

COMPLEX BY DESIGN

INVESTIGATING PATHWAYS INTO TEACHING IN NEW YORK CITY SCHOOLS

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New York City represents a microcosm of the changes that are shaking the very foundations of teacher education in this country. In their efforts to find teachers for hard-to-staff schools by creating multiple pathways into teaching, districts from New York City to Los Angeles are in the midst of what amounts to a national experiment in how best to recruit, prepare, and retain teachers. This article provides an overview of a research project that examines features of these different pathways into teaching in New York City schools and the impact of these features on where teachers teach, how long they remain in the classroom, and student achievement in reading and math as measured by value-added analyses. The article provides both a conceptual framework for the study and a discussion of some of the methodological challenges involved in such research, including problems of selection bias, difficulties in documenting programmatic features, and challenges of estimating teacher effects on student achievement.

Keywords: *outcomes of teacher education pathways; value-added analyses of teacher education*

New York City represents a microcosm of the changes that are shaking the very foundations of teacher education in this country. In their efforts to find teachers for hard-to-staff schools by creating multiple pathways into teaching, districts from New York City to Los Angeles are in

the midst of what amounts to a national experiment in how best to recruit, prepare, and retain teachers. As more alternative pathways take root, university-based programs now compete with programs that allow participants to earn a salary as they learn to teach. Yet although policy

debates about the relative value of teacher education and the benefits of different pathways into teaching are replete with opinion, they are lean on data.

At the heart of this debate is the desire to improve the performance of America's students, especially in urban schools. Although a number of factors contribute to student achievement, new research identifies teachers as one of the most important contributors to improved student outcomes (see, e.g., Rivkin, Hanushek, & Kain, 2000; Sanders & Horn, 1994; Sanders & Rivers, 1996). Even as research acknowledges the crucial importance of teachers, there is disagreement about the best way to prepare teachers. Some argue that easing entry into teaching is the best way to attract strong candidates (U.S. Department of Education, 2002), whereas others argue that investing in high-quality teacher preparation will better serve our nation's children (National Commission on Teaching and America's Future, 1996). Despite the stakes of this debate, there is relatively little systematic research documenting characteristics of individuals who prepare to teach in urban schools, how they select pathways into teaching, and the features of teacher education that might prepare teachers to be successful in urban, low-performing schools (Wilson, Floden, & Ferrini-Mundy, 2001).

The research project described in this article is investigating different pathways into teaching in New York City schools and how features of those pathways make a difference to a variety of outcomes. These outcomes include whether people teach, where they teach, whether they stay in teaching, and what impact teachers have on student achievement. New York City provides a unique context in which to investigate these issues. For example, a combination of retirements and teacher turnover will require New York City to hire substantial numbers of new teachers during the next few years. In addition,

new standards for high achievement by all students will place greater demands on new teachers. In low-performing schools with high proportions of poor and non-White students, the qualifications of teachers are already substantially worse than in better performing urban and suburban schools (see, e.g., Lankford, Loeb, & Wyckoff, 2002). In many large cities, the need to improve teacher quality in these difficult-to-staff schools is particularly acute. As the demand for high-quality teachers increases as a result of demographic changes and policy initiatives such as class size reduction, these disparities will only worsen; schools with better working conditions and higher salaries will bid away the better qualified teachers from already difficult-to-staff schools. With this study, we hope to better understand how to attract, educate, and retain teachers in New York City to improve educational outcomes of students.¹ In this article, we describe the overall design and conceptualization for this research and explore some of the methodological challenges inherent in determining the impact of teacher preparation.

BACKGROUND TO STUDY

For many years, New York City resorted to hiring large numbers of uncertified teachers to meet its teaching needs. By 2000, a number of pathways into teaching in New York City existed, including the option of hiring teachers with baccalaureate degrees and no preparation to teach. Beginning in 2000, the New York State Regents sued the city to require certified teachers in all failing schools, also known as Schools Under Registration Review. As a result of this suit, Schools Under Registration Review in New York City were required to employ certified teachers in every classroom (*Mills v. Levy*, 2000). The Regents also required that all teachers in New York City be certified by September

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2003, well in advance of the requirements of the No Child Left Behind Act of 2001. These new policies resulted in a shortage of as many as 12,000 certified teachers in New York City a few months before the beginning of the school year. Because of these and similar shortages in other school districts, new pathways into teaching were created by New York State. Beginning in 2000, the Regents approved a framework for alternative routes into teaching “designed to attract highly competent people who possess a bachelor’s degree with a major in the subject they plan to teach, but initially lack courses in teaching” (J. Frey, personal communication, July 2000). The New York City Teaching Fellows Program was created as one of these alternative routes.

The genesis of the study lay in the desire to have comprehensive data on teacher preparation disaggregated by pathway as a vehicle to improve programs, an interest shared by the New York City Department of Education, the New York State Education Department, and the City University of New York. Nick Michelli and Carla Asher of City University of New York’s Teacher Education Office within the Office of Academic Affairs produced an initial set of questions for the study and made available \$600,000 in seed money. The principal investigators for the study, Don Boyd, Pam Grossman, Hamp Lankford, Susanna Loeb, and Jim Wyckoff, worked with Michelli and Asher to further develop the research questions. The principal investigators then designed the research and worked with City University of New York, the New York City Department of Education, and the New York State Education Department to develop the access to data required for the project. The researchers used this commitment to secure an additional \$3.5 million from the Carnegie Corporation of New York, the Spencer Foundation, and the National Science Foundation.

This confluence of interest in the research on the part of the city, the state, and City University of New York reflected both common and distinct interests. For example, New York’s Regents had instituted new standards for the

preparation of teachers that took effect in February 2004 and were interested in securing baseline data. Having invested heavily in the New York City Teaching Fellows Program, the city had an interest in comparing pathways. The City University of New York, like other colleges in New York State, was engaged, through its nine senior colleges, in preparation for National Council for Accreditation of Teacher Education accreditation. The data from the study was seen as part of how City University of New York could meet National Council for Accreditation of Teacher Education’s Standard II, the provision of an assessment system.² In addition, all parties were interested in learning about the different effects and significant qualities of each pathway to improve the quality of teaching in New York City public schools. Ultimately a number of private colleges agreed to participate in the study as well. The purpose of this study is to understand better what features of pathways make a difference in preparing teachers for New York City schools. With a continuing need to hire about 6,000 teachers each year, all parties expect that more than one pathway will be needed for the foreseeable future.

This brief description of the genesis of this project highlights some of the demands of doing large-scale research on teacher preparation. First, a number of disparate institutions, each with different and sometimes competing interests, had to agree to support this project, including agreeing to share data. Garnering this level of support is not a trivial issue. Second, the project required a substantial amount of grant money from a variety of funders. Without such financial support, large-scale research on teacher preparation is not feasible. Finally, the project was able to draw upon a data set on teachers in New York State that the economists had painstakingly assembled during the course of a number of years; not all states maintain the kind of databases necessary to do such research. Such data sets on the characteristics of teacher preparation programs do not yet exist, so substantial effort went into documenting features of preparation.

RESEARCH QUESTIONS

The purpose of this study is to examine pathways into teaching systematically to understand better how the characteristics of these pathways affect the quality of the teaching workforce in terms of the individuals who are attracted to teaching and the skills they acquire during their preparation, as well as effects on student achievement. Our study investigates the following research questions.

Research Question 1: What are the programmatic features of the various pathways into teaching for New York City schools?

- What are the characteristics of various pathways into teaching, including (a) overall program structure, (b) characteristics of subject-specific preparation, (c) features of field experiences, (d) preparation for working with learners, and (e) preparation for working with diverse learners?

Research Question 2: Who enters which pathway and why?

- What are the attributes of teachers entering each teacher preparation pathway, including age, gender, prior education, prior careers, experience in urban settings, experience with children, and SAT scores?
- How do entrants select among pathways?
- How do pathways select among candidates?

Research Question 3: Who enters which teaching job (i.e., school) and why?

- In what jobs are teachers with different attributes and different preparation placed (e.g., size, location, high-poverty schools, low-performing schools)?
- When choice is available, what jobs do teachers choose to accept? What factors do teachers consider in looking for positions?
- How does preservice preparation affect the matching of teachers to teaching jobs?

Research Question 4: What features of teacher preparation are most effective in helping teachers improve the reading and math performance of elementary school students?

- What characteristics of pathways seem to affect teachers' influence on student reading and math achievement?
- How do characteristics of pathways interact with both features of school context and teacher characteristics to explain teacher practices and student achievement?

Research Question 5: Who stays in teaching and for how long? Who transfers? Who quits teaching?

- How are teachers' background characteristics related to teaching career?
- How are the characteristics of pathways related to teacher career decisions?

- How are these career decisions influenced by mentoring and induction practices and by other school context measures?

Research Question 6: What are the relative costs of different pathways into teaching?

CONCEPTUAL FRAMEWORK AND DESIGN ISSUES

The questions for this study address a complex set of interactions. Our central question concerns the effects that pathway characteristics have on student outcomes and on teacher labor market dynamics. However, to assess accurately such effects, we also need to understand something about how teacher background characteristics affect the selection of pathways, how individual characteristics of teachers influence student outcomes, how pathways influence prospective teachers' opportunities to learn, how pathways influence teachers' matching to schools, and how characteristics of teachers and their pathways interact with features of school context to influence student outcomes (see Figure 1).

Teachers in New York City enter teaching through a number of different pathways, including both more traditional and alternate routes.³ Although many have debated the comparative effects of traditional, university-based teacher education programs and alternate route programs for both recruitment and preparation, such global distinctions do not help us understand what components of teacher education matter most, especially for preparing teachers for urban settings (Cochran-Smith & Zeichner, 2005; Humphrey & Wechsler, 2005; Wilson et al., 2001). The distinctions between traditional university-based preparation and alternate routes are not clear-cut (e.g., Zeichner, 2005). In New York, for example, teachers all must complete the same course requirements for certification, and many universities offer multiple types of programs. As a result, teachers from both traditional and alternate route programs may end up taking similar courses. In addition, many teachers in traditional programs end up teaching full-time to fulfill their student teaching requirements. The critical distinction, then, may not be what courses teachers take but when these teachers receive their

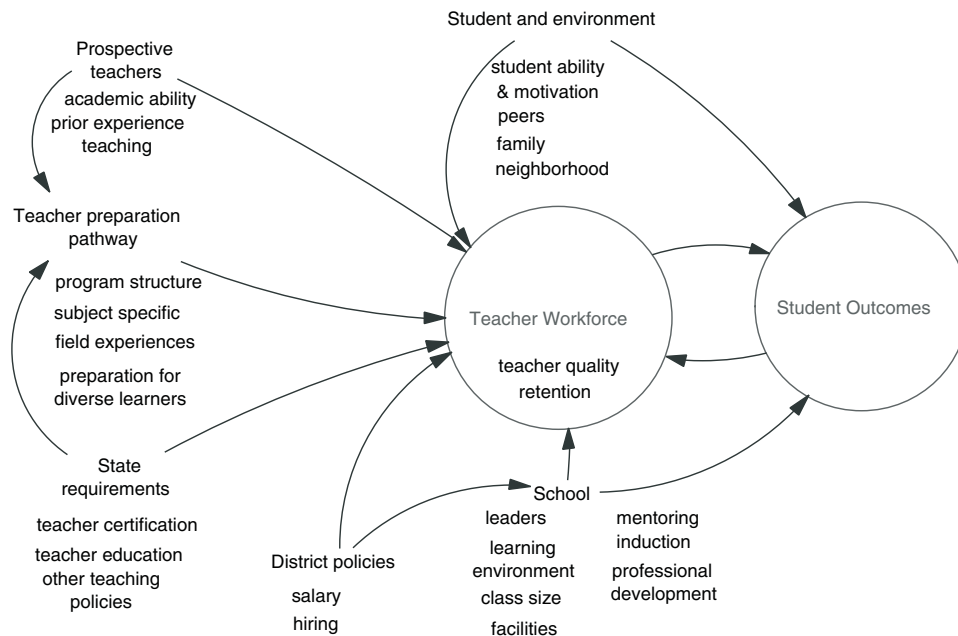


FIGURE 1: Conceptual Framework for the Study

course work. Does it matter, for example, if elementary teachers take a course in the teaching of mathematics prior to assuming full responsibility for teaching or if they take such a course during their 1st year of teaching?

To get beyond the increasingly blurry distinction between traditional and alternate route programs, this study looks at characteristics of pathways into teaching in five areas that a number of scholars have identified as important indicators of program quality: program structure; subject-specific preparation in reading and math; preparation in learning and child development; preparation to teach racially, ethnically, and linguistically diverse students; and the characteristics of field experiences (cf. Cochran-Smith & Zeichner, 2005; Darling-Hammond & Bransford, 2005; Valli, Reckase, & Raths, 2003; Wilson et al., 2001). Such an approach does not make the mistake of assuming that all traditional programs are similar enough to be analyzed together but instead, tries to understand how features of particular programs, such as the amount of preparation in teaching reading or a focus on teaching in urban schools, may affect outcomes for teachers in these programs.

To understand how the pathway affects future employment, we also need to understand more about the initial matching of teachers to schools and how features of pathways may interact with school characteristics (see discussion below on challenges of addressing these selection issues). Another distinctive feature of this study is its focus on a single labor market for teachers and the inclusion of a large number of programs that prepare teachers for this labor market. A number of studies of alternate certification (e.g., Humphrey & Wechsler, 2005) look at programs in different states across the nation. Although this approach provides greater variation in programs, it makes it difficult to incorporate an understanding of the local context. Each state has its own requirements for certification and licensing, requirements that affect the experience of teachers in different pathways. Our study focuses on programs that are preparing teachers within a single state, with a common set of requirements for certification, and for a particular labor market. This feature also enables us to explore how these pathways interact. Does the growth of a particular pathway draw teachers that might otherwise have gone through other pathways or does it

draw individuals who otherwise would not have gone into teaching at all? By looking at all pathways into teaching in New York City and by doing an in-depth analysis of the largest pathways, we will be able to address these interactions among pathways.

The importance of understanding the local labor market is confirmed by the research literature. We know that teacher labor markets are small geographically. The vast majority of New York City teachers went to high school within 40 miles of their first job (Boyd, Lankford, Loeb, & Wyckoff, 2005). This both confirms anecdotal accounts that most of New York City's teachers attended New York City K-12 public schools and underscores the importance of understanding and improving the quality of teacher education received by those going through programs in and around New York City. In this study of pathways into teaching, we explicitly account for these labor market features in our assessment of the effects of teacher preparation programs on the teacher workforce, looking at how particular pathways affect teachers' entry into teaching and decisions to teach, and remain, in difficult-to-staff schools.

Relatively little research has tried to explore how characteristics of teacher preparation ultimately affect student learning and achievement (e.g., Wilson et al., 2001). Understanding the relationship between teacher preparation and student achievement is both fraught with difficulty and increasingly being demanded by policy makers. This study uses value-added analyses to tackle the question of how features of teachers' pathways influence student achievement in math and reading in Grades 3 through 8, as well as outcomes related to teacher retention and transfers.

Finally, this study takes into account the kinds of mentoring and other support teachers receive in their 1st year of teaching. As of fall 2004, all 1st-year teachers in New York City were assigned a mentor who typically had been an experienced New York City teacher who received training based on the curriculum of the New Teacher Center at the University of California-Santa Cruz. Most mentors are employed full time as mentors and no longer teach. In

addition, participants in alternate route programs receive additional mentoring from the programs in which they are taking classes toward certification. The study is designed to tease out the interaction between pathway and nature of mentoring, as well as the impact mentoring has both on teachers' decisions to stay in teaching and on their students' achievement (see Figure 1).

DESCRIPTION OF DATA SOURCES

This research uses a variety of methods and multiple sources of data, including (a) program documents and interviews with key informants from each of the major preparation pathways, (b) surveys of program participants and 1st-year teachers, (c) extensive administrative data on individuals during their education and their professional careers, (d) detailed information about the districts and schools in which these teachers work, and (e) student test score data. We briefly describe each of these data sources below.

To understand features of teacher preparation across different pathways, we are collecting data on more than 100 teacher education programs located within 16 colleges and universities that provide a significant number of teachers for New York City schools. In addition, we are documenting the features of alternative preparation programs, including the New York City Teaching Fellows Program, Teach for America, and the Teaching Opportunity Program. We are focusing particularly on five features of teacher preparation, including program structure; subject-specific preparation in elementary reading and math and in secondary math and science; preparation in learning and development, including special education; preparation to teach ethnically, racially, and linguistically diverse learners; and field experiences. To understand these features of teacher preparation, we have investigated program documents, including statements of program philosophy, course requirements, course descriptions, class schedules, information on faculty, and information on field experiences and internships. As part of this documentation effort, we have interviewed program adminis-

trators, including program directors and directors of field experiences. We have also surveyed faculty of reading and math methods courses and collected syllabi from instructors whenever possible.

To better understand preservice teachers' experiences in teacher preparation, we surveyed program participants in both traditional and alternate route programs during 2003-2004. The survey asked students about their undergraduate majors, their experiences in teacher preparation, their prior experiences with teaching and with children, and their future plans and preferences. Whenever possible, we asked about their actual experiences in teacher education, including opportunities for learning particular topics, as well as opportunities to engage in specific activities. (To see the complete survey, go to www.teacherpolicyresearch.org.) We obtained more than 3,200 surveys with a 70% response rate.

In addition to these surveys of program participants, we surveyed all 6,000 1st-year New York City public school teachers in the spring of 2005. This survey again asked teachers about their experiences in teacher education but also asked them about their job selection; their school contexts, including school leadership; their experiences in professional development and in mentoring programs; and their instructional practices and beliefs. Again, we were able to obtain a 70% response rate from 1st-year teachers, which allows us to be much more confident in generalizing from these data.

We supplemented this data collection effort with an analysis of an exceptional administrative database on New York City schools, teachers, and students. From the New York City Department of Education and the New York State Education Department, we received administrative data on beginning teachers, including demographic characteristics, salary, education, performance on certification exams, certification status, and career paths. To better understand the schools in which beginning teachers teach, we employ administrative data on student characteristics, resources, staff, discipline, crime, and many other school characteristics. Finally, for the students taught by these

teachers, we have a limited set of background characteristics, plus student test scores on state and city exams that enable us to construct value-added measures of student achievement. Value-added measures are available for students in Grades 4 through 8, beginning with the 1999-2000 school year.

DATA ANALYSIS

This study relies on a variety of analytic approaches and methods. From the data we collected on programs, we have created measures of program attributes to use in quantitative analyses of the effect of these attributes on outcomes. For example, we have documented the number of credits required in math and reading methods to use as a variable in our analyses. We use a similar process for creating and using measures of school context. The quantitative analyses are based on (a) multinomial and conditional logit models of the probability of entering pathways with differing characteristics; (b) multinomial and conditional logit models for the probability of entering schools with differing characteristics supplemented by simulated method of moments estimates of a matching model concerned with the allocation of teachers to jobs (Boyd et al., 2005); (c) multinomial logit models of the decision to stay, transfer, or quit; and (d) linear regression models examining relationships between attributes of teachers and pathways and student test score gains in reading and math.

We plan to combine these quantitative analyses with a number of more qualitative analyses. For example, we will use the surveys and interviews with key informants to find out the processes by which participants get matched to programs and teachers get matched to schools. For example, how do programs select schools for field experiences? How does this selection process reflect the goals of the program? We also plan to use the program documents and interviews to develop a richer portrait of how elementary teachers are prepared to teach reading and math across a number of different programs and pathways. Are there any common approaches used across programs? How, and in what ways, do programs link clinical experi-

ences in the field to methods courses in reading and math? The qualitative approach helps provide richer descriptive information on programs and pathways, whereas the quantitative analysis focuses more on the causal effect of program attributes on student and teacher labor market outcomes.

A major challenge of the empirical analysis arises from the difficulty of identifying the separate effects of individuals' own attributes, the features of the teacher education programs they attend, and the characteristics of the schools in which they teach. In particular, estimating how various features of teacher education programs affect the career paths of teachers and the educational outcomes of their students requires that we address the difficult selection problem common to nonexperimental program evaluations generally. In our assessment of how features of teacher education programs affect various outcomes, selection problems will arise if there are attributes of program participants or the schools in which they ultimately teach that (a) directly affect our outcome measures, (b) vary systematically across the education programs being evaluated, and (c) cannot be included as variables in the statistical analysis because of data limitations. In the presence of such unobserved factors, the use of inappropriate statistical methods can result in false or misleading conclusions about effects of characteristics of teacher education programs, as the effects of the unobserved attributes can be incorrectly attributed to the programs. As discussed below, we address these issues of selection bias by controlling for teacher characteristics, as well as for characteristics of schools and students.

METHODOLOGICAL CHALLENGES

Problems of Selection Bias

One of the problems with studies that try to compare the impact of different forms of professional education is the problem of selection bias (e.g., Kennedy, 1998). One aspect of selection bias has to do with how candidates select among possible pathways into teaching; teacher candidates who choose to enter some

routes may have significantly different background characteristics from those who enroll in other routes. If we see that teachers from one route have students who learn more during the year than teachers in other routes, other things being equal, this difference may be because of either differences in these candidates' characteristics when they entered programs or differences in the pathways such as course work or field experiences. This is not a problem if all we want to know is which pathway produces the best teachers, because pathways are a combination of selection and education. However, if we want to improve existing programs, it is useful to know which elements of pathways affect selection and the ability to recruit good teachers and which aspects are important for improving candidates' abilities to teach once they have decided to become a teacher. By assessing the effects of pathway elements and controlling for the entering characteristics of teachers, we hope to distinguish these two important mechanisms that determine the differential effectiveness of pathways.

Another challenge facing studies of different pathways into teaching is the need to account for the interaction of pathway and the schools in which new teachers find jobs. Different pathways into teaching can result in teachers being hired into schools with different characteristics. For example, some alternate route programs require their members to teach in under-resourced, high-poverty schools, whereas graduates of traditional programs have more choice about the kind of school in which they want to teach. If we are to accurately assess the effect of pathway features, researchers must account for these differences in the matching of teachers to schools and identify features of pathways that are most effective for supplying good teachers to difficult-to-staff schools.

Features of pathways may also interact with school characteristics. Some pathway components may be effective in preparing teachers for teaching in one kind of school but not in another. These interactions must be taken into account to draw a precise picture of pathway effects. In a similar manner, if some pathways funnel program participants into schools whose

students have lower average reading growth, we would not want to confuse the effect of the pathway with the effect of the schools. Much of our analytic work focuses on distinguishing these selection effects—into both pathway and school—from the contribution of pathway features to teacher and student outcomes.

Program Documentation and Response Rates

Ours is not the first study to attempt to link characteristics of teacher preparation with a variety of outcomes, although few have tried to link preparation to student outcomes (see Valli et al., 2003, for an example of a similar study set in Tennessee and using value-added scores for teacher effects.) Documenting characteristics of preparation programs, however, is not a trivial task. The field does not yet have a common database that includes information—at the program level—about selection, program requirements, schools in which teachers are placed, and faculty characteristics, much less content of course work. Most earlier studies have relied on graduates' self-report of how well prepared they felt in various areas (e.g., Darling-Hammond, Chung, & Frelow, 2002). To counteract some of the problems of self-report data, we are collecting information directly from programs, including analyzing program documents and interviewing program administrators. Our data on course content, however, are still limited by our reliance on course descriptions.

To supplement our understanding of preparation and to collect additional data on teachers and their experiences, we also rely on teacher surveys. Another challenge for this kind of research has to do with the difficulty of getting an adequate response rate to surveys of new teachers. A number of studies that have also tried to look at attributes of teacher preparation and various outcomes, including teachers' sense of preparedness and efficacy (Darling-Hammond et al., 2002; Humphrey & Wechsler, 2005; Valli et al., 2003), have struggled to achieve adequate response rates, particularly from teachers in New York City. One of the sig-

nificant costs of this study has been ensuring a response rate of at least 70%, which requires significant follow-up of nonrespondents. Policy makers who want better data on issues regarding teacher preparation need to be prepared for the costs of such research.

Assessing Teacher Effects

Many educators worry, with good reason, about the implications of using value-added measures to make claims about teacher effectiveness. There are two particularly worrisome features of this approach. First, achievement tests measure only a small part of students' learning. By focusing on these measures, we are missing many important aspects of learning, as well as other valued outcomes of schooling; this is an inherent limitation to these kinds of data. However, although incomplete, the exams do measure outcomes that policy makers have agreed are important for students. In addition, this particular measure can have a tremendous impact on students' future prospects. Students who lag behind in reading in the elementary grades, as assessed by standardized achievement tests, are likely to continue to score poorly all the way through school (Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Juel, 1988; Shaywitz et al., 1999). For these reasons, we can see the value of using student achievement data in large-scale studies of teacher effects, even as we acknowledge their limitations.

When using such standardized achievement data for students, the question remains how best to use such data to make claims about teachers' influence on student achievement. Most value-added approaches look at students' gains in test scores from 1 year to the next. One problem with using test score gains is that they measure the underlying concepts with error. This is a particular problem for assessing the performance of individual students, individual teachers, or small schools (Kane & Staiger, 2002), which is why such approaches are not advocated for making consequential decisions regarding individuals. Because we are not assessing the performance of individual teachers but of groups of teachers based on the fea-

tures of their pathway, measurement error is substantially less likely to bias the results.

Although test scores are clearly not a perfect measure of the effect of teachers on students, they do have the benefit of measuring some, although not all, of the outcomes that we do care about, with relatively high reliability and similarly across a large number of students and schools. With this in mind, we construct a set of records with each student's current exam score and his or her lagged exam score. We run models predicting current score based on prior student score, measures of other student characteristics, measures of classroom characteristics, teacher experience, and measures of the pathway through which the teacher began teaching in New York City. For example, we assess how and if the number of courses taken on the teaching of reading, or particular clinical experiences related to reading, affect teachers' influence on their students' reading achievement. Because school differences can affect learning, we also include school fixed effects, thus, identifying the effect of pathway by comparing teachers within the same school. We include grade and year fixed effects for similar reasons.

Because there are ongoing debates about the best way to measure teacher effects on student achievement, we run numerous specification checks including, for example, school by grade by year fixed effects (e.g., Hanushek, Rivkin, & Kain, 2005; Rogosa & Saner, 1995). This analysis focuses on a single cohort of teachers, who all entered teaching in the fall of 2004, so we do not conflate the level of experience with effects on student achievement; in essence, we compare 1st-year teachers only to other 1st-year teachers and later, 2nd-year teachers to other 2nd-year teachers.

IMPLICATIONS

Ambitious in scope and complex by design, this study offers the potential for informing the debates concerning how best to prepare teachers for urban districts. By providing data located in a single labor market that offers multiple pathways into teaching, we hope to provide useful information for policy makers, prac-

tioners, and researchers in the area of teacher education.

Through careful investigation of features of different pathways into teaching, this study has the potential to identify particularly important aspects of teacher education for preparing teachers for New York City schools. Such information will enable teacher educators across pathways to strengthen their own programs, while also informing policy makers about features of preparation that can affect retention and student achievement. One of the primary differences among pathways in our study is the amount of preparation and experience new teachers have before taking over a classroom. The study will provide evidence on the consequences—for students and teachers alike—of beginning teaching with little preservice classroom experience. Such findings can inform policy makers about the effectiveness of federal, state, and district investments in different pathways into teaching.

Although large school systems across the country, from New York City to Los Angeles, are investing public funds in the preparation of teachers, we have relatively little systematic evidence of the effects of these investments. By examining the issue of cost-effectiveness of pathways, this study has the potential to inform policy makers as they decide how best to invest in preparing teachers for city schools. Current federal investments in teacher preparation are targeted almost exclusively at alternate pathways and at the graduate levels. This study has the potential to conclude if such investments are effective or if other investments should be considered.

As the study relies on collaborations among a number of different stakeholders in teacher education, it may illustrate the advantages of such collaboration among public and private institutions of higher education and multiple levels of government. Although rare, such partnerships are essential if researchers are to assemble the necessary data sets and to study important educational issues. The Ohio Teacher Quality Partnership is attempting a similarly large-scale, comparative study of teacher preparation (see Lasley, Siedentop, & Yinger, 2006).

Such collaborative research efforts can provide a new line of research in teacher education and demonstrate the potential use of data to inform policy and practice.

Although many urge the use of data in developing public policy, such proclamations are seldom put into practice. The data from this study have the potential to inform both city and state policies on teacher education, as well as the colleges who prepare teachers through both alternate routes and traditional pathways. These data can form the basis for a number of additional questions and hypotheses that can be tested to further enhance our knowledge. However, as mentioned above, collecting such data is not cheap. Developing large-scale studies of teacher preparation requires considerable investments from both government and private funds, as well as the cooperation of multiple institutions.

For the past decade, most research in teacher education has focused on developing rich case studies of exemplary courses or programs. By choosing instead to focus on a single labor market, and then surveying the variety of ways in which teachers are prepared for that labor market, we hope to provide a more complete picture of the landscape of teacher education and its impact on beginning teachers and their students. This landscape is a crowded one, with multiple pathways into teaching and myriad factors affecting outcomes for teachers and students. The complexity of the terrain demands more sophisticated methods for understanding the relationships and interactions among the various factors. Through its use of multiple methods and data sources, this study can provide at least a first look at the topography of teacher preparation for New York City schools.

NOTES

1. It is important to note that we are not studying the outcomes of all the important purposes of education, including, for example, a commitment to education for democracy and social justice and to preparing students for rich and rewarding personal lives (Michelli & Keiser, 2005). Colleges may engage in additional qualitative studies on the impact of their programs to be certain that other goals of education measured by this large-scale study are not lost.

2. Additional qualitative studies (beyond those proposed in this study) on each campus are being undertaken to complement the study and to focus on the specific conceptual frameworks

identified by City University of New York colleges, with special focus on education for democracy and social justice (Michelli & Keiser, 2005).

3. We recognize that the use of the terms *traditional* and *alternate* to describe pathways into teaching is increasingly problematic. The whole purpose of this study, in fact, is to look beyond the label at the actual characteristics of preparation for teaching. However, because these are the terms that are employed in the debate about teacher preparation, we use them in the following way: Traditional programs include both graduate and undergraduate programs that are primarily controlled by colleges and universities and in which the majority of students complete the greater part of their course work and student teaching before becoming the teacher of record. Alternate route programs include those that are controlled by an entity other than a college or university (e.g., school district, nonprofit organization such as Teach for America) and in which students generally begin as the teacher of record after minimal course work, often during the summer. We recognize that these descriptions do not capture the full variation of alternate route programs (e.g., Humphrey & Wechsler, 2005; Zeichner, 2005), but they capture distinctions important to this study and to policy makers.

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