

Recruiting, Evaluating and Retaining Teachers:  
The Children First Strategy to Improve New York City's Teachers<sup>1;2</sup>

Margaret Goertz, University of Pennsylvania  
Susanna Loeb, Stanford University  
Jim Wyckoff, University of Virginia

Prepared for the New York City Education Reform Retrospective Project

November 2010

This paper will be published in a slightly edited form in  
*Education Reform in New York City:  
Ambitious Change in the Nation's Most Complex School System,*  
to be published by Harvard Education Press in spring 2011

**DRAFT FOR CONFERENCE INVITEES ONLY**

**EMBARGOED UNTIL 9 AM NOVEMBER 10, 2010**

“No reform is more critical to closing the nation's shameful achievement gap than boosting the quality of teachers in high-poverty schools.” Chancellor Klein, *Houston Chronicle*, February 20, 2010.

“Poor and minority students will never get their fair share of educational opportunity—and are far more likely to lead unsuccessful lives—until administrators and political leaders commit to fundamentally changing the way teachers are recruited, rewarded, and retained.” Chancellor Klein, “Transforming the Teaching Profession,” *Huffington Post*, May 8, 2009.

Improved outcomes for children have been the oft-stated goal of the reforms that characterize the last eight years of education policy in New York City (NYC)—collectively known as the Children First reform movement. From the outset, Children First reforms have targeted classroom teaching as an important mechanism by which to improve student achievement. Many of the reforms have specifically addressed the recruitment, assignment, development, and evaluation of teachers in an effort to improve teaching quality. In addition, there have been a variety of new and altered policies affecting resource allocation to schools, school leadership, accountability systems, school supports, school curriculum, and even school buildings. The intent of these policies, at least in part, has been to create incentives and an environment that lead to improved teaching.

A main focus of the Children First reforms has been to grant schools increased autonomy in exchange for increased accountability for outcomes. Over time, principals were given authority over hiring, staff development, and budget allocations, and then held more accountable for improved student outcomes. As part of the reform, the New York City Department of Education (DOE) has also put in place a common curriculum in ELA and mathematics (first required, and now available as a resource) and structures and policies to build capacity of staff and leaders throughout the system. Specifically, for teachers, Children First has established new policies and structures to improve teacher recruitment and assignment, school working conditions and teacher retention, and teacher evaluation processes and supports for improvement. Attention to these elements shows awareness of the labor market forces that prior research has identified as important for teacher quality. For example, recruitment efforts can meaningfully change the pool of teacher candidates,<sup>3</sup> and working conditions strongly influence teachers' decisions about whether to stay in a particular teaching job.<sup>4</sup> However, while there is ample evidence concerning the general dynamics of teacher workforces, little research provides evidence on the effectiveness of the specific interventions used to improve teaching in New York City. The evidence that is available suggests that the DOE initiatives have met with some success.

In this chapter we describe the policies of the DOE that intended to directly and indirectly improve the quality and effectiveness of teachers. Our intent is to assess whether these Children First policies made a difference in student outcomes. To accomplish this we utilize existing research to evaluate the potential effectiveness of these strategies, and we identify policies for which evidence is currently weak. Two of the authors of this chapter have worked with colleagues over the last eight years to explore the implications of a number of policies intended to improve the quality of teachers and teaching in NYC schools. A good portion of this chapter includes a summary of this work. That research employed data from a variety of sources, but primarily relied upon individual-level data on teachers and students in NYC from 2000 through 2008. In addition, we integrate similar research by other authors. Whenever possible, we employ research that links policies related to teachers and teaching to their effects on student achievement. As a result, this chapter differs from the others in this volume in that we primarily synthesize existing research. We begin by describing the environment for teachers and teaching in New

York City prior to 2002. We then review the reforms undertaken as part of Children First and the evidence of the effectiveness of these reforms. We conclude with a discussion of the overall approach.

## BACKGROUND

In the years leading up to 2002, the environment for teacher recruitment and retention in New York City was bleak. Much of New York City's difficulty in teacher recruitment is evidenced by the statistic that from at least as early as 1995–96 through 2001–02 roughly half of all new teachers were temporarily licensed (uncertified).<sup>5</sup> The proportion of uncertified teachers in NYC was far greater than in any other school district in New York State and likely greater than most districts nationally. Other measures of teacher qualifications were also notably weak. For example, 25% of newly hired teachers in 1999–2000 had failed the New York State certification exam on the first taking, 26% had attended undergraduate institutions rated by Barrons as uncompetitive, and, on average, newly hired teachers had average math and verbal SAT scores of 466 and 477, respectively.<sup>6</sup> (These averages do mask great diversity within New York's teaching workforce, as many new teachers had strong academic ability and preparation.) These statistics do not necessarily imply that these newly hired teachers were not strong teachers—the relationship between teachers' background characteristics and their effectiveness is weak. However, they do raise flags concerning the ability of the district to attract and hire more qualified teachers.

Weak teacher recruitment and retention policies and practices have important implications, especially for poor, nonwhite, and low-achieving children. Within school districts like New York City, teacher salaries vary only modestly, if at all, depending on school working conditions. Therefore, schools with disproportionate shares of poor, nonwhite, and low-achieving students struggle to attract effective teachers. Table 1 describes how teaching qualifications were distributed by the free lunch status of their students across New York City elementary schools in 2000. Although the average qualifications of teachers in the least poor schools are not impressive, they are consistently better than those of teachers in the schools with high concentrations of poor students. As one example, only 4% of teachers were uncertified in the 10% of elementary schools with the lowest percentage of poor children. In contrast, over 20% of the teachers in the poorest decile of schools were uncertified. Similar differences exist for most of the other qualification measures.

New York City also had a weak record of teacher retention, especially in the most challenging schools and among their most qualified teachers. For example, between 1996 and 2002 only 20% of new teachers in the top quartile on the certification exam left high-achieving schools following their first year, but 34% of those teaching in low-achieving schools left after one year. By contrast, 14% of teachers in the *bottom* quartile on the certification exam left high-achieving schools after one year, and 17% left low-achieving schools.<sup>7</sup> Thus, while it is likely that many New York City schools were staffed by able teachers, it is equally likely that many schools, especially those serving students most in need of strong teachers, were not.

**Table 1: Qualifications of Teachers by Percentage of Students Eligible for Free Lunch in Schools in Which They Taught in 2000\***

<b>Teacher Attribute</b>	<b>Lowest 10%</b>	<b>&gt;10th to 25th percentile</b>	<b>2nd quartile</b>	<b>3rd quartile</b>	<b>&gt;75th to 90th percentile</b>	<b>Highest 10%</b>
Percent with less than 3 years of NYC teaching experience	14.7%	18.6%	20.8%	22.9%	25.1%	25.4%
Percent who failed Liberal Arts and Science Certification Test on first attempt	12.2%	16.8%	23.5%	29.6%	35.3%	34.2%
Percent who attended least competitive undergraduate institutions	23.5%	22.9%	23.5%	25.3%	27.5%	27.4%
SAT verbal score	506	487	481	472	465	461
SAT math score	490	477	468	461	451	447
Average expenditures per pupil (real 2005 dollars, using CPI)	\$8,002	\$8,335	\$8,338	\$8,738	\$9,093	\$9,479
Percent eligible for free lunch	21.6%	50.4%	67.6%	81.6%	90.5%	96.3%

\* Source: D. Boyd, H. Lankford, S. Loeb, J. Rockoff, and J. Wyckoff, "The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High Poverty Schools," *Journal of Policy Analysis and Management* 27, no. 4 (2008): 793–818.

These patterns in teacher qualifications and attrition rates are, at least in part, the result of structural features—including regulations, policies and processes—that influence the overall supply of teachers to New York City and the distribution of those teachers across schools. In the years leading up to 2002, these structures often worked against the development of a highly qualified and effective teaching workforce. Below we discuss four of these features:

- Teacher compensation
- School working conditions
- Recruitment and transfer systems
- Teacher evaluation and supports for improvement

#### *Teacher Compensation*

In 2000, the salary for starting teachers with a BA was \$33,186 (\$40,303 when adjusted for inflation to 2008). Real salaries at nearly all steps in the schedule remained relatively flat during the 1990s and were somewhat lower than they had been in 1989. In 2000, starting salaries in New York City were about 20% lower than the average starting salaries in the New York City suburban school districts at that time. The differential for experienced teachers was even greater. In addition, the differential between real teacher salaries in NYC and its suburbs had grown for both novice and experienced teachers since 1989.<sup>8</sup> Thus, for the 12 years prior to 2002, teacher salaries in New York City lagged inflation and lagged salaries paid by suburban competitors, disadvantaging recruitment and retention efforts.

#### *School Working Conditions*

Teachers value working conditions other than salary, both in their initial search for schools<sup>9</sup> and in job retention.<sup>10</sup> A variety of research, including surveys of teachers as well as analyses of teachers' job market decisions, suggests that three components of working conditions are particularly important—the attributes of students, school leadership, and the supports for teachers.<sup>11</sup> While the salary schedules for teachers were constant across schools within New York City, schools clearly differed in their student populations. Since most teachers have been shown to appear to prefer teaching higher-achieving students, schools serving lower-achieving students were at a disadvantage. Similarly, to the extent that higher-quality school leaders disproportionately served in higher achieving schools,<sup>12</sup> schools with low-performing students were at an additional disadvantage in attracting and retaining teachers (since the quality of school leadership affected teachers' job decisions). An important piece of evidence as to the inadequate level of resources in some NYC schools comes from the *Campaign for Fiscal Equity v. State of New York* court case. In 2001 New York's highest court found that educational resources were not evenly distributed across New York City's schools and not adequate for a sound basic education.

#### *Teacher Recruitment and Retention*

Prior to 2002, the DOE employed a byzantine set of rules and policies regulating teacher recruitment and retention and an inefficient, paper-based means of processing transactions. As a result, New York City, like many large urban districts, was losing qualified teacher candidates because they were not given job offers until late August, and then they often still were not sure of their school assignment.<sup>13</sup>

Prior to 2005, New York City teacher transfers occurred under what is commonly called a seniority-based transfer policy. These policies provide teachers who have certification in the relevant license area

priority in application queues, based on their years of experience. They also allow "excessed" teachers (those displaced from their positions because of falling school enrollments, budget declines, programmatic changes, or school closures) to "bump," or displace, less senior teachers in other schools. School leaders often then have little control over which teachers taught in their school. In addition, the net effect of this system of transfers and excessing is that vacancies do not emerge until late in the summer, well after many qualified candidates have taken other positions.

The transfer policy in New York City prior to 2005 was not a pure seniority-based system, however, and allowed some schools to work around the regulations in their hiring processes. Specifically, as part of the 1995 collective bargaining agreement, schools were given the annual option of determining transfer hiring by a hiring committee composed of a group of teachers and the principal. Schools could opt into this "School-Based Option" based on a favorable vote of UFT members in that school. The bargaining agreement specifically notes that "...a less experienced applicant may be selected if the committee determines that the application possesses extraordinary qualifications." This process was used in filling all teacher vacancies in schools opting into the School-Based Option and was an important first step toward the elimination of seniority-based transfers, which would be part of the 2005 bargaining agreement. From 2004 to 2006, 35% of schools opted to adopt the School-Based Option.<sup>14</sup>

Even in schools subject to seniority-based transfers, not all transfers were based on seniority. In the non-School-Based-Option schools, regulations governed the definition of vacancies and the mechanisms by which those vacancies could be filled. At least half of all vacancies were subject to seniority-based transfers;<sup>15</sup> the remaining hires, though, were not posted on vacancy lists but were filled through other arrangements, often word-of-mouth networks. Thus energetic principals could find ways to hire some teachers based on criteria other than seniority. Less energetic principals or those new to the system, typically leading schools whose students were disproportionately poor and low performing, had more difficulty locating and hiring effective teachers.

#### *Teacher Evaluation and Accountability*

The Bloomberg/Klein administration increased the focus of the NYC school system on student achievement and developed accountability policies to increase effort toward these goals at the classroom level. Prior to Bloomberg/Klein, in 2000, the New York State Board of Regents adopted an accountability system that established school performance standards based upon student test scores on elementary, middle, and high school exams. Failure to meet the standards triggered a mandatory planning process for the school. Continued failure to meet the standard resulted in designation as a school in need of improvement and could lead to designation as a School Under Registration Review (SURR). Poor performance by a SURR school could result in its dissolution. These provisions augmented the school report card system that had been in place since 1998–99. These performance and accountability standards were generally seen as tough;<sup>16</sup> however, unlike some states, New York had no direct consequences for principals or teachers, and only the lowest-performing schools ever received a SURR designation. As a result, the incentives created by this accountability system were muted for school-level personnel.

As an indication of the relatively weak accountability consequences for teachers, fewer than 2% were denied tenure in New York City,<sup>17</sup> and the process to remove incompetent teachers was extraordinarily time consuming and uncertain, deterring many principals from initiating such actions.<sup>18</sup> Many teachers likely held themselves to high standards and many principals may well have worked with teachers to identify strengths, weaknesses, and plans for improvement, but there was little systematic attention paid to measuring and improving teacher quality.

New York City was by no means unique in the human resource challenges it faced. Nor was it alone in crafting responses to these issues. A few superintendents, with the support of national organizations such as The New Teacher Project, Teach for America, and the Broad Foundation, had begun to undertake new initiatives to address these challenges in other urban districts. These initiatives included developing alternative recruitment and preparation routes for teachers; restructuring hiring, transfer, and assignment policies; and strengthening induction and other professional development programs.<sup>19</sup>

#### THE CHILDREN FIRST AGENDA FOR IMPROVING TEACHER QUALITY

While the prior administrations in New York City Department of Education made some progress addressing the teacher workforce issues outlined above, the Children First reform agenda developed a strategic approach to changing the regulations, policies, and practices to allow the DOE to recruit and retain more effective teachers, especially in classrooms with poor, nonwhite, and low-achieving students. The changes that occurred during the last eight years may have been part of a grand vision originating with the initial development of the Children First reform effort. Alternatively, they may represent an evolution of strategies and tactics resulting from experience during the rolling out of Children First. Regardless, what has emerged is a series of initiatives that together make up a coherent approach for improving the quality of teachers and teaching in New York City.

With respect to the Children First reform effort, the DOE views its responsibility as (1) ensuring a pool of qualified teachers through alternative certification routes, higher salaries and other financial incentives, and better (and eventually research-based) screening of prospective candidates; (2) creating a cadre of school leaders who have the skills to select, develop, evaluate, and manage teachers; (3) providing these leaders with the tools they need for effective human capital management, including altered transfer regulations, online placement posting and application tools, and support for beginning and veteran teachers; 4) improving the working conditions in schools by altering resource allocations, providing schools with access to important supports, and by closing a large number of schools judged to be particularly ineffective and opening more than 400 smaller schools; and 5) holding schools and their leaders accountable for improvements in student outcomes. The DOE reform efforts with respect to teacher quality evolved over the years: as with other Children First initiatives, the DOE held tight central control of human capital activities in the early years and then, as the necessary expertise and supports were developed, devolved control and responsibility to the schools. Taken together these reforms created *the flexibility, capacity, and incentives* for principals to alter the teaching workforce to improve student achievement.

Many of the rules and policies governing teachers have been determined by the bargaining process between the DOE and the United Federation of Teachers (UFT) and were agreed upon in various DOE-UFT contracts. Some of these policies, and others that have been proposed but not yet codified in bargaining agreements, have been a source of disagreement between the district and the union. We make no attempt to describe these debates or the motivation behind the positions of the DOE or the union. Rather we describe the policies and, when available, the evidence of their effects.

Assessing the extent to which the Children First reforms led to improved quality of teachers and teaching in New York City presents challenges. Most of these reforms were either initiated simultaneously throughout New York City, or targeted to specific schools to address particular problems. As a result, there are few good counterfactuals with which to compare the reforms. Pre/post comparisons, while suggestive, are often confounded by other changes that occurred simultaneously, such as policies associated with the implementation of NCLB or more general economic changes

affecting the supply of teachers. In addition, separating the effects of one reform from those of others occurring simultaneously is also difficult. For example, isolating the effects on the distribution and retention of teachers resulting from the substantial increases in teacher compensation from the effects of the open market reforms is extraordinarily difficult because both were rolled out over roughly the same period of time throughout NYC. Thus, clean evaluations of individual policies, or even separating these policies from the effects of state and federal initiatives, is problematic. Nonetheless, while we are unaware of any studies that attempt to comprehensively examine the effects of the Children First reforms on teacher quality, there are several studies that employ rigorous and systematic analysis to examine the effect of the various aspects of reforms on teachers and students. Most of these studies are best described as descriptive, and some are highly suggestive, but very few provide direct causal estimations.

In the next section we describe in more detail the policy changes in New York City intended to affect the attractiveness of teaching positions, the recruitment and retention of teachers, and the assessment and development of teaching talent. We summarize existing evidence on the success of these initiatives at improving student outcomes.

### *Teacher Compensation*

Teacher recruitment and retention were facilitated by increasing teacher salaries. Salaries for a teacher with a BA and no prior experience increased by over 35% from 2000 to 2008, so that by 2008 starting salaries were \$45,530. This translates to a 13% increase after adjusting for inflation.<sup>20</sup> Teachers throughout the salary schedule received similar or slightly smaller percentage increases. These salary increases net of inflation made New York City somewhat more competitive with neighboring suburban districts.

In addition to salary increases, the DOE used other financial incentives to attract new and veteran teachers to work in high-need schools and shortage subject areas such as mathematics, science and special education. For example, the Housing Support Program, started in 2006, offers up to \$15,000 to experienced mathematics, science, and special education teachers employed outside of New York City who agree to teach for at least 3 years in the city's high-need schools. Started in 2008, the School-wide Performance Bonus Program offers teachers in high-need schools bonuses equivalent to \$3,000 per full-time teacher based on their school's ability to meet performance targets and improve student achievement. In 2006, the DOE introduced the Lead Teacher Program, which provides teachers identified as excellent with a \$10,000 supplement to mentor and coach other teachers. Lead Teacher status is determined by a variety of attributes, including a record of outstanding classroom teaching, improving student achievement, working successfully with students with greatest needs, and developing and facilitating effective professional development.<sup>21</sup> Finally, the Conversion Program provides tuition reimbursement, at the City University of New York tuition rate, to New York State teachers who are certified in non-shortage areas so that they can become certified and teach in designated shortage areas in NYC schools.

These NYC-initiated programs added to programs administered in all New York districts by the state's department of education. For example, the Teachers of Tomorrow Program, a state initiative begun in 2000, offers newly hired certified teachers the opportunity to earn a tax-free grant of \$3,400 for each year of satisfactory service (up to 4 years) if they teach in qualifying high-need schools.

These DOE compensation policies have not been evaluated in a systematic way. We are unaware of any evaluations of the large increases in salaries or of the several programs targeted to attracting teachers

to schools with poor and low-achieving students (and retaining those teachers). A notable exception is the school-wide bonus program that was evaluated in the first year of implementation, when eligible schools were randomly assigned to treatment or control. A study found that the incentives made little difference in student achievement in mathematics or in student, parent, or teacher evaluations of the learning environment. However, the program had only been in effect for three months when the outcome measures were collected.<sup>22</sup>

Some of the work described below cannot be isolated from at least some of the compensation policies (e.g., the analysis of teacher recruitment efforts on student achievement).<sup>23</sup> In addition, prior research suggests that higher salaries can improve both the supply of new teachers and the retention of existing teachers,<sup>24</sup> implying that these played a role in the improved teacher qualifications.

### *Teacher Recruitment*

Since 2000 the DOE has initiated two substantial efforts to improve its teacher recruitment policies and practices. First, following a state policy change requiring all classroom teachers to be certified, the DOE developed the New York City Teaching Fellows program. Second, the DOE altered its recruitment processes, including its selection model and timing of offers.

### More Qualified Teachers

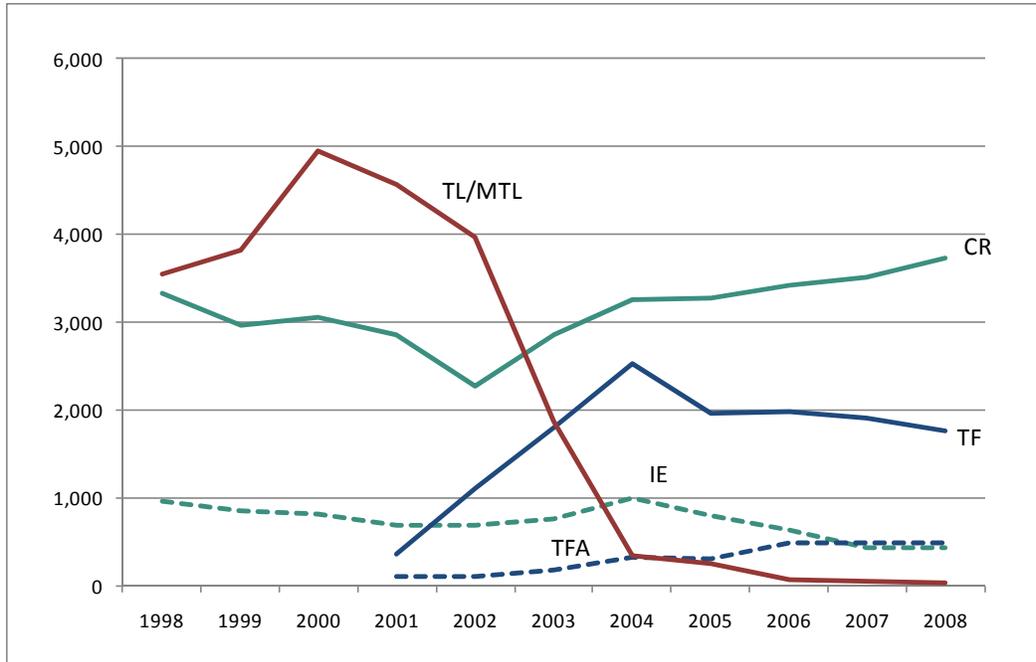
In 1998 the New York State Board of Regents passed a regulation abolishing temporary licenses for uncertified teachers, effective September 1, 2003. In 2000, the Regents created alternative certification routes that would allow school districts to hire teachers participating in approved alternative preparation programs as long as they are able to pass required teacher certification exams. In response to these changes, the DOE collaborated with The New Teacher Project to develop the New York City Teaching Fellows program, and in 2000 selected its first cohort of fellows, who became teachers in the fall of that year. The Teaching Fellows Program is highly selective, often attracting early career changers. In 2008, the program attracted 19,000 applicants, of whom about one third were invited for interviews and 15% were selected to join the program.

During the summer prior to teaching, teaching fellows participate in a 7-week intensive pre-service training program that includes university and DOE-developed coursework, and student teaching in the city's summer schools. Teaching fellows are assigned to a master's degree program in one of several colleges and universities across NYC based on the location of their school and their subject area. The DOE pays for approximately 60% of the tuition for the master's degree programs. In the fall, teaching fellows enter the job market, but take positions primarily in high-need schools (primarily in the Bronx and central Brooklyn) and in high-need subject areas, including mathematics, science, bilingual education, Spanish, and special education. The DOE-designed "Math Immersion" program within the Teaching Fellows program helps career changers meet New York State certification requirements in math education, and in most years supplies roughly 50% of all new math teachers in NYC middle and high schools.<sup>25</sup> In 2008, 25% of math teachers, 20% of special education teachers, and 28% of Spanish bilingual and English as a Second Language teachers in the NYC schools had entered the system through the Teaching Fellows program.

Figure 1 shows the rather remarkable changes in the pathways for newly hired teachers in New York City that resulted from this set of changes. In the 1999–2000 school year, over 50% of all new teachers were uncertified, 35% entered teaching from traditional teacher preparation programs, and the Teaching Fellows program had not been created. By 2003–04, fewer than 5% of teachers lacked a valid teaching

certificate, 44% had attended a traditional teacher preparation program, 34% were teaching fellows, and about 5% were Teach for America Corps (TFA) members.

**Figure 1: Number of 1st Year New York City Teachers by Pathway, 1998-2008**



**CR:** College Recommended, traditional teacher preparation  
**TF:** New York City Teaching Fellows  
**TFA:** Teach for America (included in TL/MTL prior to 2001)  
**IE:** Individual Evaluation, transcript review by NYSED  
**TL/MTL:** Temporary License/Modified Temporary License, uncertified

The transformation in the pathways of teachers represented a dramatic shift in NYC's approach to the recruitment and selection of teachers. As shown in Table 2, the qualifications of teachers in the schools with the greatest proportion of poor students improved dramatically between 2000 and 2005, resulting primarily from the changes in teacher recruitment, especially the selection of teaching fellows. As a result, the gap in teaching qualifications between low- and high-poverty schools substantially declined across all measures of qualifications. Teaching fellows and TFA teachers have test scores and academic experiences that are, on average, stronger than those of other teachers, and substantially stronger than the temporary license teachers they replaced. For example, in 2005 newly hired teaching fellows and TFA teachers had average math SAT scores of 541, while newly hired teachers from traditional teacher preparation programs averaged 493. In 2002, newly hired temporarily licensed teachers averaged 460 on the math SAT, which is 80% of a standard deviation below the mean of the teaching fellows and TFA teachers who replaced them.<sup>26,27</sup>

**Table 2: Average School Qualifications of Teachers by Student Poverty, 2000 and 2005\***

	2000			2005			Change from 2000 to 2005		
	Lowest 10%	Highest 10%	Gap: Highest 10% - Lowest 10%	Lowes t 10%	Highes t 10%	Gap: Highest 10% - Lowest 10%	Lowes t 10%	Highest 10%	Change in Gap
% with less than 3 years of NYC teaching experience	14.7%	25.4%	10.7%	15.1%	21.7%	6.6%	0.4%	-3.7%	-4.1%
% who failed LAST exam on first attempt	12.2%	34.2%	22.0%	13.4%	24.7%	11.3%	1.2%	-9.5%	-10.7%
% who attended least competitive undergraduate institutions	23.5%	27.4%	3.9%	26.7%	24.3%	-2.4%	3.2%	-3.1%	-6.3%
SAT verbal score	506	461	-45	503	485	-18	-3	23	-26
SAT math score	490	447	-43	495	471	-23	5	24	-19

\* Source: D. Boyd, H. Lankford, S. Loeb, J. Rockoff, and J. Wyckoff,, "The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High Poverty Schools," *Journal of Policy Analysis and Management* 27, no. 4 (2008): 793–818.

Changes made to teacher recruitment practices are the most studied components of the Children First reforms' approach to improving teacher quality. Several studies have compared the effectiveness of New York City teachers as measured by statistical estimation of the value added by various teacher preparation pathways.<sup>28</sup> Although there are some modest differences in analysis results, the pathways studies consistently find that teachers entering through Teaching Fellows or TFA become more effective than the uncertified teachers they replace and typically as effective as the traditionally certified teachers. In middle school math TFA teachers appear to be more effective than either traditionally certified teachers or teaching fellows, while both TFA teachers and teaching fellows are slightly less effective in elementary reading. Finally, consistent with the design of the program, TFA teachers in New York City have much higher attrition than either teaching fellows or traditionally prepared teachers, reducing net value-added gains in simulations that account for teacher retention.<sup>29</sup>

A study of the Teaching Fellows Math Immersion program<sup>30</sup> found that Math Immersion teachers had stronger academic qualifications (e.g., SAT scores and licensure exam scores) than their traditional-teacher-preparation peers, although they had weaker qualifications than math teachers from Teach for America. This study also found that Math Immersion fellows taught in some of the most challenging classrooms in New York City. In this respect, the program has succeeded in attracting large numbers of teachers with stronger academic backgrounds to teach in high-need schools. However, despite stronger general academic qualifications, Math Immersion teachers were responsible for slightly smaller gains in math achievement for middle school math students than were traditional-teacher-preparation teachers, although in some cases these differences were not statistically significant. In addition, both Math Immersion teachers and traditionally prepared teachers demonstrated substantially smaller gains than Teach for America teachers.

Boyd et al.<sup>31</sup> explore the overall effects of changes in teacher qualifications between 2000 and 2005 on student achievement. As described in Table 2, between 2000 and 2005 the gap in teacher qualifications between the most and least poor schools in NYC substantially narrowed. Most of this gap-narrowing resulted from changes in the characteristics of newly hired teachers, and was largely driven by the virtual elimination of newly hired uncertified teachers, coupled with an influx of teachers with strong academic backgrounds in the Teaching Fellows program and Teach for America.<sup>32</sup>

The improvements in teacher qualifications, especially among the poorest schools, appear to have resulted in improved student achievement. Based on estimates from value-added models, researchers found that improvements in the observable qualifications of teachers resulted in average achievement improvement for students in the poorest decile of schools of .03 standard deviations, about half the estimated difference in outcomes between students being taught by a first-year teacher and students being taught by a second-year teacher. If limited to teachers in their first or second year of teaching, where changes in qualifications are greatest, the gain equaled two-thirds of the first-year experience effect.<sup>33</sup> The authors suggest that even greater achievement gains are possible if the DOE can recruit more teachers with strong qualifications. However, this research does not account for aspects of the reforms beyond readily measured teacher qualifications, and ends in 2005. There is also evidence from NYC that selecting teachers based on content knowledge, cognitive ability, certain personality traits, self-efficacy, and scores on a commercially available teacher selection instrument can produce modest achievement gains in students.<sup>34</sup>

#### Recruitment processes and timing

As part of Children First, the DOE created an array of hiring tools to facilitate the matching of new teachers and schools. For example, an online search system, the New Teacher Finder tool, allows

principals to post requests for resumes and review applications and Teacher Insight Interview responses for prospective teachers who have passed the central screening process. The district also hosts job fairs for candidates and schools.

When reviewing applications, recruiters from the Office of Teacher Recruitment and Quality look for candidates who demonstrate the background, skills, and attitudes likely to make them effective teachers. This central screening process is focused especially on teachers eligible to teach in shortage areas (including math, science, special education, Spanish, ESL, and bilingual education) or willing to teach in hard-to-staff areas of the city. The most qualified applicants, based on the district's selection rubrics, are interviewed, and until 2009, if they were judged to have strong potential to be effective teachers, were offered "central commitments"—a guarantee of employment within the NYC public school system with certain terms and conditions. Until the fiscal crisis of 2009, Teaching Fellows, TFA members were also guaranteed jobs in the NYC school system. All new teachers with commitments from the DOE needed to find their own positions, although Teaching Fellows were assigned to search within specific Boroughs to focus job search. Since 2009, when a hiring freeze was imposed, DOE has not made hiring commitments. However, the Office of Teacher Recruitment and Quality at DOE designates a small group of teachers as TRQ Select, similar to "central commitments" and provides them preferential listing in its New Teacher Finder database. The New Teacher Finder is a searchable database of qualified teacher applicants who have met basic screening criteria that principals may employ to search when hiring teachers. Because searches could yield the names of many candidates, the system returns the TRQ Select, Teaching Fellows and TFA corps members at the beginning of the list.<sup>35</sup>

The DOE made several changes to address the frequent loss of talented new teacher applicants due to late hiring. First, budgets are now determined in the spring, enabling schools to determine how many new positions they might have open the following school year. Second, hiring of new teachers is no longer delayed until after transferring and excessed teachers are placed. The DOE has established a timeframe, generally April through early August, for teachers seeking transfers to search for jobs. Schools can hire new teachers during this same time period. Excessed teachers can be hired following the April to August window as well as during that period. Third, as described above, the district makes "central commitments" throughout the spring to teachers in shortage areas or those willing to teach in hard-to-staff areas to provide certainty to candidates who might otherwise take an offer from outside NYC. Lastly, new teachers are hired directly by schools, so candidates know their placement when school begins.

In summary, the DOE has put in place a number of programs and processes to improve the recruitment and selection of teachers. This is the first step in developing a stronger teaching workforce. The research provides consistent descriptive evidence that the changes in teacher recruitment and selection in NYC have substantially changed the qualifications of its teachers and that these changes have had at least a modest impact on student achievement in New York's most-difficult-to-staff schools, contributing to a narrowing of the achievement gap. This does not necessarily imply that recruitment processes or timing are responsible for these outcomes; however, these changes were viewed by the DOE as important components to improve teacher recruitment and placement in difficult-to-staff schools.

#### *Working Conditions and Teacher Retention*

The DOE developed several initiatives intended to improve school working conditions and teacher retention. These initiatives have targeted school leadership, teacher salaries, the school learning environment, and teacher supports.

## Leadership

There is substantial survey and case study analysis documenting that school leadership is important to teacher retention.<sup>36</sup> For example, Boyd and coauthors report that second-year New York City teachers who considered leaving, as well as their peers who left following their first year of teaching, identify school leadership and leadership support for teachers as the most important factors in their decisions. They also find that teachers' perceptions of administrative support are strongly associated with teacher transfers and teacher attrition.

Improving school leadership is viewed as a crucial component of the Children First approach to improving the working conditions in schools.<sup>37</sup> The DOE envisioned that effective principals would use increased local discretion and funding to recruit, retain, and develop an effective teaching workforce by creating an environment that was attractive to teachers and providing them with the supports they needed to be successful, and that principals would employ rigorous standards to evaluate teachers and retain only the effective ones.<sup>38</sup> The launching of the Leadership Academy is an important part of this strategy. The Leadership Academy is an independent, non-profit organization created in 2003 that aims to improve the supply of high-quality principals, especially for low-performing schools.<sup>39</sup> Although initially funded by private foundations, the Leadership Academy is now primarily funded by the DOE. Its Aspiring Principals Program, which trains new principals to work in lower performing elementary and middle schools, currently accounts for 13% of DOE principals.<sup>40</sup>

Recent research has found that elementary and middle school students in schools led by Leadership Academy graduates outperform students in comparison schools led by principals who have not attended the Leadership Academy.<sup>41</sup> The mechanisms for these improvements are unclear, however. And particularly relevant for this chapter, it is unclear whether these principals have increased the retention of effective teachers.

## Mentoring

In 2004, the State of New York Board of Regents modified the teacher certification regulations, requiring all teachers with less than one year of teaching experience to receive a "quality mentoring experience" prior to receiving full certification. New York City implemented this requirement with a \$36 million teacher mentoring program that was intended to "increase teacher retention, enhance classroom instruction, and improve student achievement."<sup>42</sup> New York City had traditionally provided mentors only for uncertified or alternatively certified teachers, but this program provided all beginning teachers with a full-time mentor throughout their first year. Each mentor was expected to work with approximately 17 new teachers. The DOE developed the mentoring program in collaboration with the United Federation of Teachers (UFT), the Council of School Supervisors and Administrators (CSA), and New York City universities, although the DOE and the UFT were primarily responsible for both the planning and implementation stages of the mentoring program.<sup>43</sup> New York City contracted with the New Teacher Center to implement this program. The Mentoring Program had four key components: a) a rigorous mentor selection process, b) mentors whose full-time job was mentoring, c) intensive mentor professional development, and d) regional rather than school-based assignments.<sup>44</sup>

The initial version of the DOE mentoring program appears to have had limited success. Rockoff<sup>45</sup> finds only weak evidence that NYC mentors affected teacher absences, teacher retention, or student achievement. However, he does find that teachers who had mentors with prior experience working in their school or who spent more hours with their mentor had students with better reading and math achievement than the students of teachers whose mentors had no prior experience in the school or who

spent less time with their teachers. Another examination of the mentoring program, using a survey of all first-year teachers in 2004, found that those teachers who already felt prepared to teach received the most help from their mentors.<sup>46</sup> They also found that a focus on instruction and on addressing the needs of student sub-populations during mentoring was associated with greater teacher retention; however, the quality of school administrators was a stronger predictor of new teacher retention than was mentoring.

In 2007–08, the DOE devolved responsibility and funding for mentoring to the schools, enabling principals to tailor mentoring to the instructional and performance expectations of their schools. Each school, however, was required to form a New Teacher Induction Committee composed of administrators, teachers (a majority of the committee), and representatives of the union. This committee is intended to support teacher development, including the development of a mentor plan. Although each school customizes its mentoring program, the DOE expects that in all schools, experienced teachers will work with new teachers on a regular basis, observing lessons, providing feedback and coaching, and helping to improve instructional practice. School Support Organizations (SSOs) support the development of school mentoring plans and the capacity of school-based mentors through a new position: Lead Instructional Mentor (LIM). A LIM is assigned to each SSO network team, and receives training in the New Teacher Center's mentoring model.

The DOE has developed additional supports for mentoring programs, including an online tracking system for mentoring interactions called the New Teacher Induction Mentoring System, and a mentoring program quality rubric devised for Quality Review, a process to assess school quality for the DOE accountability program to evaluate the extent to which the school's mentoring program is successful. The United Federation of Teachers Teacher Centers provide additional professional development for novice teachers. We are unaware of any efforts to empirically evaluate the more recent mentoring efforts.

#### *Open-market system*

In addition to implementing strategies aimed at increasing the appeal of teaching in New York City schools, the DOE also increased schools' authority over hiring, which, as outlined below, has the potential to increase retention, particularly of more effective teachers. In 2005 the DOE and the UFT agreed to a new contract, effective for the 2005–06 school year, with provisions that included a new system commonly referred to as the "open-market transfer system." This policy changed the staffing process for teachers and schools in three key ways. First, it protected the right of schools to choose which teachers they hired, regardless of seniority. Second, it ended the "bumping" of novice teachers out of their positions by more senior teachers claiming these positions without input from principals or school staff. Finally, it established a more open hiring process for "excessed" teachers.<sup>47</sup>

The change in transfer policy in New York City represented a dramatic departure from traditional practice and was intended to alter the teaching and learning environments in schools. Seniority-based transfers had been criticized for contributing to a mismatch between a school's needs and teachers' talents, shuffling ineffective teachers among schools, discouraging novice teachers and causing some effective new teachers leave the profession, and contributing to late hiring.<sup>48</sup> The open-market transfer system allows principals to shape the school workforce and, in so doing, has the potential to change the distribution of teachers across schools, as well as to alter who enters teaching in NYC and who stays. Inexperienced but effective teachers now have much greater ability to transfer, which if viewed in isolation of the other reforms, increases the likelihood that inexperienced but effective teachers will move to schools with more desirable working conditions. However, as described above, several other

reforms are targeted at improving the desirability of schools that educate poor, non-white, or low-performing students. We are not aware of research that assesses the net effect of these reforms on the distribution of teacher quality across schools, but this clearly has implications for similar reforms that have recently been put in place or are being considered in other urban districts.

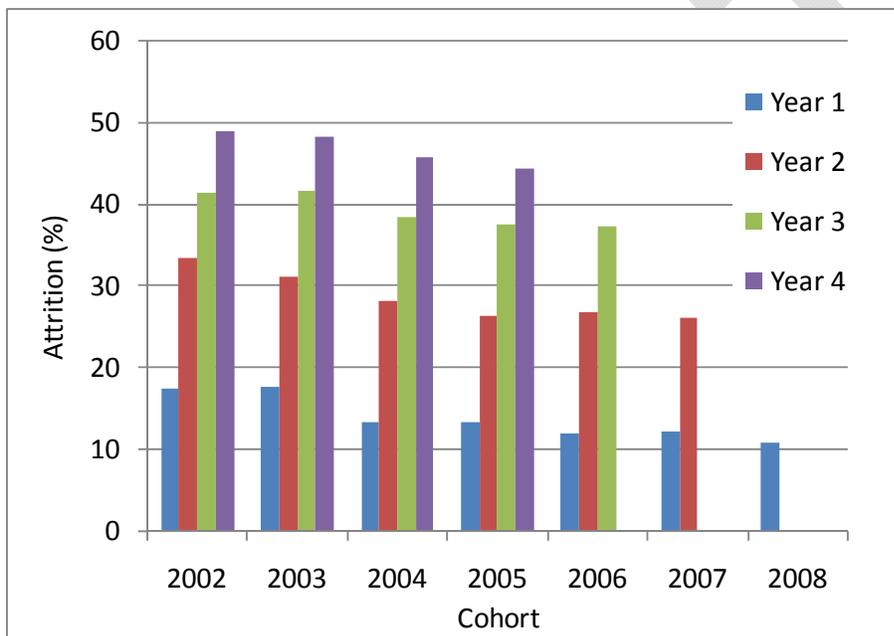
One product of the open-market system was the creation of the Absent Teacher Reserve (ATR) pool of more than 1,000 excess teachers. These are teachers who have not found another permanent position in the city's schools, and generally serve as day-to-day substitute teachers until they find a permanent position. It has been estimated that paying the salaries of teachers in the ATR costs the district \$100 million per year.<sup>49</sup> Whether the ATR is a policy problem depends on a better understanding of the teachers in the ATR. Historically the DOE and UFT have disagreed about several aspects of the ATR, including the effectiveness of teachers in the ATR, the willingness of ATR teachers to seek new positions, the incentives under the new funding formula for principals to hire ATR teachers (who tend to be more expensive than new teachers), and the amount assistance needed from the DOE.<sup>50</sup> In a November 2008 memorandum of understanding, the DOE and the UFT agreed to change the financial consequences of hiring teachers from the ATR pool. Until that point schools contemplating hiring ATRs assumed the full salary of these typically more experienced, and thus more costly, teachers. The UFT argued that this put these teachers at a disadvantage in competing for positions with less experienced and less expensive new teachers. The MOU virtually eliminates this disincentive. When schools hire a teacher from the ATR they pay only the starting teacher salary, with the DOE assuming the difference in cost between actual salary and the starting salary. There is no evidence on the effect of this policy.

The open-market system for teacher transfer has the potential to influence teachers' decisions about leaving their jobs. In particular, by allowing schools more control over their workforce, the system might improve school working conditions and thus retention. Principals are theoretically now able to match the needs of their students and schools to the characteristics of teachers, ensuring a better match that is likely to be more stable. In addition, prior to the introduction of the market system, relatively ineffective teachers might leave one school only to take a position in another.<sup>51</sup> This churning of ineffective teachers was at least partially due to the rules and processes governing transfers prior to the open-market system, including the seniority requirements.

There is no guarantee that moving to an open-market transfer system will necessarily increase the retention of effective teachers, but principals certainly now have the ability to reject ineffective teachers. It is conceivable that because principals in schools with relatively fewer poor and low-achieving students now have discretion over who they hire that these schools, which are typically believed to be more attractive to teachers, they may improve the quality of their workforce at the expense of schools with poor and low-achieving students. However, the balance could shift in the other direction as other reform components of Children First lead to more effective principals (and therefore better working conditions) in previously difficult-to-staff schools. The market system also has the potential to reduce New York's relatively high level of attrition of inexperienced teachers, who previously had low priority to transfer under a seniority-based system and were potentially more likely to simply quit if unhappy with their current placement. However, to date we are unaware of any systematic research that documents the effects of the open-market system and related reforms intended to improve teacher quality. A survey of teachers following the implementation of the open-market system finds that the vast majority of teachers who transfer find their new schools satisfying and that transfer rates are not meaningfully higher in high-poverty schools.<sup>52</sup> Additionally, there is evidence from the early years of this new system and from other districts that principals can recognize effective teachers and that they will hire more effective teachers when given the option.<sup>53</sup>

In sum, teacher retention remains an issue in New York City, especially in lower performing schools. However, as shown in Figure 2, there has been a modest decrease in attrition among more recent cohorts of entering teachers, especially following their first year. Seventeen percent of teachers entering teaching in NYC in 2001–02 left following their first year; by 2007–08 that figure had declined to about 11%. There are a variety of factors that could be responsible for the improvement in retention, some of which are beyond the control of DOE policies (e.g., national economic trends). Nonetheless, this improvement is at least consistent with the goals of a set of policies implemented by the Bloomberg/Klein administration. Additionally, teachers, parents, and students have the opportunity to complete Learning Environment Surveys that represent 15% of the school progress report grade. As an indication that teachers find schools more attractive workplaces, teacher ratings of their schools have steadily increased across each of the domains from 2007 through 2009,<sup>54</sup> although a steady increase in response rates over this period may be confounding this result.

**Figure 2: Teacher Attrition Following First Four Years of Teaching**



\* For cohorts beginning in 2006 insufficient time has elapsed to calculate attrition for all four years.

*Teacher evaluation*

Improving teacher quality by shaping the composition of the teaching workforce through evaluation is another important component of the Children First strategy. Principals conduct an annual performance review of each teacher. These reviews are intended to provide an assessment of strengths and weaknesses of teachers for the purposes of professional development and as a means of evaluating teachers for tenure. In recent years the DOE has made efforts to make the evaluation of teachers a more rigorous process. Principals have been encouraged to treat the years leading up to the tenure decision (usually in the third year) as an important opportunity to assess a teacher's strengths and weaknesses and work with teachers who are struggling to receive the support they need to improve. Between 2005–06 and 2007–08 the number of teachers denied tenure increased from 25 to 164, and those whose probationary period had been extended increased from 30 to 246 over the same period.<sup>55</sup> These are both a small portion of those being considered for tenure, but signal more demanding standards.

Legislation enacted in May 2010, in support of the State’s Race to the Top application, creates a statewide comprehensive evaluation system for teachers. Teachers receive one of four ratings—“highly effective,” “effective,” “developing,” or “ineffective”—based on an evaluation that includes several components. Forty percent of the evaluation is based on student improvement as measured by a combination of state and local standardized exams. The remainder of the evaluation reflects locally negotiated items, such as rigorous classroom evaluations and other measures. The ratings inform a variety of decisions for teachers, including participation in professional development and tenure decisions. Teachers rated as ineffective for two consecutive years may be subject to dismissal.<sup>56</sup> The DOE has provided principals with value-added measures of teacher effectiveness as information for their evaluations, including teacher tenure decisions. The DOE’s efforts to more rigorously evaluate teachers for the purposes of more targeted professional development and, failing improvement, of removing teachers from the classroom, are too recent for any systematic evaluation.

## SUMMARY

In the years leading up to 2002 there is evidence to suggest that the qualifications of New York City’s teachers varied significantly. The evidence is largely circumstantial—based on measures of teacher qualifications, teacher attrition, and case study or individual reports. However, this evidence is consistent with a simple theory of teacher labor markets that predicts that, conditional on equal compensation, lower quality teachers will be disproportionately found in schools with low-achieving, poor, and non-white students. Of course, determining the overall level and distribution of teaching quality in New York City is somewhat more complicated than this, as we have tried to describe above. However, teacher preferences regarding the attributes of their jobs have a major influence on teacher quality in New York and elsewhere.

Indeed, we believe that many of the Children First reform efforts evidence an understanding of factors that influence the supply of higher quality teachers. Based on the reforms that occurred immediately prior to and during the Klein administration, it is clear that there has been a concerted effort to alter regulations, policies, and practices to improve the overall quality of New York City teachers, and ensure that the students most in need of effective teachers are more likely to get them. Reform efforts such as improving teacher compensation, especially for entering teachers, improving school leadership, attempting to enhance both financial incentives and supports for teachers, and making human resource processes more transparent and tied to measures of performance all demonstrate the application of principles of labor supply.

There is some evidence that efforts to recruit and select more effective teachers, primarily through the Teaching Fellows program, have been effective. However, other initiatives, such as the open-market transfer reforms, have not been examined in any detail to date. Still other changes, such as more rigorous evaluation of teachers, are still emerging, and thus too new for us to understand how they may have affected student outcomes.

We believe the Children First reforms have provided much-needed improvements to teacher recruitment, assessment, professional development, and retention in NYC. Many of these changes have provided a foundation that provides administrators and teachers the capacity to improve the quality of teaching, especially in low-performing NYC classrooms. Other districts can learn from the ways NYC has reengineered its teacher recruitment, evaluation, and retention systems.

Although the qualifications of teachers in NYC, particularly in its lowest-performing schools, have improved, more needs to be done to strengthen the quality of instruction. Unfortunately, the evidence on effective practice is not well developed yet. New models of teacher preparation may well hold promise. Some recent research finds evidence that aspects of teacher preparation tied more closely to the work that teachers ultimately do in classrooms can have meaningful effects on student achievement.<sup>57</sup> This suggests that models of teacher preparation built around clinical experiences may prove more effective. Indeed, New York State's successful Race to the Top application provides an opportunity for organizations other than institutions of higher education to prepare and certify teachers. This process would emphasize more extensive clinical experiences that are integrated throughout preparation. Additionally, efforts to develop rigorous, broad-based teacher assessment systems that are linked to specific professional development show promise. We believe these collaborative efforts are more likely to yield gains in teacher quality than pay-for-performance systems that rely solely on monetary incentives.

DRAFT

ENDNOTES

<sup>1</sup> We appreciate helpful comments on an earlier draft from Susan Moore Johnson, Vicki Bernstein and participants at the New York City Retrospective working conference. We are grateful to the New York City Department of Education and the New York State Education Department for the data employed in this paper. Loeb and Wyckoff also gratefully acknowledge the support of the National Center for the Analysis of Longitudinal Data in Education Research (CALDER). CALDER is supported by IES Grant R305A060018 to the Urban Institute. The views expressed in the paper are solely those of the authors and may not reflect those of the funders. Any errors are attributable to the authors.

<sup>2</sup> Some sections of this chapter are taken from Margaret Goertz and Stephanie Levin, "Strategic Management of Human Capital in New York City" (2008), <http://www.smhc-cpre.org/download/36/>.

<sup>3</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Jonah Rockoff, and James Wyckoff,, "The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High Poverty Schools," *Journal of Policy Analysis and Management* 27, no. 4 (2008): 793–818.

<sup>4</sup> Susan Moore Johnson, Jill Harrison Berg, and Morgaen L. Donaldson, *Who Stays in Teaching and Why* (Cambridge: The Project on the Next Generation of Teachers, Harvard Graduate School of Education, 2005).

<sup>5</sup> Donald Boyd, Pamela Grossman, Hamilton Lankford, Susanna Loeb, and James Wyckoff, "How changes in entry requirements alter the teacher workforce and affect student achievement," *Education Finance and Policy* 1 no. 2 (2006): 176–216.

<sup>6</sup> Based on calculations by authors using data from NYCDOE, NYSED, and College Board.

<sup>7</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, and James Wyckoff, "Explaining the Short Careers of High-Achieving Teachers in Schools with Low-Performing Students," *American Economic Review Proceedings* 95 no. 2 (2005): 166–171.

<sup>8</sup> Hamilton Lankford, Susanna Loeb, and James Wyckoff, "Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis," *Educational Evaluation and Policy Analysis* 24 no. 1 (2002): 38-62.

<sup>9</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckoff, "The Role of Teacher Quality in Retention and Hiring: Using Applications-to-Transfer to Uncover Preferences of Teachers and Schools," *Journal of Policy Analysis and Management* (forthcoming); and Donald Boyd, Hamilton Lankford, Susanna Loeb, and James Wyckoff, "Analyzing the Determinants of the Matching of Public School Teachers to Jobs: Estimating Compensating Differentials in Imperfect Labor Markets," NBER Working Paper 9878 (2006).

<sup>10</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckoff, "The Role of Teacher Quality in Retention and Hiring: Using Applications-to-Transfer to Uncover Preferences of Teachers and Schools," *Journal of Policy Analysis and Management* (forthcoming); and Eric A. Hanushek, John F. Kain, and Steven G. Rivkin "Why Public Schools Lose Teachers," *Journal of Human Resources* 39 no. 2 (2004): 326–354.

<sup>11</sup> Donald Boyd, Pamela Grossman, Marsha Ing, Hamilton Lankford, Susanna Loeb, and James Wyckoff, "The Influence of School Administrators on Teacher Retention Decisions," *American Education Research Journal* (forthcoming); Donald Boyd, Pamela Grossman, Hamilton Lankford, Susanna Loeb, Jeannie Myung, and James Wyckoff "Mentoring and the Matthew Effect: The Implementation of a District-Wide Mentoring Program and its Impact on Retention" (working paper, 2009); Donald Boyd, Hamilton Lankford, Susanna Loeb, and James Wyckoff, "Explaining the Short Careers of High-Achieving Teachers in Schools with Low-Performing Students," *American Economic Review Proceedings* 95 no. 2 (2005): 166–171; Eric A. Hanushek, John F. Kain, and Steven G. Rivkin, "Why Public Schools Lose Teachers," *Journal of Human Resources* 39 no. 2 (2004): 326–354; and Susan Moore Johnson,

Jill Harrison Berg, and Morgaen L. Donaldson, *Who Stays in Teaching and Why* (Cambridge: The Project on the Next Generation of Teachers, Harvard, 2005). Graduate School of Education.

<sup>12</sup> Sean P. Corcoran, Amy Ellen Schwartz, and Meryle Weinstein, *The New York City Aspiring Principals Program: A School-Level Evaluation*. Report from Institute for Education and Social Policy, New York University (2009).  
<http://steinhardt.nyu.edu/scmsAdmin/uploads/003/852/APP.pdf>

<sup>13</sup> The New Teacher Project, "Unintended Consequences" (2005),  
<http://www.tntp.org/files/UnintendedConsequences.pdf>

<sup>14</sup> Based on calculations by authors from data provided by NYCDOE.

<sup>15</sup> See the Agreement between the Board of Education of the City School District of the City of New York and the United Federation of Teachers, 2000-03 Article 18 Transfer and Staffing, page 120-122.

<sup>16</sup> *Education Week*, January 6, 2005, p. 86.

<sup>17</sup> Elissa Gootman, "A New Effort to Remove Bad Teachers," *New York Times*, November 15, 2007,  
[http://www.nytimes.com/2007/11/15/education/15teacher.html?\\_r=1](http://www.nytimes.com/2007/11/15/education/15teacher.html?_r=1)

<sup>18</sup> Steven Brill, "The Rubber Room," *The New Yorker*, August 31, 2009.

<sup>19</sup> Julia Koppich and Connie Showalter, *Strategic Management of Human Capital: A Cross-Case Analysis of Five Districts* (Wisconsin: University of Wisconsin-Madison, Consortium for Policy Research in Education, 2008).  
<http://www.smhc-cpre.org>.

<sup>20</sup> Most of this increase occurred during the period 2000–2002. Between 2002 and 2008 starting salaries increased by 17%. After adjusting for inflation this translates to a real increase in salary of less than 0.5%.

<sup>21</sup> For a complete list of the eligibility requirements see <http://schools.nyc.gov/NR/rdonlyres/9720279E-BD06-464A-88F3-ADF67CABB29E/0/LeadTeacherPosting20102011A.pdf>

<sup>22</sup> Matthew G. Springer and Marcus A. Winters, "New York City's School-Wide Bonus Pay Program: Early Evidence from a Randomized Trial" (working paper, 2009),  
[http://www.performanceincentives.org/data/files/news/PapersNews/Springer\\_Winters\\_200902.pdf](http://www.performanceincentives.org/data/files/news/PapersNews/Springer_Winters_200902.pdf)

<sup>23</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Jonah Rockoff, and James Wyckoff,, "The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High Poverty Schools," *Journal of Policy Analysis and Management* 27, no. 4 (2008): 793–818.

<sup>24</sup> Charles Clotfelter, Elizabeth Glennie, Helen Ladd, and Jacob Vigdor, "Would Higher Salaries Keep Teachers in High-Poverty Schools? Evidence from a Policy Intervention in North Carolina," NBER Working Paper #12285 (2006); Peter J. Dolton and Wilbert van der Klaaw, "The turnover of teachers: A competing risks explanation," *Review of Economics and Statistics*, 81 no. 3 (1999): 543–552; Richard J. Murnane, Judith D. Singer, and John B. Willett, "The Influences of Salaries and "Opportunity Costs" on Teachers' Career Choices: Evidence from North Carolina," *Harvard Educational Review*, 59 no. 3 (1989): 325–346; Todd R. Stinebrickner, "A Dynamic Model of Teacher Labor Supply," *Journal of Labor Economics*, 19 no. 1 (2001): 196–230; Todd R. Stinebrickner, "Compensation Policies and Teacher Decisions," *International Economic Review*, 42 no. 3 (2001): 751–779.

<sup>25</sup> Donald Boyd, Pamela Grossman, Karen Hammerness, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckoff, "Recruiting Effective Math Teachers, How Do Math Immersion Teachers Compare? Evidence from New York City," NBER Working Paper w16017 (2009).

<sup>26</sup> Even more dramatic differences exist on other measures of qualifications, such as undergraduate college ranking and the percentage who failed the Liberal Arts and Sciences Test (general teacher certification exam) on their first attempt.

<sup>27</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Jonah Rockoff, and James Wyckoff,, "The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High Poverty Schools," *Journal of Policy Analysis and Management* 27, no. 4 (2008): 793–818.

<sup>28</sup> Donald Boyd, Pamela Grossman, Karen Hammerness, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckoff, "Recruiting Effective Math Teachers, How Do Math Immersion Teachers Compare? Evidence from New York City," NBER Working Paper w16017 (2009); Donald Boyd, Hamilton Lankford, Susanna Loeb, and James Wyckoff, "Analyzing the Determinants of the Matching of Public School Teachers to Jobs: Estimating Compensating Differentials in Imperfect Labor Markets," NBER Working Paper 9878 (2006); and Thomas J. Kane, Jonah E. Rockoff, and Douglas O. Staiger, "What Does Certification Tell Us About Teacher Effectiveness? Evidence from New York City" *Economics of Education Review* 27 (2008): 615–631.

<sup>29</sup> For details see Donald Boyd, Pamela Grossman, Hamilton Lankford, Susanna Loeb, and James Wyckoff, "How changes in entry requirements alter the teacher workforce and affect student achievement," *Education Finance and Policy* 1 no. 2 (2006): 176–216; and Donald Boyd, Pamela Grossman, Karen Hammerness, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckoff, "Recruiting Effective Math Teachers, How Do Math Immersion Teachers Compare? Evidence from New York City," NBER Working Paper w16017 (2009).

<sup>30</sup> Donald Boyd, Pamela Grossman, Karen Hammerness, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckoff, "Recruiting Effective Math Teachers, How Do Math Immersion Teachers Compare? Evidence from New York City," NBER Working Paper w16017 (2009).

<sup>31</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Jonah Rockoff, and James Wyckoff,, "The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High Poverty Schools," *Journal of Policy Analysis and Management* 27, no. 4 (2008): 793–818.

<sup>32</sup> Ibid.

<sup>33</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Jonah Rockoff, and James Wyckoff,, "The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High Poverty Schools," *Journal of Policy Analysis and Management* 27, no. 4 (2008): 793–818.

<sup>34</sup> Jonah E. Rockoff, Brian A. Jacob, Thomas J. Kane, and Douglas O. Staiger, "Can You Recognize an Effective Teacher When You Recruit One?" NBER Working Paper 14485 (2008).

<sup>35</sup> This section is based on conversations with Vicki Bernstein, Executive Director of Teacher Recruitment & Quality, NYCDOE

<sup>36</sup> Jason A. Grissom, "But Do They Stay? Addressing Issues of Teacher Retention through Alternative Certification," in *Alternative Routes to Teaching: Mapping the New Landscape of Teacher Education*, ed. Pamela Grossman and Susanna Loeb (Cambridge, MA: Harvard Education Press, 2008); Ingersoll, R. "Teacher Turnover and Teacher Shortages: An Organizational Analysis," *American Education Research Journal* 38, no. 3 (2001) 499-534; Donald

Boyd, Pamela Grossman, Marsha Ing, Hamilton Lankford, Susanna Loeb, and James Wyckoff, "The Influence of School Administrators on Teacher Retention Decisions," *American Education Research Journal* (forthcoming).

<sup>37</sup> New York City Department of Education, *Children First* (2009), [http://schools.nyc.gov/NR/rdonlyres/51C61E8F-1AE9-4D37-8881-4D688D4F843A/0/cf\\_corenarrative.pdf](http://schools.nyc.gov/NR/rdonlyres/51C61E8F-1AE9-4D37-8881-4D688D4F843A/0/cf_corenarrative.pdf)

<sup>38</sup> New York City Department of Education, *Children First* (2009), [http://schools.nyc.gov/NR/rdonlyres/51C61E8F-1AE9-4D37-8881-4D688D4F843A/0/cf\\_corenarrative.pdf](http://schools.nyc.gov/NR/rdonlyres/51C61E8F-1AE9-4D37-8881-4D688D4F843A/0/cf_corenarrative.pdf)

<sup>39</sup> See <http://www.nycleadershipacademy.org/overview/overview>.

<sup>40</sup> See [http://www.nycleadershipacademy.org/aspiringprincipals/app\\_overview](http://www.nycleadershipacademy.org/aspiringprincipals/app_overview).

<sup>41</sup> Sean P. Corcoran, Amy Ellen Schwartz, and Meryle Weinstein, *The New York City Aspiring Principals Program: A School-Level Evaluation*. Report from Institute for Education and Social Policy, New York University (2009). <http://steinhardt.nyu.edu/scmsAdmin/uploads/003/852/APP.pdf>

<sup>42</sup> Office of the Mayor, "Mayor Michael R. Bloomberg and Chancellor Joel I. Klein Announce New Mentoring Program for Incoming Teachers," press release (August 23, 2004).

<sup>43</sup> Donald Boyd, Pamela Grossman, Hamilton Lankford, Susanna Loeb, J. Myung, and James Wyckoff "Mentoring and the Matthew Effect: The Implementation of a District-Wide Mentoring Program and its Impact on Retention" (working paper, 2009).

<sup>44</sup> New Teacher Center, "Understanding New York City's Groundbreaking Induction Initiative" (policy paper, Santa Cruz, CA: New Teacher Center at the University of California Santa Cruz, 2006).

<sup>45</sup> Jonah Rockoff, "Does Mentoring Reduce Turnover and Improve Skills of New Employees? Evidence from Teachers in New York City," working paper (2008).

<sup>46</sup> Donald Boyd, Pamela Grossman, Hamilton Lankford, Susanna Loeb, J. Myung, and James Wyckoff "Mentoring and the Matthew Effect: The Implementation of a District-Wide Mentoring Program and its Impact on Retention" (working paper, 2009).

<sup>47</sup> Agreement Between the Board of Education of the City School District of the City of New York and the United Federation of Teachers, 2003-07 Article 18 Transfer and Staffing; and Timothy Daly, David Keeling, Rachel Grainger, and Adele Grundies, "*Mutual Benefits: New York City's Shift to Mutual Consent in Teacher Hiring*" (The New Teacher Project, 2008), [www.tntp.org/publications/Mutual\\_Benefits.html](http://www.tntp.org/publications/Mutual_Benefits.html).

<sup>48</sup> Timothy Daly, David Keeling, Rachel Grainger, and Adele Grundies, "*Mutual Benefits: New York City's Shift to Mutual Consent in Teacher Hiring*" (The New Teacher Project, 2008), [www.tntp.org/publications/Mutual\\_Benefits.html](http://www.tntp.org/publications/Mutual_Benefits.html).

<sup>49</sup> Barbara Martinez, "More Teachers to Lose Positions—but Not Pay" *Wall Street Journal*, July 1, 2010. <http://online.wsj.com/article/SB10001424052748704334604575339142634105522.html>

<sup>50</sup> Timothy Daly, David Keeling, Rachel Grainger, and Adele Grundies, "*Mutual Benefits: New York City's Shift to Mutual Consent in Teacher Hiring*" (The New Teacher Project, 2008), [www.tntp.org/publications/Mutual\\_Benefits.html](http://www.tntp.org/publications/Mutual_Benefits.html); and United Federation of Teachers, "*Case Study in Partisanship. A Critique of The New Teacher Project Report 'Mutual Benefits: New York City's Shift to Mutual Consent in Teacher Hiring'*" (2008), [www.uft.org/news/atrs\\_tntpl.pdf](http://www.uft.org/news/atrs_tntpl.pdf)

<sup>51</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Jonah Rockoff, and James Wyckoff, “The Narrowing Gap in New York City Teacher Qualifications and its Implications for Student Achievement in High Poverty Schools,” *Journal of Policy Analysis and Management* 27, no. 4 (2008): 793–818.

<sup>52</sup> Timothy Daly, David Keeling, Rachel Grainger, and Adele Grundies, “*Mutual Benefits: New York City's Shift to Mutual Consent in Teacher Hiring*” (The New Teacher Project, 2008), [www.tntp.org/publications/Mutual\\_Benefits.html](http://www.tntp.org/publications/Mutual_Benefits.html).

<sup>53</sup> Donald Boyd, Hamilton Lankford, Susanna Loeb, Matthew Ronfeldt, and James Wyckoff, “The Role of Teacher Quality in Retention and Hiring: Using Applications-to-Transfer to Uncover Preferences of Teachers and Schools,” *Journal of Policy Analysis and Management* (forthcoming); and Brian A. Jacob and Lars Lefgren, “Can Principals Identify Effective Teachers? Evidence on Subjective Performance Evaluation in Education,” *Journal of Labor Economics* 26, no. 1 (2008): 101–36.

<sup>54</sup> See New York City School Survey results presentation at <http://schools.nyc.gov/NR/rdonlyres/63C6B2F2-A659-4EF9-AB3B-A5BBCDF19850/64127/NYSchoolSurvey2009ResultsPresentation.pdf>

<sup>55</sup> New York City Department of Education, *Children First* (2009), [http://schools.nyc.gov/NR/rdonlyres/51C61E8F-1AE9-4D37-8881-4D688D4F843A/0/cf\\_corenarrative.pdf](http://schools.nyc.gov/NR/rdonlyres/51C61E8F-1AE9-4D37-8881-4D688D4F843A/0/cf_corenarrative.pdf)

<sup>56</sup> New York State Education Department, "New York State Education Department Proposes Race to the Top Legislative Reforms with Support of New York State United Teachers and the United Federation of Teachers," press release (2010), [http://www.oms.nysed.gov/press/RTTT\\_NYSUTMay11.html](http://www.oms.nysed.gov/press/RTTT_NYSUTMay11.html)

<sup>57</sup> Donald Boyd, Pamela Grossman, Hamilton Lankford, Susanna Loeb & James Wyckoff “Teacher Preparation and Student Achievement” *Educational Evaluation and Policy Analysis* 31, no.4 (2009): 416-440; and Matthew Ronfeldt, “Where should student teachers learn to teach?” (Working paper, 2010) [http://irepp.stanford.edu/publications/working\\_papers/](http://irepp.stanford.edu/publications/working_papers/).