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Privatizing Education in Philadelphia:

Are Educational Management Organizations Improving Student Achievement?

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Abstract

This longitudinal study of educational reforms in Philadelphia since 2002 uses multilevel change models to analyze the impact of privatization (assignment of schools to be managed by private "Educational Management Organizations" or EMOs) on middle-grades mathematics and reading achievement growth, taking account of the structural reforms (creation of new K-8 schools to replace selected middle schools) occurring simultaneously within the district. Overall, the longitudinal mathematics and reading achievement gains from fifth to eighth grade for students in EMO-managed schools were not larger than those for students in schools managed by the district. Broader systemic reforms, including district-wide increases in the quality and coherence of curriculum and professional development, appear to contribute to broad-based achievement gains in cohorts experiencing those reforms.

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Is privatization a viable option for improving urban schools and the achievement of students who attend them? This issue has captured headlines and provoked much editorial debate recently as large urban systems like Philadelphia have turned over management of some of their lowest-performing schools to private managers. Bringing additional empirical evidence to bear on this question is essential for informed policy decisions. Based on longitudinal analysis of achievement growth for four successive cohorts of Philadelphia middle-grades students, this article addresses the question of whether students in schools under private management show greater achievement growth than those in district-managed schools.

Privatization has become a popular "arrow" in the school reform quiver, particularly since Chubb and Moe (1990) launched a veritable revolution by linking higher student achievement to lower levels of bureaucratic organization in schools. There was considerable methodological debate over the Chubb and Moe study (e.g., Sukstorf, Wells, & Crain, 1993), and though proponents of educational privatization can cite some additional empirical support from studies of academic achievement to support their case (e.g., Peterson, 1999), much of their advocacy is based more on philosophical confidence in market mechanisms and decentralization as principles rather than on convincing evidence of improved outcomes for children. Privatization advocates, such as Hill and his associates (1997a, 1997b, 1997c; 1998) and Finn (1991), describe how schools are constrained and burdened by bureaucratic requirements and practices that hinder students from making academic progress and offer privatization solutions with little if any solid evidence that they result in achievement gains. Similarly, many opponents

of privatization rely more on rhetoric than hard evidence in their arguments (e.g., Bracey, 2003; Saltman, 2005).

The movement for privatization in education is philosophically related to two related trends -- site-based management (SBM) and decentralization – though recent studies (e.g., Bulkley, 2002) have noted an opposite trend as private educational management organizations (EMOs) seek to implement externally developed ("brand name") specified models of curriculum and instructional practice in schools under their control. The theory of site-based management is that the individuals who work in, run, and send their children to school will develop the most effective and lasting strategies for improvement if they are free from district constraints but held accountable for high standards (Bryk et al., 1998; Hill & Celio, 1998; Hill, Campbell, & Harvey, 2000; Mohrman & Wohlstetter, 1994, Odden & Hill, 1997; Ouchi, 2003; Wohlstetter, Mohrman, & Robertson, 1997). For example, Odden & Hill (1997) argue that the success of site-based management hinges on districts granting decision-making power to teachers and school leaders over their day-to-day operations, allocation of financial and human resources, curriculum, instructional methods, professional development, and teacher hiring and evaluation while holding the teachers and leaders to high performance standards and creating a variety of support systems to help them succeed. Advocates of this approach typically point to high-performing organizations in fields other than education that effectively use decentralized authority and decision-making to produce high-quality, cost-effective products and services and point to schools and districts that have had some success with site-based management (Bryk et al., 1998; Palmaffy, 1998; Wohlstetter, Mohrman, & Robertson, 1997). But much of the evidence supporting site-based management is from elementary schools. Even some of decentralization's strongest proponents concede that site-based management has had less of a positive effect on

large high schools and middle schools (e.g., Palmaffy, 1998; Wohlstetter, Mohrman, & Robertson, 1997). Overall, the research on the effectiveness of site-based management in improving student achievement is at best mixed (Leithwood & Menzies, 1998; Murphy & Beck, 1995).

Providing greater educational choice for families is another resounding theme in the privatization debate. Recent education policy debates have emphasized the expansion of charter schools and the provision of vouchers for use at private schools as avenues for educational choice. Despite some positive effects of charter school expansion on parental satisfaction and teacher empowerment (Hess, Maranto, & Milliman, 2001; Hess, Maranto, & Milliman, 2000), there is not yet compelling evidence that charter schools do a better job educating students (Braun, Jenkins, & Grigg, 2006; Hess & Maranto, 2000; Miron & Nelson, 2002; Murphy & Shiffman, 2002; Wells, 1998). Based on evidence from Milwaukee, Cleveland, and Edgewood, Texas, Hess (2002) also argues that vouchers offering school choice to some families have not made the districts more productive or efficient, as the theoretical case for privatization had claimed. Lubienski (2005) concludes that competition in the educational marketplace results more in innovative marketing than in real innovative improvements in instructional practice. Again, as Belfield and Levin (2005) point out, the evidence produced by those on opposite sides of the debate has an uncanny, extremely high correlation with the positions espoused by the authors.

Research on the privatization of instructional delivery and educational management has produced mixed findings. Murphy and colleagues (1998) emphasize the blend of positive and negative indicators in both the available evidence and the theoretical arguments, concluding that "contracting out is neither a magic wand nor an inherently flawed policy mechanism" (p. 85).

Several studies note how the public controversy surrounding privatization efforts has affected outcomes of those efforts (Doughty, 1997; Hunter, 1995; Leak & Williams, 1997; Walsh, 1995). Some independent evaluations have noted such achievements as lower student-teacher ratios, increased teacher autonomy, parental empowerment, increased attendance, greater student access to computers, and better-maintained facilities in schools under private management (GAO, 1996; Edwards, 1997; Peeler and Parham, 1994). While preliminary results from testing in a couple of privatization experiments were cautiously positive or mixed (Blasik & Hodges, 1997; Maryland Higher Education Commission, 1997; Jennings & Maruyama, 2000; Author, et al., 2000a), most studies have noted the lack of evidence of student achievement gains under privatization models (Ascher, 1996; Ascher, Fruchter, & Berne, 1996; GAO, 1996; Richards, 1996; Ligas, 1998). A recent study comparing student outcomes in privately managed and traditional schools in six cities found mixed results (GAO, 2003).

Educational management organizations (EMOs) have become an increasingly important actor in the educational privatization story (Bulkley, 2002, 2007; Fitz & Beers, 2002). It is important to distinguish between for-profit and not for-profit EMOs, as they do not necessarily share the same incentive structures (Levin, 2002; Henig, Holyoke, Lacireno-Paquet, & Moser, 2003). Levin (2006) points out the challenge faced by educational entrepreneurs who encounter institutional conservatism within not only individual schools as organizations, but also the web of interlocking organizations within which schools necessarily operate. The mission orientation of non-profit EMOs may diverge significantly from the market-based orientation of for-profit groups. At the same time, both "private" education provider types may engage in "political" attempts to influence how the rules of the game are defined for their operation of schools (Henig, Holyoke, Lacireno-Paquet, & Moser, 2003).

Several studies of the achievement effects of management by the for-profit EMO Edison Schools have now emerged, with mixed results. A recent national study of Edison Schools, conducted by RAND (Gill et al, 2006), emphasizes the importance of analyses over an extended period of time, as studies of Edison Schools in early implementation stages (e.g., American Federation of Teachers, 1998; Dryden, 2004; Miron & Applegate, 2000; Nelson & Van Meter, 2003) did not find the same positive achievement effects that the RAND study began to find after four or five years of implementation. The RAND study also notes that not all the positive Edison effects are statistically significant, and that sample sizes for analyses of four and five years of implementation are small.

Additional longitudinal studies of educational privatization, including for-profit EMOs, are certainly needed. Our study examines the achievement effects of recent privatization efforts in Philadelphia, addressing the need noted by Peterson (2007a) for additional independent analyses in a growing literature focused on the Philadelphia experience (Bulkley, Mundell, & Riffer, 2004; Bulkley, 2007; Gill, Zimmer, Christman & Blanc, 2007; Maranto, 2005; Useem, 2007; Useem, Christman, & Boyd, 2006). Except for the Peterson report (2007b), which used aggregate rather than student level data in its analyses, studies of the Philadelphia experience have found no evidence thus far that student achievement gains are higher in privately managed schools than in the district-managed schools. At the same time, some policy advocates interpret Philadelphia data to indicate "the power of competition and external powers to dramatically improve the overall education system" (Center for Education Reform, 2007, p. 5). Additional studies using somewhat different methodologies thus make an important contribution to the ongoing debate.

Background on Privatization in Philadelphia

A "state takeover" of the School District of Philadelphia in December 2001 led to the appointment of a new School Reform Commission (SRC) that embraced privatization and mandated restructuring as reform strategies (Maranto, 2005; Useem & Balfanz, 2002). The state and city negotiated increased expenditures for the district as part of a "friendly takeover," with the state contributing an additional $75 million and the city promising to contribute an additional $45 million. Several groups of schools among the district's 264 schools were designated to receive additional funding (ranging from $450 to $881 per pupil in the first year): the 45 schools designated to be run by private entities (both non-profit and for- profit groups); the 21 schools that were "restructured," or singled out to be in a separate subdistrict and implement mandated reforms; and 16 other low-performing schools that were rewarded with additional funds to continue their successful reforms but were not placed under a new governance structure. The remaining schools (except for four that became self-governing public charter schools) experienced little change in governance and no additional funding (Useem, Christman, & Boyd, 2006).

In July 2002 the SRC hired Paul Vallas, to serve as the district's new CEO. Vallas led the district to implement ambitious and comprehensive reforms emphasizing coherent districtwide instructional programs in reading and mathematics (and later science), as well as corresponding professional development and school-based coaching (Neild, Useem, Travers, & Lesnick, 2003). The Vallas administration simultaneously launched a "Campaign for Human Capital" designed to improve teacher quality by increasing the number of qualified applicants for the district's teaching vacancies. The reform period was thus characterized by decisive action at the district level as well as by privatized management of some district schools.

Our study focuses on the effect of this privatization effort on students in the middle grades (grades 5-8), an important and often neglected gradespan in studies of privatized management. Though it is high school reform that tops the agenda of the National Governors Association, the roots of the dropout crisis can be traced back to sixth grade, when students' marks, attendance, and behavior falter (Author et al., in press-a). Because middle-grades reform has lagged far behind reforms at the elementary level, a focus on this crucial educational stage before high school is important from a policy perspective.

The introduction of EMO-run schools in Philadelphia coincided with a movement to increase the number of K-8 schools (reducing the number of students attending middle schools). Several studies have noted higher achievement in K-8 schools compared to middle schools (e.g., Offenberg, 2001; Yakimowski & Connelly, 2001), though Byrnes and Ruby (in press) identify underlying variables (including teacher quality) accounting for the K-8 advantage that are not necessarily present in the recent high-poverty K-8 conversion schools, and Weiss and Kipnes (2006) question the reputedly negative effect of middle schools on academic outcomes. Several Philadelphia schools began converting to K-8s in the late 1990s. By 2002-03, there were eight new K-8s (six of which had eighth grade by 2000 or 2001). Almost 30 more Philadelphia schools have been in the process of converting to K-8s since 2003.

Both the privatization and K-8 conversion reforms were undertaken with the expectation that student achievement would improve under these new structures. Indeed, only schools that were failing to meet improvement goals in student achievement were assigned to be managed by EMOs, and new K-8s were created in neighborhoods where middle schools were failing. The analyses undertaken in this report seek to test the underlying hypotheses of these reform efforts. Do students at schools managed by EMOs make significantly greater improvement during the

middle grades than students at other schools? Do students at the newly converted K-8s make significantly greater improvement than students in the remaining middle schools? And what are the interaction effects between governance and gradespan structures?

Data and Methodology

Data

The analyses in this study involve both individual student record data from the School District of Philadelphia (SDP) and school level variables from publicly available files maintained by the Pennsylvania Department of Education. In addition, school level variables on teacher certification status were constructed from teacher record files from SDP. Student record data include yearly test scores as well as administrative variables (school attended, grade level, special education status, English language learner status) and demographic variables (gender and ethnicity). Individual level data on eligibility for free/reduced price lunch (FRL) were not available.

Our dependent variable measure is achievement growth on the Pennsylvania System of School Assessment (PSSA), "a standards based criterion-referenced assessment used to measure a student's attainment of the academic standards while also determining the degree to which school programs enable students to attain proficiency of the standards" (Pennsylvania Department of Education, 2007). PSSA scores have been found to be highly correlated with scores on nationally normed tests such as the CTBS/Terra Nova (Thacker, Dickinson, & Koger, 2004). Prior to 2004, when NCLB mandates led to more extensive testing, the PSSA reading and mathematics tests were administered to every Pennsylvania student in grades 3, 5, 8 and 11. The test is vertically equated so that it is possible to measure scale score growth over time (in different grades).

Aggregate Descriptive Data Analysis

Table 1 summarizes the trajectory of average performance by Philadelphia fifth and eighth graders on the PSSA reading and mathematics assessments over the past decade. For both math and reading, there was a big increase in eighth-grade scores between 2003 and 2004, the year that CEO Vallas mandated system-wide implementation of a completely specified core curriculum, pacing guides and curriculum-based assessments every six weeks, together with teacher coaches and increased time for professional development.

[Table 1 about here]

As Table 2 indicates, the average poverty rate was significantly higher in Edison schools and non-significantly higher in other EMO schools than in district-managed high-poverty schools. Average fifth grade PSSA scores in math were significantly lower at schools that would become EMO schools than at the high-poverty schools that were not assigned to an EMO. Schools that would become EMO schools had significantly higher percentages of non-certified teachers and somewhat (but not significantly) lower teacher retention rates the year before they were assigned to EMO status. There were also large prior differences among school types (middle schools, established K-8 schools, and new K-8 schools) that we summarize in Table 3 below. Our analyses therefore control for these prior differences.

[Tables 2 and 3 about here]

Sample

The analyses that follow use data from the first four cohorts of students to reach eighth grade during the years of EMO management in Philadelphia (2002-03, 2003-04, 2004-05, and 2005-06). Because only high-poverty Philadelphia schools came under EMO management, we limit our sample of schools to those under EMO management and those district-managed schools

with a comparable poverty level (82% or more students classified as "low income"). Of the 99 Philadelphia schools serving eighth-grade students[1] in 2002-03, 26 were under EMO governance. More than half (14) of these were run by Edison. Victory, Chancellor Beacon,[2] Foundations, Universal, and Temple University managed two schools each. There was a charter school and one run by the University of Pennsylvania. In 2002-03, about 30 percent of the eighth-grade students with test scores were attending the 26 middle-grades schools run by an EMO. In 2002-03 and 2003-04, 26 other schools had a poverty rate of 82% or greater and were included in the analyses.[3] Four additional high-poverty schools in the process of converting to K-8 status served eighth graders for the first year in 2004-05 (two managed by the district and two were managed by Temple University), for a total of 56 schools. The analyses for 2005-06 included data from 72 schools (21 additional new high-poverty K-8 schools, and five middle schools deleted because of closure or different grade configurations so that they no longer served eighth graders).[4] Thus in 2005-06, the analyses included 42 district-managed schools, 17 Edison schools, and 13 schools managed by other EMOs.

Because schools were assigned to EMO management based on low-achievement status, we focus on achievement growth over the course of the middle grades rather than on absolute eighth-grade achievement levels. Indeed, achievement growth has been shown to be a more reliable measure of school performance than a one-time status measure of achievement (Zvoch & Stevens, 2006). For each cohort, our analysis sample was defined as all eighth graders at EMO-managed schools and all other regular Philadelphia public K-8 and middle schools within the same range of poverty levels. Within this group, only regularly promoted students with both a fifth and eighth-grade PSSA score were included. The large majority of the students who were necessarily excluded from the analyses were new to the district, and had predictably lower

eighth-grade test scores. The small group of students who had been retained during the middle grades (also with predictably lower eighth-grade PSSA scores), together with the even smaller group of on-track students missing fifth grade scores, were also necessarily excluded from analyses. Our conclusions are therefore relevant only to achievement growth for regularly promoted students attending school in the district in both fifth and eighth grades. Missing data on other variables (demographic categories, etc.) was minimal (less than 3% of cases), and those cases were excluded from analyses. Student sample sizes ranged from roughly 4,100 to 5,300, depending on the cohort.[5]

Model Specification

We use multilevel change models (Raudenbush & Bryk, 2002; Seltzer, Choi, & Thum, 2003) to estimate the impact of the EMO and new K-8 reforms on students' achievement growth in mathematics and reading during the middle grades for each of the four cohorts described. With just two time points per student on the state tests (fifth and eighth grade), we model initial status and total growth rather than a full "growth curve." In estimating a 3-level growth model, we specify a within-student model, a between-student model, and a school level model.

At level 1, within students, we model students' achievement scores as a function of grade: $Y = P0 + P1(EIGHTH) + E$. EIGHTH is a dummy variable, coded "0" if the achievement score is from a student's fifth-grade year, and a "1" if the score is from a student's eighth-grade year. Thus, the coefficient for the intercept (P0) represents students' prior achievement in the spring of fifth grade and the slope coefficient for grade (P1) represents students' cumulative achievement growth between the spring of fifth and the spring of eighth grade.

At level 2, the between-student model, we take account of differences in prior achievement between students as they enter the middle grades and model differences in achievement growth during the middle grades that are associated with characteristics and experiences that vary between students who attend the same school. Dummy variables were constructed for demographic characteristics (gender and ethnicity), special educational status, and English language learner status, with the named characteristic coded as 1. Because individual level data on student's socioeconomic status were not available from district records, students were assigned the poverty level of their fifth grade school as a surrogate measure of family poverty level. In modeling student achievement growth, we also included a variable (SAMESCH) distinguishing those who had three years (grades 6 to 8) at the same school (coded 1) from those who did not (coded 0). We specified the following between-students model:

P0 = B00 + B01(% LOW INCOME STUDENTS IN 5TH GRADE SCHOOL) + B02(SPECIAL EDUCATION) + B03(ENGLISH LANGUAGE LEARNER) + B04(ASIAN) + B05(HISPANIC) + B06(CAUCASIAN) + B07(FEMALE) +R0

P1 = B10 + B11(FEMALE) + B12(ATTENDED SAME SCHOOL FOR 6^{TH} to 8TH) + B13(ASIAN) +B14(HISPANIC) +B15 (CAUCASIAN) + B16(SPECIAL EDUCATION) + B17(ENGLISH LANGUAGE LEARNER)[6]

At Level 3, the school level, we tested for interactive effects of the management and grade span interventions on students' achievement growth in mathematics or reading, controlling for existing differences between schools prior to the assignment of schools to be run by an EMO or not (prior percent of non-certified teachers), as well as controlling for school poverty level (percent of students eligible for free or reduced price lunch) and average achievement of each

school's incoming sixth-grade cohort (average math or reading NCE score on the PSSA math at the end of fifth grade).

Each school's management (EDISON or OTHER EMO) and grade span (OLD K8 or NEW K8) were coded as dummy variables (with named type equal to 1, and unnamed types – district-managed schools and middle schools -- equal to 0) and a set of product variables (such as EDISON × OLDK8) denoted each school's cross-classification.[7] We specified the following between-schools model:[8]

B00 = G000 + U00

B01 = G010 + U01

B02 = G020 + U02

B03 = G030 + U03

B04 = G040 + U04

B05 = G050 + U05

B06 = G060 +U06

B07 = G070 +U07

B10 = G100 + G101(NEW K-8) + G102(OLD K-8) + G103(EDISON) + G104(OTHER EMO) + G105(EDISON × NEW K-8) + G106(EDISON × OLD K-8) + G107(OTHER EMO × OLD K-8) + G108(SCHL'S % FRL) + G109(SCHL'S PRIOR % OF NON-CERTIFIED TCHRS) + G1010(AVG INCOMING MATH OR READING NCE @ END OF 5TH GRADE) + U10

B11 = G110 + U11

B12 = G120 + U12

B13 = G130 + U13

B14 = G140 + U14

B15 = G150 + U15

B16 = G160 + U16

B17 = G170 + U17

Findings

Table 4 shows the HLM estimates for the impact of each of the independent variables on math score gains for each of the four cohorts. Omnibus testing of the product term coefficients indicate there were significant Management X Gradespan interaction effects ($p < .01$) on students' math gains in each of the first three cohorts (2003 cohort χ^2 (3) = 61.2, 2004 cohort χ^2 (3) = 35.3, 2005 cohort χ^2 (4) = 16.5), but not in the last (2006 cohort χ^2 (4) = 4.1). The nature of these effects can be seen in the coefficients from the last seven rows in the table.

[Table 4 about here]

Consider the EDISON and OTHEREMO coefficients in Table 4. These coefficients compare the three-year math achievement gains for eighth graders in <u>middle schools</u> that have been under Edison or other EMO management for one year (2003 cohort), two years (2004 cohort), three years (2005 cohort) or four years (2006 cohort) with those in district-managed middle schools. Mathematics achievement gains during the middle grades in Edison-managed middle schools were not significantly different than in district-managed middle schools. However, students in district-managed middle schools outgained those in other EMO-managed middle schools by 26.7 points ($p <.001$) in the 2003 cohort, by 26.9 points ($p < .1$) in the 2004 cohort, by 33.8 points in the 2005 cohort ($p < .05$), and by 27.1 points (not significant) in the 2006 cohort.

The OLDK8 coefficients indicate that eighth graders in district-managed older K-8 schools outgained those in district-managed middle schools in math by about 33 points in 2003,

60 points in 2004, 34 points in 2005 and 56 points in 2006. These effects were statistically significant in three of the four cohorts. The EDISON × OLDK8 coefficients indicate that the small number of eighth graders in Edison-managed old K-8 schools (e.g., n = 35 in Cohort 2003) achieved three-year gains that were significantly higher than those in district-managed old K-8 schools in the 2003 cohort but not in the other cohorts. In contrast, the OTHEREMO × OLD K8 coefficients indicate that the small number of eighth graders in non-Edison EMO-managed old K-8 schools gained significantly less than did eighth graders in district-managed old K-8 schools in the first two of the four cohorts.

The NEWK8 coefficients for mathematics achievement growth indicate eighth graders in newly established district-managed schools did not significantly outperform middle schools in any cohort, though a performance advantage that approached statistical significance was found in the third cohort. The fourth (2006) cohort, which included many more K-8 schools serving eighth graders for the first time, did not show even a marginally positive new K-8 math achievement effect. The EDISON × NEW K8 coefficients indicate that eighth graders in Edison-managed new K-8 schools did not significantly outgain those in district-managed new K-8s in any cohort. The model does not include an OTHEREMO × NEWK8 product variable until the 2005 cohort (when the two schools in this category had eighth graders for the first year). As Table 4 indicates, the math achievement gains attained by the 63 eighth graders in these schools were significantly higher than those in district-managed and Edison-managed new K-8s in 2005, but this effect was not sustained in the subsequent cohort of students (2006).

We present comparable analyses of reading score gains in Table 5. Omnibus testing of the product term coefficients indicate there were significant Management X Gradespan interaction effects ($p < .05$) on students' reading gains in each of the cohorts [2003 cohort χ^2 (3)

= 26.5, 2004 cohort χ^2 (3) = 119.4, 2005 cohort χ^2 (4) = 11.5, 2006 cohort χ^2 (4) = 13.1]. The nature of these effects can be seen in the coefficients from the last seven rows in the table.

[Table 5 about here]

The EDISON and OTHEREMO coefficients in Table 5 compare the three-year reading achievement gains for eighth graders in middle schools that have been under Edison or other EMO management for one year (2003 cohort), two years (2004 cohort), three years (2005 cohort), or four years (2006 cohort) with those in district-managed middle schools. Except in the first cohort (in which there was a significantly negative impact of Edison management), reading gains during the middle grades in Edison-managed middle schools were not significantly different than in district-managed middle schools. Eighth graders in district-managed middle schools outgained those in other EMO-managed middle schools by 30.5 points ($p < .01$) in the 2003 cohort, by 8.8 points in the 2004 cohort, by 50.0 points in the 2005 cohort and 25.2 points in the 2006 cohort. Differences in the last three cohorts were not statistically significant at $p<.05$ because of large variation in this cohort among the middle schools managed by other EMOs.

As shown in Table 5, if one compares the reading gains achieved by students in the older K-8 schools, the small group of students in the one Edison-managed older K-8 school (n=35 in the 2003 cohort) outgained those in district-managed older K-8 schools, except in the 2006 cohort. Reading gains were significantly higher at district-managed established K-8 schools (compared to district-managed middle schools) only in the 2006 cohort. The reading gain results for established K-8 schools managed by other EMOs varied widely by cohort (marginally higher than district-managed old K-8s in the 2003 cohort, significantly lower than district-managed old K-8s in the 2004 and 2006 cohorts, and not significantly different in the 2005 cohort).

The NEWK8 coefficients in Table 5 indicate that reading gains at the newly established K-8 schools managed by the district were significantly different from those at district-managed middle schools only in the 2004 cohort. Students at the new K-8s managed by Edison marginally outgained those at district-managed new K-8s in reading (p=.131) in the 2003 cohort, but did not perform significantly better in later cohorts. New K-8s managed by other EMOs in the 2005 and 2006 cohorts (that did not have eighth graders in the earlier cohorts) also did not outperform the district middle schools.

In short, achievement gains through spring 2006 in the privatized schools were not significantly greater than in the district-managed schools. Non-Edison EMO-managed schools actually performed *worse* than district-managed schools during this period (though two Temple University-managed new K-8s achieved promising results with their first small cohort of eighth graders). The results in Edison schools have been neither significantly nor consistently different from those in district-managed schools. In the first cohort encountering privatization, the 35 Edison eighth graders from an older K-8 school outgained the 553 eighth graders in district-managed older K-8 schools in math and reading, and this effect continued for reading in two more cohorts. But Edison did not significantly outperform the district when managing large middle schools or new K-8 schools.

The early results from the K-8 conversion experiment are also mixed. While students in long-established K-8s generally outperformed students in middle schools, students in newly converted K-8s did not always significantly outgain those in middle schools or match the gains found in older K-8 schools. This suggests that Philadelphia's attempt to replicate the achievement success often found in the older generation of K-8 schools by creating a new generation of such schools has not yet been entirely successful.

What is even more notable in these data than comparisons between Edison- and district-managed schools and between K-8 schools and middle schools are comparisons between the 2003 cohort of students and the subsequent cohorts. The cohorts of eighth graders in 2004, 2005, and 2006 showed math gains that were much larger than those shown by the 2003 cohort of eighth graders. This finding was broad based, occurring in middle schools and K-8 schools, in Edison schools and district-managed schools. It suggests that the systemic reforms of the Vallas era that have impacted all Philadelphia schools regardless of grade span or management may be having very positive effects. The pattern was not as pronounced in reading, however, as reading gains for the 2005 and 2006 cohorts were more similar to those of the 2003 cohort than those of the 2004 cohort.

Demographic predictors of baseline (fifth grade) scores followed predictable patterns, for the most part. While demographic variables had few significant effects on student growth during the middle grades in the 2003 cohort, there were several significant effects in the later cohorts (for example, the strong gains in these cohorts were even stronger for females and Asians.) This suggests that some subgroups benefited more from the systemic changes than others. The analyses also show that students who remain in the same school throughout the middle grades consistently had higher achievement growth. This finding suggests that students benefit from the greater stability and coherence in relationships and instructional programs that they encounter when they stay in the same school.

Discussion

Why haven't privatization reforms over the past four years in Philadelphia resulted in significantly higher achievement gains, compared to middle-grades students in district-managed schools? Privatization proponents may argue that there has not been sufficient time for the

reforms to achieve their intended results or that there hasn't been sufficient external management control in the way the reforms have worked out in Philadelphia. We suggest that privatization has not directly addressed the key determinants of student achievement growth uncovered in previous educational research.

Perhaps four years is not sufficient for any reform, including privatization reforms in middle-grades schools, to show the results that are significantly better than the district comparison group. Studies of Edison Schools in early implementation stages (e.g., AFT, 1998, Dryden, 2004; Miron & Applegate, 2000; Nelson & Van Meter, 2003) did not find the same positive achievement effects that the RAND study began to find after four or five years of implementation (Gill et al., 2006). Studies of Comprehensive School Reform have also indicated the need for at least three to five years to show measurable impact on student achievement (Appelbaum & Porter, 2002; Bodilly, 1998). Given the longitudinal trends in findings for Edison and other EMOs in the analyses reported here, however, it is unlikely that significant positive effects would occur within the next several years.

Some may argue that the absence of a positive impact of EMOs on student achievement in Philadelphia is due to incomplete implementation of a privatization model. As Bulkley, Mundell, and Riffer (2004) point out, the Philadelphia "diverse provider model" has not fully met the criteria set forth by Hill, Campbell, and Harvey (2000). Both teachers and principals remained employees of the school district, and providers had to initially honor union contracts. Principals had to answer to both the EMO provider and to the district. This situation was in part necessitated by contractual and political realities in a city with strong and respected unions and by the district's non-assignable legal responsibilities (e.g., to assure student safety and the provision of special education services). Except in a rare district where all such issues can be

completely resolved, it will be impossible for private providers to have total control over the public schools they manage. Special education liability issues are particularly hard to resolve given the huge numbers of special education students in big city districts and the court-ordered monitoring of services in many of these districts. But if private providers are exempted from serving special education students, it will be particularly problematic to compare the performance of their schools with public counterparts.

Privatization reforms probably haven't shown significantly better results than district schools in Philadelphia because they do not directly address the core variables shown in many other educational research studies to influence student achievement: teacher quality and professional capacity (Sanders & Rivers, 1996; Sanders & Horn, 1998; Sebring, Allensworth, Bryk, Easton, & Luppescu, 2006), principal instructional leadership (Alig-Mielcarek, 2003; Hallinger & Heck, 1996), school climate focused on academic achievement or academic press (Hoy & Sabo, 1998; Hoy & Hannum, 1997), and schoolwide consistency and coherence in curriculum and instruction (Newmann, Smith, Allensworth, & Bryk, 2001). Even though EMO providers may have well-developed strategies to address these particular variables, as Gill et al. (2006) demonstrate regarding Edison Schools, a reform strategy focused on private management subordinates those core variables to the locus of management variable, perhaps assuming that private management will address all other relevant variables more effectively than will district management. It is possible that EMOs may in the long run attract higher quality teachers, who will be able to help raise student achievement significantly more than teachers in district-administered schools. In the short run, however, the percentage of certified teachers schools remained significantly lower at EMO schools than non-EMO schools (as it had been prior to the assignment of schools to EMO providers). Similarly, it is possible that EMO-managed schools

will eventually show higher levels of instructional leadership, academic press, and instructional coherence, but there is not yet evidence that this has occurred.

Recent findings by Sebring, Allensworth, Bryk, Easton, & Luppescu (2006) in Chicago regarding key variables influencing student achievement suggest that future research on the impact of private management should address the following questions more directly: Will private management encourage improved school leadership -- either by attracting higher quality principals from within or outside the school district or by implementing a better system of developing and nurturing school leadership? Is private management more effective than district management in strengthening parent and community ties? Does private management do a better job than the district of building professional capacity among teachers and building a student-centered learning climate at the school? Future studies should investigate the possible indirect effects of private management on student achievement through these more proximal variables.

The more important story in the longitudinal analyses of middle-grades student achievement presented in this article is that broad-based achievement gains have occurred across all types of middle-grades schools (district and EMO- managed) since 2003, when the district-led curricular reforms began. Edison Schools officials attribute large district wide gains to the competition with private management (Viadero, 2006). But a more plausible alternative hypothesis is that district leaders, influenced by both national accountability pressures and by educational research findings regarding factors related to student achievement growth, themselves initiated increased coherence and coordination of curricula and professional development, increased focus on student outcomes, and increased resources for low-performing schools. Further analyses using cohort years and looking at changing interventions across all schools and between different categories of schools will be necessary to confirm or disconfirm

these hypotheses. On the surface, it appears that greater instructional coherence, along with increased resources from the state, especially compared with decentralization and paucity of funding under the Children Achieving reforms, has contributed to student success in Philadelphia. These findings echo those from New York District #2 (Elmore & Burney, 1997; D'Amico, Harwell, Stein, & van den Heuvel, 2001) and San Diego (Darling-Hammond et al., 2002; Hightower, 2002) and other studies of district central offices (e.g., Snipes, Dolittle, & Herlily, 2002; Hightower, Knapp, Marsh, & McLaughlin, 2002). In many ways, lessons learned from some of the comprehensive school reform models (e.g., Author et al, 2000b; Author et al., in press-b; Herlily & Kemple, 2005) have been scaled up to the district level in Philadelphia, with notable initial success. Evidence about the positive achievement effects of whole school reform efforts including an NSF-supported math curriculum during the Children Achieving era in Philadelphia (Author et al., 2007) also lends weight to the argument that it was specific instructional reforms, rather than privatization, that led to the district-wide achievement gains after the introduction of a common district curriculum and instructional supports in 2003-04. Whether such gains will continue, and urban students will actually begin to close the achievement gap with their more advantaged counterparts, graduating from high school and entering the productive work force in higher numbers, remains to be seen.

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Table 1

Median PSSA Percentile Scores for Philadelphia Schools, 1996-2006

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Math											
5th Grade Percentile	15	15	14	15	15	19	19	20	23	27	26
8th Grade Percentile	16	17	16	17	18	19.5	21	23	28	28	27
Reading											
5th Grade Percentile	16	16	15	15	18	19	20	21	24	23	22
8th Grade Percentile	21	22	21	19	19	20	22	23	27	27	26

Table 2

Pre-Existing Differences between Schools Chosen for EMO Management and Other Schools

School Characteristics	Edison Schools (n=14)	Other EMO Schools (n=12)	Non-EMO Schools (n=26)
Average Fifth Grade PSSA NCE Math Score (2002) (incoming students)	23.9*	23.6*	29.0
Average Fifth Grade PSSA NCE Reading Score (2002) (incoming students)	26.0*	26.2*	28.8
% Low Income Students (2001-02)	88.6*	82.9	80.5
% Non-certified Teachers (2001-02)	23.8*	18.5*	10.9
% of Teachers Returning in 01-02 (from prior year)	82.3	84.1	86.2

* Significantly different from non-EMO schools at $p<.05$.

Table 3

Pre-Existing Differences between School Types

School characteristics	Middle Schools (n=28)	Old K-8 Schools (n=16)	New K-8 Schools (n=8)
Average fifth grade PSSA NCE Math Score (2002) (incoming students)	25.0	28.8*	26.4
Average fifth grade Incoming PSSA NCE Reading Score (2002) (incoming students)	26.7	28.8	27.3
% Low Income Students (2001-02)	83.7	80.0	89.0*
% Non-certified Teachers (2001-02)	18.5	9.9*	20.4
% of Teachers Returning in 01-02 (from prior year)	84.6	85.6	83.3

* Significantly different from middle schools at $p<.05$

Table 4
Modeling Prior Math Achievement and Math Achievement Growth: HLM Estimates for Four Cohorts of Eighth Graders

Fixed Effect	2003			2004			2005			2006		
	Coeff	(se)	Signif	Coeff	(se)	Signif	Coeff	(se)	Signif	Coeff	(se)	Signif
Model for P0 (math scale score in 5th grade)												
Intercept	1104.7	(4.8)	***	1117.1	(5.2)	***	1114.9	(5.3)	***	1145.7	(7.3)	***
Female	-2.9	(3.2)		3.0	(3.4)		-2.7	(3.5)		-9.5	(4.1)	*
Asian	84.2	(13.1)	***	106.6	(14.1)	***	100.5	(13.1)	***	100.7	(15.3)	***
Hispanic	18.2	(5.7)	**	19.1	(7.0)	**	21.2	(6.6)	**	20.7	(11.1)	†
Caucasian	62.0	(8.9)	***	51.0	(10.6)	***	77.3	(13.9)	***	32.4	(11.7)	**
Special Educ	-72.1	(8.5)	***	-31.3	(8.2)	**	-115.6	(11.4)	***	-148.6	(8.7)	***
Eng Lang Learner	-52.0	(15.8)	**	-58.4	(16.0)	**	-68.8	(10.3)	***	-109.8	(14.8)	***
% Low Inc (5th Grade Sch)	-0.6	(0.2)	***	-1.3	(0.3)	***	-0.3	(0.2)		-0.7	(0.3)	*
Model for P1 (math scale score gain)												
Intercept	32.1	(4.9)	***	75.1	(10.8)	***	83.6	(13.7)	***	58.0	(16.0)	**
Attended same school	17.2	(3.7)	***	21.9	(4.7)	***	20.1	(6.3)	**	21.1	(6.3)	**
Female	1.2	(3.1)		11.5	(3.4)	**	11.3	(4.7)	*	-5.8	(4.3)	
Asian	11.9	(9.6)		23.3	(8.6)	**	47.2	(13.1)	**	24.7	(9.9)	*
Hispanic	-5.0	(7.3)		2.3	(6.8)		1.6	(5.8)		-1.0	(6.9)	
Caucasian	-18.0	(8.5)	*	-18.0	(10.0)	†	-7.5	(12.7)		3.2	(12.8)	
Special Educ	6.0	(6.8)		-15.4	(4.9)	**	-2.0	(13.0)		-18.7	(9.1)	*
Eng Lang Learner	-5.4	(10.8)		-32.8	(15.9)	*	28.5	(15.4)	†	21.8	(11.1)	†
Avg. Incoming Math NCE	-1.7	(0.7)	*	-0.6	(1.0)		0.0	(.1)		-4.2	(1.0)	***
Schl's prior % non-cert	-0.3	(0.3)		0.8	(0.6)		0.2	(0.8)		-0.3	(0.5)	
Schl's %FRL	-2.5	(0.8)	**	-0.3	(0.9)		-0.6	(1.5)		-0.4	(1.5)	
Edison	**-14.3**	**(9.3)**		**19.3**	**(18.4)**		**23.6**	**(20.2)**		**0.2**	(18.6)	
Other EMO	**-26.7**	**(7.2)**	***	**-26.9**	**(13.7)**	†	**-33.8**	**(14.5)**	*	**-27.1**	(17.6)	
Old K8	**32.8**	**(9.4)**	***	**60.0**	**(14.2)**	***	**33.8**	**(21.3)**		**55.7**	(21.6)	*
Edison X Old K8	**52.1**	**(15.6)**	**	**4.3**	**(21.1)**		**11.2**	**(26.3)**		**-30.6**	(27.9)	
Other EMO x Old K8	**-26.5**	**(10.4)**	*	**-81.0**	**(16.5)**	***	**-22.4**	**(22.2)**		**-40.9**	(22.5)	†
New K8	**-1.8**	**(16.6)**		**25.9**	**(23.9)**		**32.6**	**(19.0)**	†	**1.6**	(21.9)	
Edison x New K8	**27.2**	**(21.8)**		**5.7**	**(42.7)**		**-15.8**	**(35.7)**		**-3.7**	(29.0)	
Other EMO x New K8	**NA**			**NA**			**163.4**	**(61.3)**	**	**-5.4**	(25.4)	

† p<.1 *p<.05 **p<.01 ***p<.001

Table 5
Modeling Prior Reading Achievement and Reading Achievement Growth: HLM Estimates for Four Cohorts of Eightth Graders

Fixed Effect	2003			2004			2005			2006		
	Coeff	(se)	Signif	Coeff	(se)	Signif	Coeff	(se)	Signif	Coeff	(se)	Signif
Model for P0 (reading scale score in 5th grade)												
Intercept	1099.2	(3.1)	***	1101.4	(4.7)	***	1111.3	(4.6)	***	1120.8	(6.4)	***
Female	4.4	(3.8)		31.6	(4.8)	***	25.4	(4.2)	***	11.4	(4.4)	*
Asian	53.1	(14.4)	***	68.6	(12.4)	***	61.9	(13.8)	***	41.3	(15.3)	**
Hispanic	-9.2	(5.0)	†	-3.8	(8.9)		15.0	(6.7)	*	-9.1	(8.3)	
Caucasian	70.8	(9.9)	***	34.6	(10.5)	**	69.5	(12.0)	***	23.8	(12.9)	†
Special Educ	-82.1	(10.7)	***	-41.1	(10.8)	**	-139.8	(18.2)	***	-173.3	(7.3)	***
Eng Lang Learner	-50.7	(18.1)	**	-97.5	(15.3)	***	-89.6	(9.7)	***	-151.0	(18.0)	***
% Low Inc (5th Grade Sch)	-0.8	(0.3)	**	-1.6	(0.3)	***	-0.2	(0.2)		-0.9	(0.4)	*
Model for P1 (reading scale score gain)												
Intercept	47.2	(9.3)	***	81.3	(11.3)	***	54.9	(19.3)	**	47.2	(12.0)	***
Attended same school	22.1	(5.0	***	19.5	(6.2)	**	31.9	(7.6)	***	25.8	(7.2)	**
Female	29.6	(4.3)	***	24.1	(5.1)	***	57.0	(5.5)	***	18.7	(5.8)	**
Asian	24.4	(8.4)	**	44.7	(10.3)	***	7.0	(13.3)		42.6	(11.1)	***
Hispanic	10.7	(8.9)		12.4	(9.5)		-10.4	(7.7)		12.6	(7.1)	†
Caucasian	-16.9	(8.5)	*	3.5	(10.2)		-3.5	(13.1)		4.5	(13.1)	
Special Educ	-78.8	(9.8)	***	-65.7	(9.1)	***	-58.7	(22.2)	*	-66.9	(10.9)	***
Eng Lang Learner	-6.1	(10.0)		-33.2	(17.6)	†	23.1	(16.7)		-0.8	(23.9)	
Avg. Incoming Read NCE	3.0	(1.5)	†	4.6	(1.0)	***	5.0	(2.0)	*	-0.7	(1.3)	
Schl's prior % non-cert	-0.5	(0.5)		-0.8	(0.5)		-0.2	(1.0)		0.3	(0.9)	
Schl's %FRL	-0.1	(1.2)		0.9	(0.8)		-1.2	(2.2)		-2.7	(1.6)	†
Edison	**-49.0**	**(13.6)**	**	**-8.9**	**(17.4)**		**-21.5**	**(33.3)**		**-0.7**	**(24.0)**	
Other EMO	**-30.5**	**(10.8)**	**	**-8.8**	**(10.3)**		**-50.0**	**(26.6)**	†	**-25.2**	**(14.1)**	†
Old K8	**28.0**	**(14.4)**	†	**30.0**	**(16.9)**	†	**25.2**	**(29.0)**		**82.7**	**(17.7)**	***
Edison X Old K8	**95.7**	**(18.5)**	***	**97.8**	**(22.6)**	***	**96.0**	**(41.4)**	*	**-22.2**	**(29.5)**	
Other EMO x Old K8	**31.6**	**(15.0)**	*	**-48.8**	**(17.4)**	**	**19.3**	**(31.5)**		**-53.9**	**(20.5)**	**
New K8	**16.7**	**(15.5)**		**48.1**	**(16.8)**	**	**20.2**	**(24.5)**		**31.9**	**(20.9)**	
Edison x New K8	**30.4**	**(19.8)**		**-20.7**	**(25.7)**		**-19.1**	**(37.2)**		**-14.3**	**(32.8)**	
Other EMO x New K8	**NA**			**NA**			**27.6**	**(57.6)**		**12.6**	**(25.3)**	

† p<.1 *p<.05 **p<.01 ***p<.001

Endnotes

1 Because of schools that were transitioning into becoming K-8s, there were actually more than 100 schools serving middle-grades students, but many had not yet added eighth grade. Only those high-poverty schools with eighth graders having PSSA math test scores were used in the following analyses. Alternative schools for students with behavioral problems were also excluded from the analyses since school level data were not available from the district on these schools.

2 Chancellor Beacon lost its contract with the district the following year, but the schools were coded as "Other EMO" schools in the Cohort 2 analyses since they had been originally assigned to an EMO. For the Cohort 3 and Cohort 4 analyses they were coded as "District schools."

3 In 2003-04 one of the original 52 schools no longer served eighth graders (converted fully from 7-12 to 9-12), and one high-poverty elementary school had completed its K8 conversion and now included eighth graders for the first time. So there were still 52 schools in the analysis (with one replacement)

4 Several of the additional new K8s in this final cohort had served eighth graders previously but did not meet the poverty level criteria according to earlier available data.

5 The number of eighth-grade students from high-poverty schools who were included in Philadelphia PSSA score files was 7389 in 2003, 6502 in 2004, 7033 in 2005, and 7000 in 2006. The percentage of students with fifth grade PSSA scores three years earlier was 70.3% for Cohort 1, 74.9% for Cohort 2, and 75.9% for Cohort 3. In Cohort 4 (Spring 2006 scores) there were 1668 students missing the student id variable who could not be linked to previous scores, therefore lowering the percentage of students with fifth grade scores to 61%. Student scores with

no id were significantly lower than those of students with an id, but the distribution of "no id" was widespread across all schools and management types, with no discernable pattern. The majority of students with no fifth grade score had no district record for that year (percentage, calculated as of total students with eighth-grade score, ranged from 14.8% to 21.8%; by contrast, the retained student percentage ranged from 3.6% to 7.3%, and percentage of on-track district students with no fifth grade score ranged from 1% to 3%). Students with missing data on fifth grade scores had significantly lower eighth-grade scores than those not missing data, but were distributed randomly among EMO and non-EMO schools. Of the designated sample of students with both scores, less than 3% in each cohort were missing data on demographic data. Those with missing data had significantly lower test scores, but were randomly distributed between EMO and non-EMO schools. These cases were excluded. Students missing data on 6^{th} or 7^{th} grade school number were kept in the analyses and coded as "not at the same school for 3 years," since this was the most likely scenario explaining the missing data.

6According to the empirical analysis, there was no evidence to support a random effect in the slope equation.

7 Although two of the K-5 schools being gradually converted into K-8s were assigned to a Non-Edison EMO, these schools did not have any eighth graders until their fifth-graders from Spring 2002 reached eighth-grade in Spring 2005. Therefore, the model does not include an OTHEREMO × NEWK8 product variable until the 2005 cohort. Other studies (Gill, Zimmer, Christman & Blanc, 2007; Byrnes & Neild, 2007) have already considered the impact of district restructuring (assigning a school to be managed by the Office of Restructured Schools within the district) in addition to assignment to an EMO on student achievement growth, finding significantly greater gains in math for the restructured schools, compared to the rest of the

district. Because the current study focuses only on the high-poverty middle-grades schools, and seeks to examine the interactions between management type and gradespan, the number of schools is not sufficiently high to include additional analytical categories (and associated interaction terms). Analyses that take into account whether eighth graders in 2005-06 were enrolled in an EMO-managed school during their fifth grade year (2002-03, Year 1 of EMO implementation) pose complex interpretation problems (given two different school levels and multiple interaction terms). Since they necessarily differ from analyses for the first three cohorts, we do not pursue this analytical course in this article.

8 When a chi-square test indicated that the residual parameter variance associated with certain effect in the model was not significant, we simplified the model by setting the residual parameter variance to zero. For example, in the math achievement analyses of the 2003 cohort, the residual variance was set to zero for these parameters: the effects of FEMALE on P0 (math scale score in Spring of fifth grade) and the effects of FEMALE, ENG LANG LEARNER, ASIAN, HISPANIC, WHITE, and ATTENDED SAME SCHL FOR 6^{TH} to 8TH on P1 (math scale score gain between spring of fifth grade and spring of eighth grade).