. Therefore, a gains analysis that employs spell effects requires at least three test scores for a particular student *in the same school* to contribute to the estimate. (By contrast, the analysis of achievement levels requires test scores for a student only twice in the same school.)

Given the particular configuration of grades tested in Philadelphia in the years prior to the state takeover, an analysis of gains would exclude one-third to one-half of the students in the treatment schools who are included in the analysis of achievement levels—in addition to students who must be omitted even from the levels analysis because they do not have two test scores in the relevant schools. Because it must exclude so many students, an analysis of achievement gains would lack credibility.

In the absence of sufficient data to use gains as a credible outcome measure, we used the data for the pre-takeover period to explore the extent to which differential gains may be a problem. Specifically, we compared the student-level achievement gains from 2001 to 2002 of privately managed, restructured, and sweet 16 schools to the districtwide average using a regression model in which the gain is the outcome measure and the explanatory variables include an indicator variable for the three types of treatments and grade-level dummy variables (to control for the fact that student performance may vary across grades and that different providers serve different grade arrangements). The results are shown in Table 4.1. There are no significant differences between the privately managed, restructured, and sweet 16 schools and the rest of the district in pretreatment gains in reading and math. In short, although it is clear that the schools assigned to these treatments had lower achievement levels prior to the state takeover, they did *not*, on average, have lower student-level *gains* prior to the takeover. Moreover, none of the three groups are statistically distinguishable from each other in terms of pretreatment gains. These results provide reason for some confidence that the analyses of the achievement effects of privately managed, restructured, and sweet 16 schools are unbiased.

For individual providers, however, the story is more complicated. These results are shown in Table 4.2. We found no statistical differences versus districtwide averages for pretreatment gains in reading and math for Edison, Victory, and Foundations schools. Universal and Chancellor Beacon schools, by contrast, had pretreatment gains that were significantly below district averages. Meanwhile, University of Pennsylvania schools had pretreatment gains that were significantly higher than districtwide gains in both subjects, and Temple University schools had statistically higher pretreatment gains in reading. The differences in pretreatment gains for Universal, Chancellor Beacon, University of Pennsylvania, and Temple University schools may undermine the validity of the effect estimates for those providers. In particular, we may underestimate the achievement effects of schools with low pretreatment gains (Universal and Chancellor Beacon), because reversal of a declining trajectory would not be captured by our analysis. Conversely, we may overestimate the achievement effects of schools with high pretreatment gains (University of Pennsylvania and Temple University), because our analysis does not capture the fact that those schools were already improving prior to the management change.

Table 4.1
Pretreatment Student-Level Achievement Gains, Spring 2001–Spring 2002

Future Treatment	Math Gains (t-statistic)	Reading Gains (t-statistic)
Privately managed schools	–0.03 (–0.76)	–0.02 (–0.68)
Restructured schools	0.04 (0.82)	0.04 (0.98)
Sweet 16 schools	0.04 (0.59)	0.01 (0.16)

NOTE: None of these results is statistically distinguishable from zero.

Table 4.2
Pretreatment Student-Level Achievement Gains for Individual Providers,
Spring 2001–Spring 2002

Future Treatment	Math Gains (t-statistic)	Reading Gains (t-statistic)
Edison schools	–0.05 (–1.04)	–0.04 (–0.86)
Victory schools	–0.04 (–0.65)	–0.04 (–0.80)
Foundations schools	0.06 (0.50)	0.13 (1.62)
Universal schools	–0.16** (–2.70)	–0.15** (–2.90)
University of Pennsylvania schools	0.32** (5.68)	0.14* (2.44)
Temple University schools	0.05 (0.60)	0.09** (3.01)
Chancellor Beacon schools	–0.19 (–1.55)	–0.16* (–2.05)

NOTE: * = statistically significant at the 5-percent level. ** = statistically significant at the 1-percent level.

Achievement Results for Privately Managed, Restructured, and Sweet 16 Schools

In Table 4.3, we present achievement results for privately managed, restructured, and sweet 16 schools for each of the first four years of implementation, as compared to the rest of the school district, through spring 2006. All results are shown in z-scores and can be interpreted as standardized effect sizes. Results for each year can be interpreted as the net, cumulative effects of the total treatment from the beginning of the intervention through that year. Fourth-year effects therefore may be of greatest interest, not only because they are most current, but also because they represent the cumulative impact of four years of the intervention (or, in the case of the restructured schools, the sustained cumulative impact after four years of the three-year intervention). Nonetheless, because the fourth-year effects are furthest removed from the initiation of the interventions and include the smallest number of students who were present and tested prior to treatment, they merit caution in interpretation.

For sweet 16 schools, we find no statistically significant effects, positive or negative, in reading or math, in any of the four years in which they received additional resources. For the privately managed schools as a group, we find no statistically significant average effect, positive or negative, in math or reading in any of the first four years after takeover.

Table 4.3
Achievement Effects of Privately Managed, Restructured, and Sweet 16 Schools

Year	Math Coefficient (t-statistic, number of students contributing to estimate)	Reading Coefficient (t-statistic, number of students contributing to estimate)
Privately managed schools		
One-year effect	-0.03 (-0.57, 12,436)	-0.05 (-1.48, 12,571)
Two-year effect	0.01 (0.15, 14,417)	-0.04 (-1.27, 15,598)
Three-year effect	0.03 (0.57, 12,584)	-0.04 (-1.06, 14,030)
Four-year effect	-0.02 (-0.31, 11,075)	-0.08 (-1.55, 12,285)
Restructured schools		
One-year effect	0.22* (3.38, 4,086)	0.13* (2.35, 4,108)
Two-year effect	0.16* (2.34, 5,056)	0.07 (1.08, 5,768)
Three-year effect	0.18* (2.05, 4,511)	0.07 (1.02, 5,419)
Four-year effect	0.22 (1.95, 4,258)	0.09 (0.87, 4,945)
Sweet 16 schools		
One-year effect	-0.02 (-0.34, 2,618)	0.001 (0.01, 2,625)
Two-year effect	0.02 (0.16, 3,241)	0.01 (0.16, 3,761)
Three-year effect	-0.01 (-0.08, 3,283)	-0.03 (-0.40, 3,965)
Four-year effect	0.02 (0.19, 3,304)	0.01 (0.16, 3,887)

NOTE: * = statistically significance at the 5-percent level.

In contrast to the estimates for privately managed and sweet 16 schools, many of the estimates for the restructured schools are significantly positive. For math, the analysis suggests a positive, significant, and relatively substantial effect in each of the first three years, with an equally substantial and marginally significant effect (i.e., significant at the 10-percent level, but not quite at the 5-percent level) in the fourth year, after the intervention had concluded. Effect sizes in math ranged from 0.16 to 0.22 standard deviations, with no indication of a time trend. These effect sizes would be considered moderate to large relative to those found in other education interventions; they are comparable to those seen in Tennessee's experiment in class-size reduction, where class sizes were reduced from 22–25 students to 13–17 students (see Krueger

and Whitmore, 2002). For reading, the analysis indicates a significant and positive effect in the first year only, with an effect size of 0.13 of a standard deviation.

In sum, average improvements in student achievement in sweet 16 and privately managed schools have generally been comparable to improvements in “untreated” schools in the rest of the district. Meanwhile, students in restructured schools have consistently outgained the rest of the district in mathematics, apparently maintaining their advantage a year after the ORS was disbanded.

As noted previously, prior research has suggested that major educational interventions often take time to implement effectively and to begin showing effects on student achievement. If so, we might expect achievement effects in the restructured and privately managed schools to improve as they gain experience with the reforms. In fact, however, the results presented in Table 4.3 provide no evidence of consistent time trends for privately managed schools, for restructured schools, or for sweet 16 schools. More specifically, there is no evidence of net positive effects, on average, for privately managed or sweet 16 schools after four full years of treatment. Although it is theoretically possible that results could become positive after five years, the absence of a trend in the positive direction provides no reason to expect that results will be substantially better after one more year.

In a head-to-head comparison, mathematics results for restructured schools exceeded those for privately managed schools in the first two years of intervention at the 5-percent significance level. The difference between restructured mathematics effects and privately managed mathematics effects was marginally significant (i.e., significant at the 10-percent level) in the third and fourth years as well. In reading, the difference between the effects of restructured schools and the effects of the privately managed schools was statistically significant only in the first year of intervention.

The sensitivity analysis that limits its attention to students enrolled in the schools both before and after the beginning of the interventions (results not presented here) does not suggest any important differences from these findings. Most of the results for the restructured schools do not achieve statistical significance in the sensitivity analysis, but the point estimates are similar. Results for sweet 16 and privately managed schools remain indistinguishable from districtwide averages.

Achievement Results for Individual Privately Managed Providers

We also examined whether there is evidence of differential effects for different types of privately managed schools and for individual providers. When grouping the providers as universities, other nonprofits, and for-profits, we find no statistically significant average effects, positive or negative, for any of the three provider types.⁸

Results for individual providers are presented in Table 4.4. Here, the small number of schools managed by most of the individual providers substantially reduces the statistical power

⁸ These results are not presented here.

of the analysis. In most years and subjects, we cannot detect effect sizes smaller than 0.1 standard deviations.

For most providers, years, and subjects, we detected no statistically significant effects, positive or negative. As in the previous analysis that averaged across all providers, the estimates of greatest interest are those for the fourth year, which represent cumulative effects after four years following the implementation of each provider's intervention. Only two providers show statistically significant results after four years—both in the negative direction. Effect estimates for Temple University are significantly and substantially negative in the fourth year following

Table 4.4
Achievement Effects by Provider

Year	Math Coefficient (t-statistic)	Reading Coefficient (t-statistic)
Chancellor Beacon Academies ^a		
One-year effect	0.09 (1.01)	0.04 (0.55)
Two-year effect	0.08 (0.99)	0.03 (0.76)
Three-year effect	0.09 (0.78)	0.06* (1.98)
Four-year effect	0.01 (0.05)	-0.05 (-0.51)
Edison Schools		
One-year effect	-0.06 (-1.14)	-0.11* (-2.84)
Two-year effect	0.03 (0.65)	-0.05 (-1.36)
Three-year effect	0.05 (0.83)	-0.05 (-0.86)
Four-year effect	0.05 (0.67)	-0.06 (-0.97)
Foundations Schools		
One-year effect	-0.01 (-0.10)	0.01 (0.13)
Two-year effect	-0.08 (-0.83)	0.01 (0.17)
Three-year effect	-0.03 (-0.20)	0.002 (0.03)
Four-year effect	-0.13 (-0.98)	-0.03 (-0.39)

Table 4.4—Continued

Year	Math Coefficient (t-statistic)	Reading Coefficient (t-statistic)
Temple University		
One-year effect	-0.14* (-2.07)	-0.12 (-1.57)
Two-year effect	-0.15 (-0.45)	-0.11 (-1.03)
Three-year effect	-0.23* (-2.20)	-0.23* (-4.05)
Four-year effect	-0.37* (-5.52)	-0.34* (-4.75)
Universal Companies		
One-year effect	-0.03 (-0.40)	0.001 (0.04)
Two-year effect	-0.02 (-0.34)	-0.02 (-0.81)
Three-year effect	0.03 (1.68)	-0.09* (-3.14)
Four-year effect	-0.18 (-0.56)	-0.04 (-0.14)
University of Pennsylvania		
One-year effect	0.01 (0.10)	-0.004 (-0.06)
Two-year effect	0.05 (0.67)	-0.04 (-0.37)
Three-year effect	0.07 (0.59)	-0.04 (-0.44)
Four-year effect	0.01 (0.05)	-0.04 (-0.23)
Victory Schools		
One-year effect	-0.09 (-0.82)	-0.01 (-0.26)
Two-year effect	-0.12 (-1.04)	-0.04 (-0.55)
Three-year effect	-0.05 (-0.44)	-0.03 (-0.27)
Four-year effect	-0.25* (-2.38)	-0.07 (-0.92)

NOTE: * = statistically significant at the 5-percent level.

^a Chancellor Beacon Academies managed schools only during the 2002–2003 school year; results for later years are for the former Chancellor Beacon schools.

implementation in both math and reading. The fourth-year effect estimate for Victory in math is likewise significantly and substantially negative. Although these three negative coefficients are larger than the estimates for Temple and Victory in previous years, in both cases they are consistent with generally negative patterns. All of the estimates for Temple and Victory schools in other years are negative, but are often not statistically significant.

Achievement Results for At-Risk Student Subgroups

Finally, we examine whether the schools in various treatments had differential effects by gender and on African-American, Hispanic, LEP, and special education/IEP students. We examine these results only for restructured schools and for the entire group of privately managed schools, because most subgroup sizes become small for individual providers. The results are summarized in the remainder of this chapter.

For privately managed schools, across all providers, none of the results for average subgroup achievement are statistically significant, positive or negative. As shown earlier, private management has had neither a positive nor negative effect on the schools managed (relative to the rest of the district), so it is not surprising that we are unable to detect any differential effect for the different demographic categories for any year.

For sweet 16 schools, we found no statistically significant effects, positive or negative, for most subgroups in most subject-year combinations. Among the effects that achieve statistical significance, we found no consistent patterns suggesting unique advantages or disadvantages for particular subgroups of students.

For restructured schools, several of the estimates for subgroup-subject-year combinations are positive and statistically significant. The only subgroups for which more than one subject-year combination achieves statistical significance are African-Americans (in four of eight subject-year combinations) and boys (in three of eight subject-year combinations). This is not surprising, given that most of the students in the restructured schools are African-American, and half are boys. Consequently, we have no strong evidence that the restructured schools have unique benefits for African-Americans or boys; they may simply represent large subgroups for which it is easier to detect effects that are, in fact, general to students of all races and both sexes.

Conclusions and Implications

Since the state takeover of SDP in 2002, the SRC has overseen implementation of a large number of districtwide and school-specific interventions. Citywide achievement results in elementary and middle-school grades have risen substantially in absolute terms. With so many different interventions under way simultaneously in Philadelphia, there is no way to determine exactly which components of the reform plan are responsible for the improvement. Three years into the district's reforms (as of spring 2005), Philadelphia's previously low-achieving elementary and middle schools had improved at rates that exceeded the gains of low-achieving schools elsewhere in the state. Four years into the district's reforms (as of spring 2006), the gains in Philadelphia merely matched those of the comparison group of low-achieving schools, except in middle-school (eighth-grade) reading, in which Philadelphia retained a statistically significant advantage.

The diverse provider model, which incorporates private management of a group of the lowest-achieving schools in the city, has been the most controversial and closely watched component of the school improvement effort in Philadelphia. Although it is impossible to know the extent to which the diverse provider model is responsible for districtwide trends, the model was not implemented in a way that was likely to produce competitive pressures on other schools in the district.

It remains theoretically possible that the introduction of the private managers increased the district's total capacity for improvement. If the providers allowed the district to reallocate resources internally so that it could concentrate on improving performance in a smaller number of schools, this might partly explain the districtwide rise in achievement. Indeed, approximately \$100 per pupil from the additional allocation to private managers was intended to compensate them for reduced administrative oversight from the district. Nonetheless, district regional staff continued at least some oversight and support of privately managed schools. Even if the district in fact reallocated resources away from the privately managed schools, a reallocation of \$100 per privately managed pupil would have produced less than \$50 per pupil when distributed across the rest of the district's elementary and middle schools.

On average, schools managed by private providers were doing neither better nor worse at raising student achievement than were schools in the rest of the district, in math and reading, in each of the first four years of private management. Contrary to expectations that results might improve over time as schools gain experience with providers, there is no evidence sug-

gesting that results for private providers have improved relative to the rest of the district over the four years of the intervention.

By contrast, the group of schools that were restructured under district management showed larger achievement improvements by their students in mathematics in each of the three years during which the restructuring intervention was in place—and may have maintained an advantage in the spring of 2006, a year after restructuring (and the additional resources associated with it) concluded. In reading, restructured schools showed a significant achievement advantage over the rest of the district only in the first year of the intervention.

A third group of schools that were given additional resources (like the privately operated and restructured schools) but no specific intervention (unlike the privately operated and restructured schools) showed no differential achievement effects, positive or negative, relative to the rest of the district.

Among private managers, no differences in academic performance are evident when comparing for-profits, universities, and other nonprofits. Results for individual providers likewise show few clear patterns, in part because the small number of schools involved with most individual providers limits our statistical power to detect effects. Two providers—Temple University and Victory Schools—merit concern. Victory's estimated effects four years after implementation are significantly and substantially negative in math, while Temple's estimated effects four years after implementation are significantly and substantially negative in both math and reading.

Finally, we find no strong indications that any particular treatment is more or less effective for specific populations of disadvantaged students.

Different interpretations of these results may lead to different judgments about whether Philadelphia's experiment in the private management of public schools has succeeded and whether it should be continued. On the negative side of the ledger, despite additional per-pupil resources, privately managed schools did not produce average increases in student achievement that were any larger than those seen in the rest of the district. Meanwhile, district-managed restructured schools outpaced the gains of the rest of the district in math.

Nonetheless, it is impossible to know definitively how the privately managed schools would have done if they had been restructured or had remained under conventional district management. Whether the district could have replicated the gains of the restructured schools in three times as many schools—as it would have needed to do if the 45 schools turned over to private management had been restructured instead—is an open question. The private managers were given some of the lowest-achieving schools in the district. Although their trajectories did not exceed those of the district, they improved alongside the rest of the district at a time when achievement levels districtwide were increasing substantially. We found little reason to believe that the districtwide improvement was a consequence of competition from private providers, but we cannot rule out the possibility that the assistance from private providers was an important part of the total reform effort in Philadelphia.

Even so, although it is theoretically possible that the introduction of the providers increased districtwide capacity for improvement and that the schools they managed would have done worse without them, we find no evidence supporting this view. If the privately managed schools had remained under district management instead, it seems likely that, the district

could have replicated the gains of other schools that received no special interventions—getting similar results to those actually achieved by the private providers without expending additional resources. *In sum, with four years of data, we find little evidence in terms of academic outcomes that would support the additional resources for the private managers.* The private managers may be producing other benefits that are not measurable in terms of student achievement results in math and reading, but that question is beyond the scope of this study.

The larger implications of the findings of this study for the most aggressive sanctions of NCLB are less clear. With respect to state takeover, results are ambiguous: Subsequent to the state's takeover of the district, proficiency percentages increased districtwide, but the total increase over four years was not substantially greater than the increase of other low-achieving schools in the state, in most cases. Philadelphia provides no evidence to support private management as an especially effective method of promoting student achievement—at least not under the model implemented, with constrained competition and limited provider autonomy. The diverse provider model in Philadelphia does not represent a clear test of full private management in a competitive market. Whether a model of private management that involves more autonomy to managers, parental choice, and competition for students would produce better results remains an open question.

Bibliography

AFT—see American Federation of Teachers.

American Federation of Teachers, *Student Achievement in Edison Schools: Mixed Results in an Ongoing Enterprise*, Washington, D.C., 1998. As of January 2, 2007:
<http://www.aft.org/research/downloads/charter/Edison1998.pdf>

American Institutes for Research, and SRI International, *The National School District and Network Grants Program: Year 2 Evaluation Report*, report prepared for the Bill and Melinda Gates Foundation, Washington, D.C., and Menlo Park, Calif., April 2004. As of January 2, 2007:
<http://www.gatesfoundation.org/NR/downloads/ed/researchevaluation/Yr3SynthesisReport.pdf>

Berends, Mark, Susan J. Bodilly, and Sheila Nataraj Kirby, *Facing the Challenges of Whole-School Reform: New American Schools After a Decade*, Santa Monica, Calif.: RAND Corporation, MR-1498-EDU, 2002. As of January 2, 2007:
http://www.rand.org/pubs/monograph_reports/MR1498/

Bifulco, Robert, and Helen F. Ladd, “The Impacts of Charter Schools on Student Achievement: Evidence from North Carolina,” *Education Finance and Policy*, Vol. 1, No. 1, Winter 2006, pp. 50–90.

Booker, Toby Kevin, Scott M. Gilpatric, Timothy J. Gronberg, and Dennis W. Jansen, “The Impact of Charter School Student Attendance on Student Performance,” *Journal of Public Economics*, forthcoming.

Boyd, William Lowe, and Jolley Bruce Christman, “A Tall Order for Philadelphia’s New Approach to School Governance: Heal the Political Rifts, Close the Budget Gap, and Improve the Schools,” in Larry Cuban and Michael Usdan, eds., *Powerful Reforms with Shallow Roots: Improving America’s Urban Schools*, New York: Teachers College Press, 2003, pp. 96–124.

Bulkley, Katrina E., Leah M. Mundell, and Morgan Riffer, “Contracting Out Schools: The First Year of the Philadelphia Diverse Provider Model,” research brief, Philadelphia, Pa.: Research for Action, May 2004. As of January 2, 2007:
<http://www.researchforaction.org/publication/details/35>

Catterall, James S., *Different Ways of Knowing: 1991–94 National Longitudinal Study, Program Effects on Students and Teachers (Final Report)*, Los Angeles, Calif.: University of California at Los Angeles, Graduate School of Education and Information Studies, 1995.

Christman, Jolley Bruce, and Tom Corcoran, *The Limits and Contradictions of Systemic Reform: The Philadelphia Story*, Philadelphia, Pa.: Consortium for Policy Research in Education, November 2002. As of January 2, 2007:
<http://www.cpre.org/Publications/children08.pdf>

Christman, Jolley Bruce, Eva Gold, and Benjamin B. Herold, “Privatization ‘Philly Style’: What Can Be Learned from Philadelphia’s Diverse Provider Model of School Management,” research brief, Philadelphia, Pa.: Research for Action, June 2006. As of January 2, 2007:
<http://www.researchforaction.org/publication/details/37>

- Cohen, Michael, "Transforming the American High School: New Directions for State and Local Policy," Washington D.C.: Jobs for the Future and The Aspen Institute, 2001. As of January 2, 2007: <http://www.essentialschools.org/pdfs/highschools.pdf>
- Darling-Hammond, Linda, "Policy and Professionalism," in Ann Lieberman, ed., *Building a Professional Culture in Schools*, New York: Teachers College Press, 1988, pp. 57–77.
- , "Policy for Restructuring," in Ann Lieberman, ed., *The Work of Restructuring Schools: Building from the Ground Up*, New York: Teachers College Press, 1995, pp. 57–175.
- , *The Right to Learn: A Blueprint for Creating Schools That Work*, San Francisco, Calif.: Jossey-Bass, 1997.
- Dryden, Michael A., "The Performance of Edison Schools Inc. in the Dallas Schools," presented at the American Education Research Association Annual Meeting, San Diego, Calif., April 16, 2004.
- Edison Schools, Inc., *Strengthening the Performance of the Philadelphia School District*, report to the Governor of Pennsylvania, October 30, 2001. As of January 2, 2007: <http://www.philaedfund.org/Pdfs/Completereport.pdf>
- GAO—see U.S. General Accounting Office (now U.S. Government Accountability Office).
- Gill, Brian, Laura S. Hamilton, J. R. Lockwood, Julie A. Marsh, Ron W. Zimmer, Deanna Hill, and Shana Pribesh, *Inspiration, Perspiration, and Time: Operations and Achievement in Edison Schools*, Santa Monica, Calif.: RAND Corporation, MG-351-EDU, 2005. As of January 2, 2007: <http://www.rand.org/pubs/monographs/MG351/>
- Gomez, J. J., and S. A. Shay, *Evaluation of the Edison Project School: Third Interim Report: 1998–99 School Year*, Miami, Fla.: Miami-Dade School District, 2000.
- Hanushek, Eric A., John F. Kain, Steven G. Rivkin, and Gregory F. Branch, "Charter School Quality and Parental Decision Making with School Choice," Cambridge, Mass.: National Bureau of Economic Research, Working Paper 11252, March 2005. As of January 2, 2007: <http://www.nber.org/papers/w11252>
- Hanushek, Eric A., Steven G. Rivkin, and Lori L. Taylor, "Aggregation and the Estimated Effects of School Resources," *Review of Economics and Statistics*, Vol. 78, No. 4, 1996, pp. 611–627.
- Herold, Benjamin B., and Morgan Riffer, "The 'Original 86': Tracking Changes in the 'Original 86' Philadelphia Public Schools Initially Targeted for Intervention Following the 2001 State Takeover," Philadelphia, Pa.: Research for Action, 2005. As of January 2, 2007: <http://www.researchforaction.org/publication/details/152>
- Hess, G. Alfred, Jr., *Restructuring Urban Schools: A Chicago Perspective*, New York: Teachers College Press, 1995.
- Hill, Paul T., "Making Philadelphia a Diverse Providers School District," unpublished manuscript, 2002.
- , "Put Learning First: A Portfolio Approach to Public Schools," Washington, D.C.: Progressive Policy Institute, February 2006. As of January 2, 2007: http://www.ppionline.org/documents/Portfolio_Districts021006.pdf
- Hoxby, Caroline M., "School Choice and School Competition: Evidence from the United States," *Swedish Economic Policy Review*, Vol. 10, No. 2, 2003, pp. 9–65. As of January 2, 2007: http://www.ekonomiskaradet.se/Panda_ekonomiska/Data/Documents/sepr2003/Hoxsby.pdf
- Krueger, Alan, and Diane Whitmore, "Would Smaller Classes Help Close the Black-White Achievement Gap?" in John E. Chubb and Tom Loveless, eds., *Bridging the Achievement Gap*, Washington, D.C.: Brookings Institution, 2002.
- Lamdin, Douglas J., "Can P.S. 27 Turn a Profit? Provision of Public Education by For-Profit Suppliers," *Contemporary Economic Policy*, Vol. 19, No. 3, July 2001, pp. 280–290.

- Lee, Y., J. Ellenberg, D. Hirtz, and K. Nelson, "Analysis of Clinical Trials by Treatment Actually Received: Is It Really an Option?" *Statistics in Medicine*, Vol. 10, 1991, pp. 1595–1605.
- Levin, Henry M., "Potential of For-Profit Schools for Education Reform," New York: National Center for the Study of Privatization in Education, Teachers College, Columbia University, Occasional Paper No. 47, 2002.
- MacIver, Douglas J., and Martha Abele MacIver, "Effects on Middle Grades' Mathematics Achievement of Educational Management Organizations (EMOs) and New K–8 Schools," paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, Calif., April 10, 2006.
- Maranto, Robert, "A Tale of Two Cities: School Privatization in Philadelphia and Chester," *American Journal of Education*, Vol. 111, No. 2, February 2005, pp. 151–190.
- May, Henry, Jonathan A. Supovitz, and David Perda, *A Longitudinal Study of the Impact of America's Choice on Student Performance in Rochester, New York, 1998–2003*, Philadelphia, Pa.: Consortium for Policy Research in Education, University of Pennsylvania, July 2004. As of January 2, 2007:
<http://www.cpre.org/Publications/AC-10.pdf>
- Miron, Gary, and Brooks Applegate, *An Evaluation of Student Achievement in Edison Schools Opened in 1995 and 1996*, Kalamazoo, Mich.: The Evaluation Center of Western Michigan University, December 2000. As of January 2, 2007:
http://www.wmich.edu/evalctr/edison/wmu_edison_rpt.pdf
- NCLB—see Public Law 107-110.
- Neild, Ruth Curran, Elizabeth Useem, and Elizabeth Farley, *The Quest for Quality: Recruiting and Retaining Teachers in Philadelphia*, Philadelphia, Pa.: Research for Action, 2005. As of January 2, 2006:
<http://www.researchforaction.org/publication/details/226>
- Nelson, F. Howard, *Trends in Student Achievement for Edison Schools, Inc.: The Emerging Track Record*, Washington, D.C., American Federation of Teachers, October 2000. As of January 2, 2007:
<http://www.aft.org/research/downloads/charter/Edison2000.pdf>
- Nelson, F. Howard, and Nancy Van Meter, *Update on Student Achievement for Edison Schools, Inc.*, Washington, D.C.: American Federation of Teachers, February 2003. As of January 2, 2007:
<http://www.aft.org/research/downloads/charter/Edison2003.pdf>
- Public Law 101-110, No Child Left Behind Act of 2001, January 8, 2002.
- Rice, Jennifer King, and Robert G. Croninger, "Resource Generation, Reallocation, or Depletion: An Analysis of the Impact of Reconstitution on School Capacity," *Leadership and Policy in Schools*, Vol. 4, No. 2, June 2005, pp. 73–103.
- Rice, Jennifer King, and Betty Malen, "The Human Costs of Education Reform: The Case of School Reconstitution," *Educational Administration Quarterly*, Vol. 39, No. 5, December 2003, pp. 635–666.
- Ross, S. M., J. Nunnery, and L. J. Smith, *Evaluation of Elementary School–Wide Programs: Clover Park School District Year 1: 1996–97*, Memphis, Tenn.: University of Memphis, Center for Research in Educational Policy, 1996.
- Rubin, Donald B., "Clinical Trials in Psychiatry: Should Protocol Deviation Censor Patient Data? A Comment," *Neuropsychopharmacology*, Vol. 6, No. 1, 1992, pp. 59–60.
- Sass, Tim R., "Charter Schools and Student Achievement in Florida," *Education Finance and Policy*, Vol. 1, No. 1, Winter 2006, pp. 91–122.
- School Reform Commission of Philadelphia, "School Reform Commission Reaches Agreement with Education Management Organizations," news release, July 31, 2002.
- Schweiker, Mark, "A Proposal to Transform the Philadelphia School District into a High-Performance System of Schools for the 21st Century," Harrisburg, Pa.: Office of the Governor, 2001.

Slar, Elliott D., *You Don't Always Get What You Pay For: The Economics of Privatization*, Ithaca, N.Y.: Cornell University Press, 2000.

Sizer, Theodore R., *Horace's School: Redesigning the American High School*, Boston, Mass.: Houghton Mifflin, 1992.

Slavin, Robert E., Nancy L. Karweit, Barbara A. Wasik, Nancy A. Madden, and Lawrence J. Dolan, "Success for All: A Comprehensive Approach to Prevention and Early Intervention," in Robert E. Slavin, Nancy L. Karweit, and Barbara A. Wasik, eds., *Preventing Early School Failure: Research on Effective Strategies*, Boston, Mass.: Allyn and Bacon, 1994.

Spiridakis, Kurt, "Teacher Turnover High at 'Takeover Schools,'" *Philadelphia Public School Notebook*, Summer 2003. As of January 2, 2007:

<http://www.thenotebook.org/editions/2003/summer/turnover.htm>

SRC—see School Reform Commission of Philadelphia.

U.S. General Accounting Office (now U.S. Government Accountability Office), *Comparison of Achievement Results for Students Attending Privately Managed and Traditional Schools in Six Cities, Report to the Chairman, Committee on Education and the Workforce, U.S. House of Representatives*, Washington, D.C.: U.S. Government Accountability Office, GAO-04-62, October 2003. As of January 2, 2007:

<http://www.gao.gov/new.items/d0462.pdf>

Wasley, Patricia A., Michelle Fine, Matt Gladden, Nicole E. Holland, Sherry P. King, Esther Mosak, and Linda C. Powell, *Small Schools, Great Strides: A Study of New Small Schools in Chicago*, New York: Bank Street College of Education, 2000. As of January 2, 2007:

<http://www.bankstreet.edu/gems/publications/smallschools.pdf>

Wohlsetter, Priscilla, Courtney L. Malloy, Joanna Smith, and Guilbert Hentschke, "Incentives for Charter Schools: Building School Capacity Through Cross-Sectoral Alliances," *Educational Administration Quarterly*, Vol. 40, No. 3, August 2004, pp. 321–365.

Wooldridge, Jeffrey M., *Econometric Analysis of Cross Section and Panel Data*, Cambridge, Mass.: MIT Press, 2001.

Zhang, Yu, Jamie Shkolnik, and Olatokunbo Fashola, *Evaluating the Implementation of Comprehensive School Reform and Its Impact on Growth in Student Achievement*, Washington, D.C.: American Institutes for Research, 2005. As of January 2, 2006:

<http://www.air.org/news/documents/AERA2005Implementation%20of%20CSR-Impact%20on%20Student%20Achievement.pdf>

Zimmer, Ron, and Richard Buddin, "Charter School Performance in Two Large Urban Districts," *Journal of Urban Economics*, Vol. 60, No. 2, September 2006, pp. 307–326.

Zimmer, Ron W., Richard J. Buddin, Derrick Chau, Glenn A. Daley, Brian P. Gill, Cassandra M. Guarino, Laura S. Hamilton, Cathy S. Krop, Daniel McCaffrey, Melinda Sandler, and Dominic J. Brewer, *Charter School Operations and Performance: Evidence from California*, Santa Monica, Calif.: RAND Corporation, MR-1700-EDU, 2003. As of January 2, 2007:

http://www.rand.org/pubs/monograph_reports/MR1700/

Zogby, Charles, interview with Research for Action staff, February 22, 2006.