The Labor Market for Public School Teachers:
A Descriptive Analysis of New York State's Teacher Workforce

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Policymakers across the country are struggling to improve student learning, especially for students in traditionally low-performing schools. Many policies under debate, or being implemented, are intended to raise the level of instruction by attracting and retaining high-quality teachers. In order to design effective policies we must understand the mechanisms that determine the overall quality of the teacher workforce and those that create disparities in teacher quality across schools.

In this paper, we examine New York's public school teaching workforce. We are particularly interested in characterizing the comparative quality of teachers across districts and over time. To examine these issues, we have developed a very rich database that contains a number of measures of teacher quality for each of New York's teachers over the last fifteen years. Descriptive analyses of these data allow us to characterize teacher quality of New York's teaching workforce.

Demographic trends and education policy choices are increasing the need to attract and retain more high-quality teachers. The baby-boom generation of teachers is reaching retirement age and the baby boom "echo" – the children of baby boomers – is working its way through the school system, creating the need for additional teachers. For example, about 38 percent of New York's current teachers will have retired or reached age 55 within the next five years. Figure 1 below shows the aging of the teaching workforce over the last fifteen years. Additionally, many recently popular policies such as those to raise learning standards, end social promotion, and reduce class sizes increase demands for additional high-quality teachers. The result of these forces leads to a tightening of the teacher labor market in some places, with an accompanying reduction in the quality of teachers. This is especially true in many urban schools where the teaching environment has been harsh for a long period of time, and issues of retirements and standards exacerbate an already difficult teaching situation.

In recent years, policy makers have debated and adopted a flurry of proposals intended to increase the quantity and quality of teachers. For example:

- Massachusetts adopted the first statewide "signing bonus" policy. Other states, including New York, have adopted similar policies.
- California recently enacted a tax credit of up to 50 percent of the tax that would otherwise be imposed on a teacher's salary.
- Many states have adopted loan forgiveness programs and offered tuition credits.
- At least 29 states and many localities provide bonuses and incentives for certification by the National Board of Professional Teaching Standards.

- The Department of Housing and Urban Development has implemented the Teacher Next Door Program, which allows teachers to purchase HUD-owned homes in their school districts for a 50 percent discount.

However, uninformed policies can have unintended effects. Teachers differ fundamentally from other school resources. Unlike textbooks, computers and facilities, teachers have preferences about whether to teach, what to teach, and where to teach. Unless we understand what influences teachers' choices, policies may not achieve their intended purposes. For example, it has become apparent that class size reduction efforts in California led to some unintended outcomes with respect to teacher quality. (Betts, Rueben & Danenberg, 2000; Bohrnstedt and Stecher, 1999; CSR Research Consortium, 1999). As a result, a statewide policy to lower class size may not have as large an effect on student learning as anticipated. This demonstrates the importance of understanding the teacher labor market.

Not since the baby-boom generation have we had the opportunity to so drastically shape the teaching workforce. Nor will this opportunity occur again for some time. More than fifty percent of the teachers who have taught in the New York State system for five years will still be teaching 20 years later. The long-lived effects of past hiring practices are evident in figure 1 where many of teachers hired to during the baby boom are only now leaving the system. Teacher hiring decisions that are made over the next five to ten years will have enormous effects on the education of students for decades. What kind of teachers will be hired? What policies are most effective in attracting and retaining high-quality teachers?

The character of the teacher workforce ultimately depends upon the choices made by teachers and prospective teachers, the choices made by school officials (e.g., hiring decisions), and the interaction of those choices. These decisions begin with the decisions college students make regarding courses and continue through the decision by teachers of when to retire. They are frequently complex decisions dependent on a variety of factors and often involve a matching process that depends upon the preferences of both employers and (prospective) employees.

In such a complex environment it is difficult to know what policy initiatives are most likely to result in high-quality teachers locating in traditionally low-performing schools. Do higher starting salaries serve such a goal best? Or would forgiveness of loans or a stronger package of professional development be more effective? As we consider the series of decisions, dozens of other possibilities come to mind. It may be that reducing the credentialing process would be effective. Currently, there is only very limited information on which to base policy. Ultimately, our ongoing research is intended to address these issues. An understanding of which policies are most effective in attracting and retaining high-quality teachers in traditionally low-performing

schools relies upon understanding the behavior of both prospective and current teachers and the processes that leads to their hiring and retention.

As a first step in developing such an understanding, we believe it is important to characterize the teaching workforce. In particular, what are the attributes of New York's public school teaching workforce? How has the workforce changed over time? How does it differ across locations? What are the dynamics that lead to these outcomes? In this condition report we examine these issues by providing a descriptive analysis of the public teacher workforce in New York. This will provide a foundation for our future work. In future condition studies we will examine various key decisions that lead to the overall level and distribution of the quality of the teaching workforce and the factors that are most influential in determining these outcomes.

Many of the results that we report confirm commonly held beliefs about New York's teachers. Some of the results challenge conventional wisdom. In either case, many of the results meaningfully augment our understanding of New York's teaching workforce. It is on this foundation that additional research and policy can proceed.

Method and Data

The matching of aspiring teachers to jobs occurs within the context of local labor markets. We roughly characterize these markets as consisting of individual metropolitan statistical areas and the remaining rural areas. These divisions will allow us to summarize differences in teacher attributes that may exist across schools in a manner that is consistent with reasonable definitions of labor markets for teachers. Given our interest in traditionally low-performing urban schools, we have divided the metropolitan statistical areas into urban centers and the surrounding suburban rings. The regional definitions are shown in Table 1.

The database employed in our analysis links several different administrative datasets and various other information characterizing districts. It includes information for every teacher and administrator employed in a New York public school at any time from 1969-70 through 1998-99. This data is from the Personnel Master File (PMF), part of the Basic Education Data System of the New York State Education Department. In a typical year there are approximately 180,000 teachers identified in the PMF. Thus, our database has in excess of 2.5 million observations on about 600,000 different teachers. The data for each teacher has been linked over time so that we have a work-history record for each person who taught one or more years between 1969-70 and 1998-99.

Our interest is in characterizing various attributes of teachers, especially measures that speak to teacher quality. Teaching is a complicated endeavor and summary measures about the attributes of teachers, like their performance on certification exams or rank of their undergraduate college are at

best proxies for the attributes we ultimately care about—how well they will perform in the classroom. Traditional data are notably weak in this regard, usually only including measures of teacher experience and the level of educational attainment. Teacher quality can be measured in a variety of ways. Most prior studies employ input measures of teacher quality, often just using years of experience or level of education. More recently, some studies employ teacher test scores or the quality of undergraduate institutions attended. Alternatively, a few studies quantify the quality of teachers by the contributions they make to the academic gains of their students (value added). Each approach has advantages and disadvantages, both conceptually and in practice. Value-added measures have the benefit that, ultimately, we care about how education affects student learning. They are direct measures of student learning. However, the need to isolate the effects of teachers from other factors, such as family background, poses problems. It is not difficult to imagine that family background affects not only a student's test score, but also the gains that that student makes over time. Unless value-added measures adequately adjust for these influences they may paint a biased picture of teacher quality. In addition, value-added quality cannot be measured for potential teachers or for first year teachers since individuals must teach for several years before value added can be estimated. These measures also are likely to be volatile for novice teachers because practice and effectiveness typically change substantially over the first few years of teaching. Adding to these problems, very few school systems have the type of data that would support the implementation of a value-added assessment system.

Researchers more commonly employ measures of individuals' attributes as proxies of teacher quality. There has long been an interest in the effect that particular teacher attributes have on student achievement. Most studies addressing this question have used measures of years of education, whether or not the teacher holds a master's degree, whether or not the teacher is certified, and years of teaching experience. These are clearly weak measures of teaching ability, and they have not been found to consistently impact student learning (Hanushek, 1986 & 1997). However, studies with richer detail on teachers have often been able to find effects on student outcomes (Ehrenberg and Brewer, 1994; Ferguson, 1991; Ferguson and Ladd, 1996). Thus, the quality of data is important. In their analysis of who chooses to teach, Hanushek and Pace (1995) employ reading, vocabulary and mathematics test scores (administered as part of the HSB survey), arguing that it is plausible "that 'smarter' teachers with higher achievement of their own could perform better in the classroom." Ballou and Podgursky (1997) make a similar point and provide a nice summary of the literature that speaks to the relationship between the strength of academic background and teacher effectiveness. Their analysis of teacher pay and quality employs college selectivity, academic major, undergraduate GPA and SAT scores as indicators of quality. We have

quality measures similar to those used by Hanushek and Pace and discussed by Ballou and Podgursky. Importantly, we have these measures in the context of an administrative dataset with detailed information on all schools and districts.

Our results are based on a rich set of teacher inputs measures. In particular, information regarding the institutions from which individual teachers earned their undergraduate degrees comes from the NYS Teacher Certification Database (TCERT). This information and the Barron's ranking of college selectivity was used to constructed variables measuring the selectivity the college from which each teacher graduated. Information regarding the teacher certification exam scores of individual teachers and whether they passed on their first attempts are drawn from the NYS Teacher Certification Exam History File (EHF).[1] These measures taken together are useful indicators of teacher quality.[2] Ultimately, we would like other measures of teacher quality, the most important being the value added in student performance by specific teachers. Even though the measures employed here are not comprehensive, they are correlated with such outcome measures.[3]

Figure 2 illustrates the nature of our data and the types of analysis that are possible. Here the cases are individual teachers. A line indicates years for which a teacher is employed. The change from a solid to a dashed line represents a teacher transferring between schools or districts. Lines that extend beyond 1998-99 indicate a teacher is still in the workforce. At any given point in time the attributes of all teachers in the system can be examined. This corresponds to examining the attributes of the teachers and schools in a particular column. For example, considering 1990-91 we could examine the attributes of cases 3, 6, 7, 11, 12, 13, 14, 15 and 16. Thus, we can describe how the teachers in various places differ from each other. By comparing results across multiple

[1] The certification and testing data include an array of additional measures, such as institutions from which graduate degrees were received and actual scores on certification exams. We have limited our discussion to the measures presented for two of reasons. First, we believe the measures presented in the text are best suited to exploring issues of teacher quality. Second, the results from other measures are consistent with those presented.

[2] Some caution is warranted when considering scores and passage rates on the teacher certification exams. Prior to 1983 passing the NTE certification exams was not required for NYS certification. Those already certified were grand fathered in. With only new teachers taking the exams, failure rates – especially in the early years – need to be understood as reflecting the results for test takers, not the entire stock of teachers at the time. Following the introduction of the New York State Teacher Certification Exams in 1993, those seeking provisional certification could continue to take the NTE exams, in place of the NYSTCE Liberal Arts and Science Test (LAST) and Assessment of Teaching Skills – Written exam (ATS-W). Even though most test-takers initially continued to take the NTE exams, the situation is now reversed with most of those seeking provisional certification taking the NYSTCE. The situation in NYC is a bit more complicated. Prior to 1993, the NTE exams were not needed, but could be used, to establish New York City certification. Starting in 1993, state certification was required for NYC certification so that either the NTE or NYSTCE tests were required. These changes in requirements for certification resulted in differences in the composition of test-takers over time. This along with changes in the tests mean that comparisons of scores over time require some caution.

columns we can see how the attributes of teachers have changed over time. Alternatively, we could explore attributes of teachers who all began their careers in a particular year, such as 1991-92 (this would include cases 8, 9, and 10). We could also examine all transfers (cases 4, 6, 9, 11, 16), or all quits (1, 2, 5, 6, 8, 11, 12, 13). Finally, we can follow the career paths of teachers over time. In this analysis we examine the data in several different ways to develop a richer understanding of the teaching workforce and how it is changing.

One of the advantages of working in such a rich data environment is the ability to view teachers from several different perspectives. In this analysis we slice the data in three different ways to get different perspectives on New York's teaching workforce. First, we examine the attributes of all teachers in the system in 1998-99. We are particularly interested in differences across places and between different teaching subject areas. Second, we examine how the teaching workforce has changed over the last fifteen years. We examine changes over time and across regions and teaching subjects. Finally, we follow a cohort of novice teachers who began their careers in 1990-91. To understand what motivates behavior and ultimately how the teaching workforce will look in the future, it is helpful to examine behavior at the margin. What are the attributes of teachers who are entering and leaving schools? What are the attributes of the environments they enter and leave? We are interested in how their careers evolved—who remained in the school where they first taught, who transferred to other schools or districts, and who separated from the system. For each of the three perspectives, we examine the attributes of the teachers and the schools.

Results

Even though much of our analysis confirms many of the commonly held beliefs about teachers, a few myths are challenged. A full set of tables is presented in the appendices. We have selected from these tables results that are illustrative to include in the body of this study. We believe they provide an accurate picture of the current status, historical development and dynamic relationships that shape the teaching workforce in New York. We encourage readers to examine the appendix tables for a fuller depiction. Needless to say, even our full results paint only a portion of the picture. However, they provide a new perspective from which to examine the teaching workforce and provide a foundation from which we can begin to develop informed policy.

The richness of the data allows us to examine the attributes of New York's teachers with a variety of measures and from various perspectives. We have found remarkable consistency across

[3] See Ballou and Podgursky (1997) for a summary of various research findings regarding the relationship between student outcomes and the attributes of teachers.

many of these measures, with similar pictures of New York's teaching workforce emerging. Four primary measures are presented in the tables and figures in the body of the paper: the portion of teachers with less than three years experience, the portion of teachers who failed a certification exam at least once, the portion of teachers who received their bachelor's degree from the least competitive colleges, and the portion of teachers who are not certified to teach in any of their current teaching assignments. The discussion of results follows the three types of analysis performed: a cross-sectional examination of all teachers for 1998-99, a time trend analysis from 1984-85 to 1998-99 of novice teachers being hired to their first teaching position, and a cohort analysis that follows the careers of all newly hired teachers in 1991. Each of these analyses provides differing insights about New York's teachers.

Attributes of the 1998-99 teacher workforce. Three results are particularly noteworthy and appear to reoccur across several different measures of teacher attributes. First, the quality of teachers, as proxied by our measures, is substantially lower in large urban areas, compared to other areas of the state. This is particularly true in New York City. Second, there are few differences in our measures of teacher quality across teachers grouped according to their primary teaching assignment. Finally, the average poor or Black and Latino student is more likely to have a teacher whose attributes reflect lower quality than is the case for the average non-poor or white student.

Urban areas generally, and New York City in particular, employ relatively large numbers of teachers of low-quality attributes compared to other regions of the state. Figures 3 and 4 (and the full set of tables in Appendix A) illustrate these differences. For example, New York City teachers who take the Liberal Arts and Sciences New York State Teacher Certification Exam fail about twice as often as teachers in Buffalo, Rochester, Syracuse and Yonkers (27.3 percent versus 13.9 percent). Similarly, New York City teachers are more than 2.5 times as likely to have received their BA from the least competitive colleges (25.1 percent versus 9.6 percent), and three times as likely as to be uncertified in any subject they currently teach (9.6 percent versus 2.7 percent) compared to Big Four teachers. The results are generally more striking when compared to teachers from small cities, suburban or rural areas.

Within teacher labor markets, our measures indicate that teachers are sorted in a way that urban teachers are on average of lower quality than their suburban counterparts. Figure 5 illustrates this pattern. For example, New York City teachers are about five times as likely to have failed the Liberal Arts and Science NYSTCE as their suburban counterparts from either the lower Hudson or Long Island (27.3 percent v. 5.1 or 5.9 percent, respectively). New York City teachers are also much more likely to have received their BA from the least competitive colleges or to be

uncertified in anything they teach compared to teachers in the New York suburbs. Similar disparities often hold for Buffalo, Rochester and Syracuse city teachers relative to their suburban colleagues, but the absolute levels are generally lower.

Differences in the attributes of teachers also exist when viewed across teaching disciplines, but these differences are less striking than those with respect to geography. Figure 4 illustrates the attributes of teachers grouped according to major teaching assignment. Generally, non-elementary humanities and math and science teachers are less likely to have failed the Liberal Arts and Science certification exam and less likely to receive their BAs from the least competitive colleges, although they are slightly more likely to be uncertified in any of their teaching assignments.

When the attributes of teachers are examined from the perspective of the students they teach, we find poor and Black and Latino students in New York City are much more likely to be taught by teachers who fail certification exams and are uncertified to teach any of their current assignments than non-poor or white students. These results are reflected in figures 6 and 7. However, differences for the other measures are small. Moreover, differences in the teachers teaching poor and non-poor or white and Black and Latino students in Big Four and Small City districts appear to be small across our measures.

Teacher attributes 1985-99. The composition of the teaching workforce varies across places and over time. To study how the teaching workforce is evolving we examine the attributes of newly hired teachers with no prior teaching experience. By comparing the attributes of these teachers over time, we can identify emerging trends that are likely to affect the character of the overall workforce over a long period of time. As illustrated in figure 8, a smaller portion of new hires in New York City transfer from other districts compared to other regions of the state. About 25 percent of all newly hired teachers in the City are transfers. In other regions of the state that figure generally varies between 35 and 45 percent. As this would suggest, New York City has a larger proportion of its new hires that have no prior teaching experience, as illustrated in figure 9. Interestingly, the proportion of new hires with no prior experience has increased in all regions over the last 15 years. This may suggest that the "reserve pool" of experienced teachers interested in returning to teaching is dwindling. In any event, this trend in conjunction with the increasing need to hire more teachers is putting additional pressure on schools of education to prepare increased numbers of teachers. As a result, we examine the qualifications of the newly hired teachers with no prior teaching experience.

The time trend analysis reinforces the observation that urban teachers, especially those in New York City are less qualified than teachers in other areas based on our measures. In most instances

it suggests these differences have remained fairly stable over the last 15 years. Figures 10 through 13 and the tables in Appendix B show the attributes of "novice teachers," (i.e., newly hired teachers with no prior teaching experience), have changed over the 1984-85 to 1998-99 period.[4]

Figure 10 illustrates that New York City's novice teachers are about four times as likely to be uncertified to teach in any of their current teaching assignments as any other region of the state. This relationship has changed little over the fifteen-year period, with the exception of 1990 and 1991. While not nearly as dramatic, figure 11 shows that novice teachers in New York City are more likely to have failed the NTE General Knowledge exam than their peers in other regions of the state. While it appears that this gap is increasing, we urge caution in this interpretation for a couple of reasons. Use of the NTE exams are being phased out with the introduction of the New York State Teacher Certification Exams so that these results may reflect the increasingly small number of observations. Additionally, we do not observe similar trends in the other certification exam results, particularly the NYSTCE exam results. Nor do the other attributes of teachers reveal any noticeable trends with respect to region. However, the fact remains that failure rates are substantially higher in New York City with no evidence that there is any reduction in this disparity.

When we focus the time trend analysis on predominant teaching assignments, we observe some interesting differences. Consider, for example, the results for lack of certification in any teaching assignment, as shown in figure 12. The different teaching areas move closely together until 1994. After that the portion of math and science teachers uncertified to teach in any of their current assignments rises steadily, while elementary and humanities remain fairly constant. Contrast this with the portion of teachers in each discipline that fail the certification exam. Figure 13 shows failure rates on the NTE General Knowledge exam by predominant teaching area. Math and science teachers consistently outperform teachers in other areas. Although most teaching areas have fairly stable failure rates over time, the failure rates for elementary and special education teachers are consistently higher since 1992. Given these somewhat mixed results, it is difficult to paint a consistent picture of how teacher quality differs across predominant teaching assignments.

Teacher salaries. The environment in which teachers work is complex and varies widely across schools. Many of the dimensions of the teaching environment are difficult to systematically quantify and most are interrelated. For example, as a result of residential location decisions that lead to demographically and socio-economically stratified neighborhoods, the attributes of students

[4] Since this analysis includes only a portion, in some cases a small portion, of the teaching workforce, there will be more year-to-year variability in the data. As a result we should not make too much of one year deviations.

vary widely across schools. These differing attributes affect the teaching environment directly. They also have indirect effects in at least two important ways. The socio-economic character of the district in part affects the political economy of school budgets, resulting in widely varying school resources.[5] This, in turn, affects teacher pay, and other purchased inputs of the school which together result in lower quality teachers and other inputs.

There has been much discussion about the role that compensation plays in the ability of schools to attract and retain high-quality teachers. From our perspective the evidence on this issue is far from definitive. In this analysis, our goal is simply to document the differences in teacher salaries across places and over time. For the most part, teachers are paid according to a salary schedule that varies only with education and experience and is determined through a negotiation between each school board and the local teachers' union. Thus, salary schedules vary across districts and change over time, and as a result, create differing incentives for the career choices of teachers. Figures 14 and 15 show how real salaries for New York metropolitan area teachers with a masters degree and two different levels of experience has changed over time.[6] As is apparent from the graphs, the gap between New York City salaries and those of comparably experienced and educated teachers in the suburbs has grown since the early 1990s. Figures 16 through 21 show similar graphs for the Rochester, Buffalo, and Syracuse metropolitan areas.

Several points are worth noting here. In every major metropolitan area except New York City, salaries paid to urban teachers either match or exceed those paid to suburban teachers. In New York City salaries at both the entry level and the veteran level were lower at the start of the period and have fallen further behind those of suburban districts. In 1999 starting salaries for Novice New York City teachers with a masters degree were about 25 percent lower than those for comparable suburban teachers. In New York City and Rochester starting salaries have not risen very much in real terms. There real starting salaries have experienced an average real growth of less than 1 percent per year over the 1985 to 1999 period, a total real increase of about $3000. In Rochester, although there were wide fluxuations over the period, between 1985 and 1999, starting salaries increased by about $1000 in real terms. Salaries for starting teachers in the Syracuse and Buffalo have shown more aggressive growth, increasing by about $7000.

Salaries paid to veteran teachers show similar patterns. Teachers with a masters and 20 years experience receive more than 35 percent more in the suburbs of New York City than in the City.

[5] See the condition report by Stiefel, Schwartz, Iatarola and Fruchter (2000) for detail on how school budgets vary across New York City schools.
[6] We normalized all salaries using the Consumer Price Index for July of the relevant year.

Real salaries for veteran teachers in New York City have increased only slightly since 1985 and have actually declined since 1990.

Quit and transfer behavior. Perhaps the most interesting aspect of our data is the ability to follow the career choices that teachers make. We believe there is much to be learned by examining the frequency and attributes of teachers' decisions to transfer from one school or district to another or to separate from public school teaching. How frequently do teachers leave particular schools? What are the attributes of the teachers who leave relative to those who remain? What are the attributes of schools where transfers or quits are more prevalent? Our results confirm some of the conventional wisdom about the career paths of teachers, but in some cases the evidence suggests that some of what is commonly believed is in fact myth.

Fewer than half of New York teachers with no prior teaching experience hired in 1991 remained in the same school in which they began their careers by 1997. Most of those leaving these schools left public school teaching in New York. Table 2 illustrates some interesting differences in career paths of teachers.[7] Confirming what many observers believe, teachers beginning their careers in New York City are far more likely to leave public school teaching in New York than teachers from other regions. Nearly 40 percent of New York City teachers leave the system. No other area has separations that reach 30 percent. However, in contrast to what many would predict, New York City has the lowest inter-district transfer rate of any area. When school and district transfers are combined, New York City still has the lowest transfer rate. This would suggest that while the City does lose a large number of teachers to the suburbs, in percentage terms it is not extraordinary.[8] *From a somewhat different perspective, New York City retains 58.2 percent of the teachers who began their careers six years earlier (same school plus different school in same district). In the Big Four the comparable figure is 64.9 percent.*

This pattern of quit rates has important implications for schools. In particular, the high exit rates for Novice teachers will result in a churning on the front end of the experience distribution; a district hiring a cohort of new teachers will have to replace a significant number of them as they quit. This is problematic since having at least a few years of experience has been documented to

[7] We determine transfers by examining the school and district affiliation in each year of the data. Transfers are determined to occur when the school or district affiliation changes. A teacher is determined to be not in the New York system when they are not observed in the data for three consecutive years. This accounts for teachers who take a leave. As a result, our analysis cannot go beyond1996-97 as we have data up to 1999-00.
[8] We are unable to determine how many of what appear to be teachers leaving the system are in fact transfers to schools in other states, (e.g., suburban locations in New Jersey and Connecticut).

meaningfully increase teacher effectiveness.[9] Why are exit so high and what accounts for differences across different districts?

When viewed from the perspective of predominant teaching assignment, there appears to be remarkable consistency in the career paths of teachers during the early part of their careers. Table 3 illustrates this. Elementary teachers are less likely to transfer to a different district or leave the system than their peers teaching middle and high school subjects. Among middle and high school teachers, transfer and exit behavior is very similar. This is a bit surprising as we expected to find higher exit behavior for math and science teachers whose opportunity cost of teaching might be the greatest.

Exits and transfers would be a problem even if it were merely churning, with a random selection of experienced teachers leaving or switching jobs. However, there is a systematic pattern to this turnover. Based on our measures, better teachers generally transfer or leave the system, leaving behind their weaker colleagues. For example, in New York City (table 4), teachers who exit (leavers) are less likely to fail certification exams and are substantially more likely to have received their BA from the most competitive colleges than are teachers who remain in the same school (stayers). Almost 20 percent of the teachers who remain in the same school failed the NTE General Knowledge exam; less than 12 percent of those leaving the system did so. Few than 8 percent of stayers graduated from the most competitive colleges; 22 percent of the leavers did so. Similar patterns hold for transfers, although the results are less striking. In general these patterns hold up across teachers in other regions and for teachers by their primary area of teaching (see Appendix C tables C-1 through C-10), but the differences are often not as great.[10]

What is the relative nature of the school environments that these leavers exit and what environments are they drawn to? Again, as many would suspect, this is not a random sorting. Not surprisingly, teachers generally leave what many would consider less attractive teaching environments and are drawn to environments that are more attractive. Table 5 illustrates this dynamic. New York City teachers who transfer to other districts, move to districts with substantially fewer poor and LEP students. They also move to districts where their class size is smaller and their pay is greater. For example, City teachers transferring to other districts have on average 70 percent fewer poor students and 50 percent fewer LEP students; their classes are on average 25 percent smaller and their salaries are 14 percent higher. Similar, although less striking,

[9] Rivkin, Hanushek, and Kain (1999).

[10] Some anomalies exist, however. For example, in the Big Four, where there are relatively few observations, leavers are more likely to have failed the NTE Communication Skills exam, although leavers have lower failure rates on the other NTE exams.

differences exist for teachers transferring from other urban areas (see Appendix tables C-11 through C-15).

In sum, the leaving behavior of teachers seems to confirm some commonly held beliefs. It also is consistent with the hypothesis that the opportunity cost for the best teachers is greatest and these are precisely the teachers most likely to leave. Given the pattern of quit rates discussed above, those who remain in the schools after five years are likely to remain for a very long time. *The cumulative effect of these moves has a very important impact on the quality and composition of the teaching workforce. Those who transfer often move to what many would perceive as better school environments, leaving arguably the most needy students and the most difficult teaching environments— precisely the group most in need of strong teachers.* Based on this analysis we cannot infer causality, but the results do provide some dynamic context to help us begin to understand the stark differences in teacher qualifications we observed earlier. In many ways the findings beg more questions than they answer. What about teachers and schools are most important in teachers' decisions about where to teach? How much of the high quit rates are inevitable adjustments to careers and how much reflects dissatisfaction that could be addressed through policy?

Implications

We have examined New York's teaching workforce from a number of different perspectives. Many of our findings confirm conventional wisdom; some of the results suggest that certain myths don't stand up to empirical scrutiny. From our perspective, the most interesting findings include:

- The quality of teachers, as proxied by our measures, is much worse in large urban areas in comparison to other regions. This is particularly true for New York City. This pattern has been stable over the last 15 years.

- Within urban areas, the average poor or Black and Latino student is much more likely to have a lower quality teacher than the typical non-poor or white student.

- Teachers with no prior teaching experience are an increasing proportion of new hires. This is especially true in urban areas where they are a larger portion of all hires than in other regions.

- Salaries for starting teachers in New York City are about 25 percent lower than those for teachers starting careers in the New York suburbs. This reflects an increasing gap since 1990 in New York City teacher salaries relative to those in surrounding suburbs.

- Teachers beginning their careers in New York City are far more likely to leave the New York public school system than are teachers from other areas, although teacher transfers to other districts are lower than other areas.

- Teachers who leave the school where they began their careers are generally higher quality teachers than those who remain. Teachers that transfer, leave schools that are generally less attractive teaching environments and are drawn to more attractive settings.

We believe that teachers can make an important difference in student outcomes. Because teacher quality matters, it is important that high-quality teachers be recruited and retained in schools having large numbers of low-performing students. The New York data are very rich in allowing the career paths of teachers to be tracked. This paper exploits this richness to assess how the attributes of teachers change over time and differ across schools and districts. Even so, because this work is descriptive in nature, one should not infer much about behavior. However, the descriptive work is provocative and helps us prepare for the research that models behavior and will support policy conclusions. In future research we plan to address questions like the following:

- Why do we observe such striking differences between the observable quality of teachers in urban schools and those in suburban schools?

- What can be done to attract and retain the more highly qualified individuals to public school teaching, especially in low-performing urban schools?

- How important are different types of financial rewards?

- What non-pecuniary attributes of the teaching environment are most important?

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Table 1
Labor Market Regions

Urban Centers	Suburban Counties
Albany-Schenectady-Troy	Albany, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie
Buffalo-Niagara Falls	Erie, Niagara
New York City	Putnam, Rockland, Westchester, Nassau, Suffolk, New York City
Rochester	Genesee, Livingston, Monroe, Ontario, Orleans, Wayne
Syracuse	Cayuga, Madison, Onondaga, Oswego
Utica-Rome	Herkimer, Oneida

Rural Areas	Counties
Mid-Hudson	Columbia, Delaware, Dutchess, Greene, Orange, Otsego, Sullivan, Ulster
North Country	Clinton, Essex, Franklin, Fulton, Hamilton, Jefferson, Lewis, St. Lawrence, Warren, Washington
Southern Tier	Allegany, Broome, Cattaraugus, Chautauqua, Chemung, Chenango, Schuyler, Seneca, Tioga, Tompkins, Steuben, Wyoming, Yates

Table 2

Disposition of 1991 New Teachers as of 1997, by Region

	New York City	Big Four	Small Cities	Suburb	Rural	New York State
Same School	38.2	34.8	30.4	43.0	42.9	40.3
Different School	20.0	30.1	33.6	16.7	14.0	18.6
Different District	3.4	7.4	8.0	13.9	13.4	8.8
Not in NYS System	38.5	27.7	28.0	26.4	29.7	32.4

Table 3
Disposition of 1991 New Teachers as of 1997, by Predominant Teaching Assignment

	Elem-entary	Human-ities	Math and Science	Special Education	Other
Same School	46.4	36.2	35.6	33.6	33.5
Different School	19.5	16.1	17.3	20.6	17.8
Different District	6.1	9.3	10.0	12.3	11.9
Not in NYS System	28.0	38.5	37.1	33.5	36.7

Table 4

Attributes of New York City Teachers Beginning in 1991 by Their 1997 Employment Status

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.114	0.102	0.104	0.078
Fail General Knowledge	0.198	0.131	0.176	0.116
Fail Professional Knowledge	0.106	0.110	0.045	0.072
Barron's ranking of Undergraduate College				
Most or highly competitive	0.076	0.099	0.087	0.220
Very competitive	0.212	0.202	0.239	0.185
Competitive	0.474	0.450	0.478	0.356
Least competitive	0.237	0.250	0.196	0.239

Table 5

Attributes of Sending and Receiving Schools for New York City Teachers who Transferred

School & District Attributes	Within District			Between Districts		
	Sending School	Receiving School	Difference	Sending School	Receiving School	Difference
Proportion students poor	0.721	0.670	-0.051	0.708	0.218	-0.490
Proportion students LEP	0.164	0.156	-0.008	0.154	0.077	-0.077
Proportion students nonwhite	0.864	0.847	-0.017	0.895	0.418	-0.477
Class Size	24.2	24.6	0.4	25.6	20.5	-5.1
Salary	na	na	na	$33,383	$38,112	$4,729

Figure 1
Age Distribution of New York State Public School Teachers, 1985-99

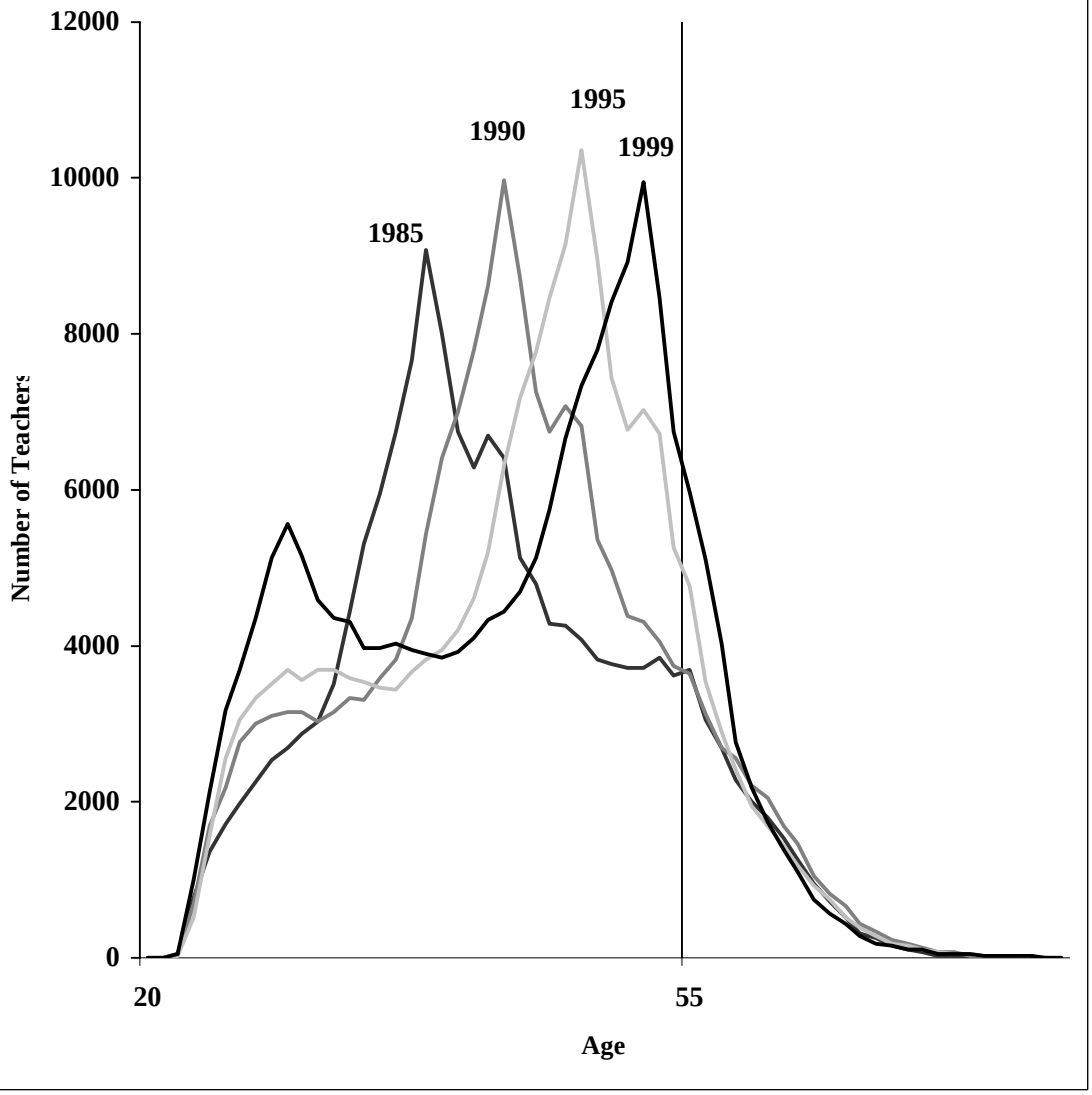


Figure 2
Characterization of Teacher-level Data Used in Analysis

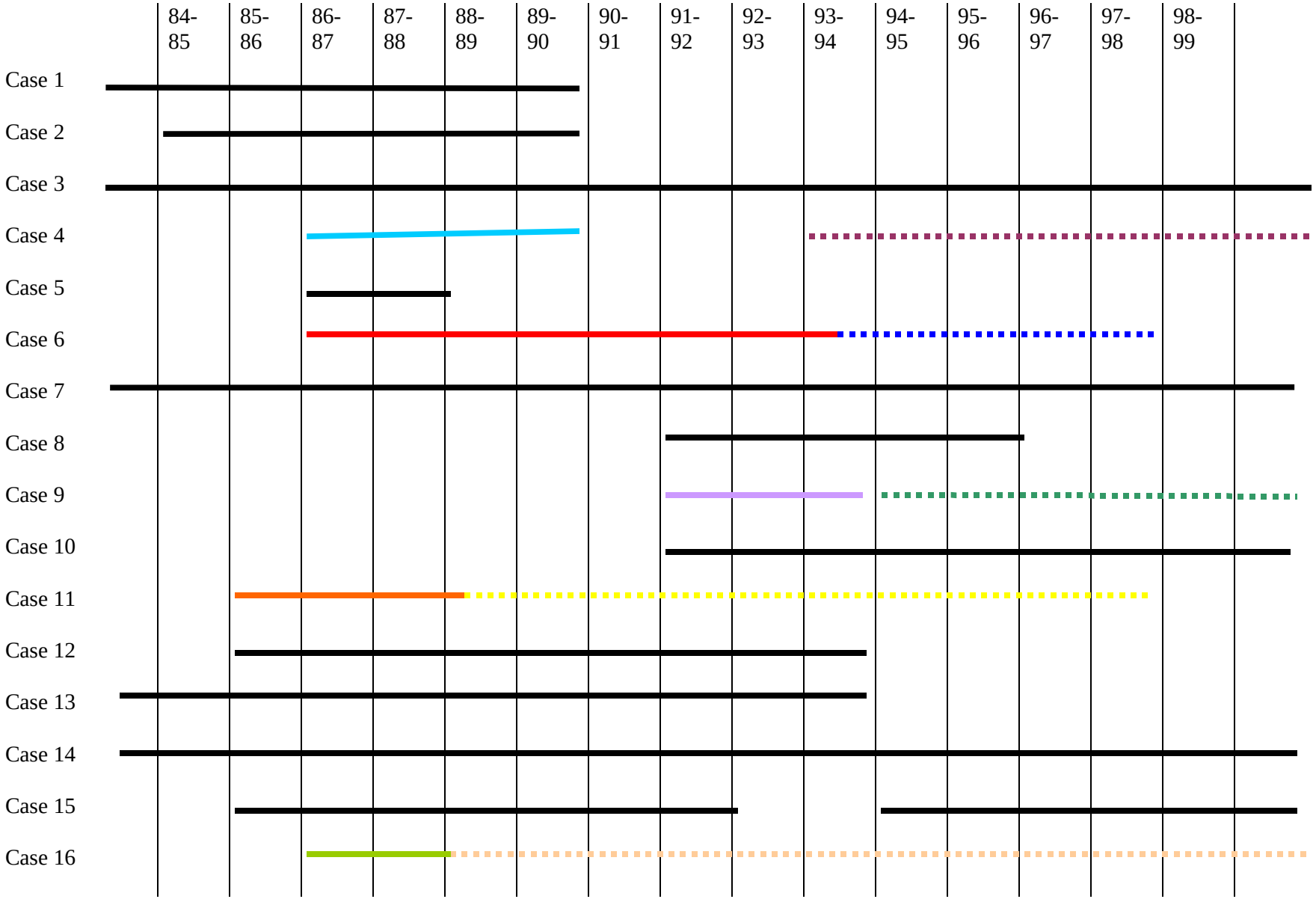


Figure 3
Proportion of All NYS Public Teachers having Various Attributes by Region, 1998-99

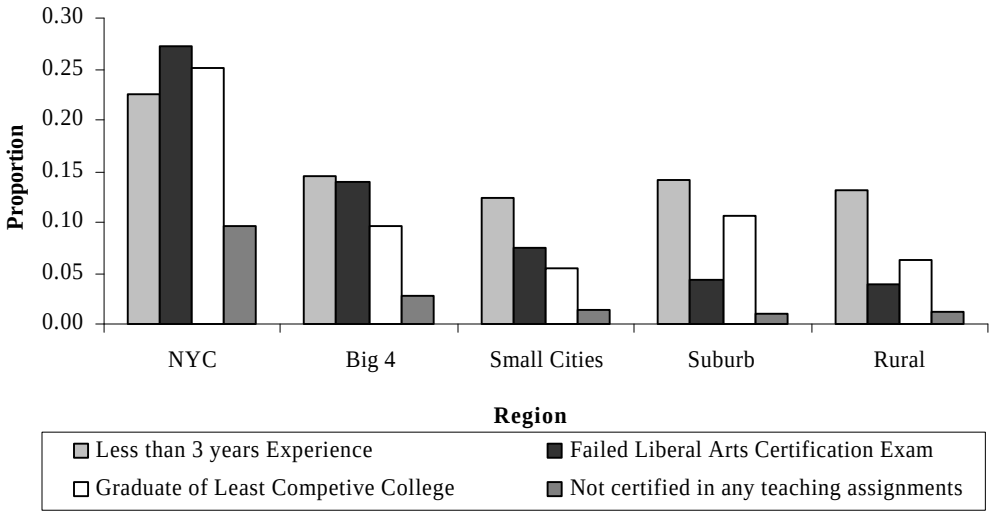


Figure 4
Proportion of All NYS Public Teachers having Various Attributes by Primary Teaching Assignment, 1998-99

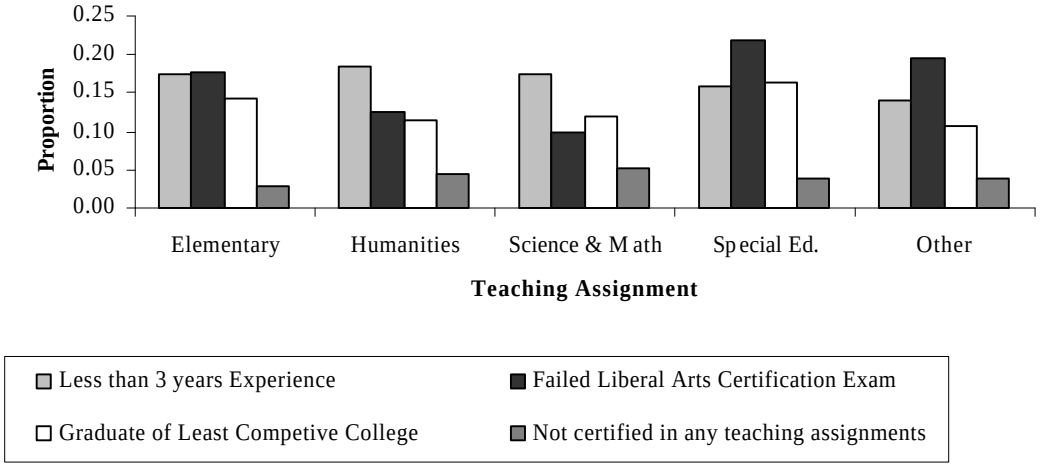


Figure 5
Proportion of All Teachers having Various Attributes by Metropolitan Area and Urbanicity, 1998-99

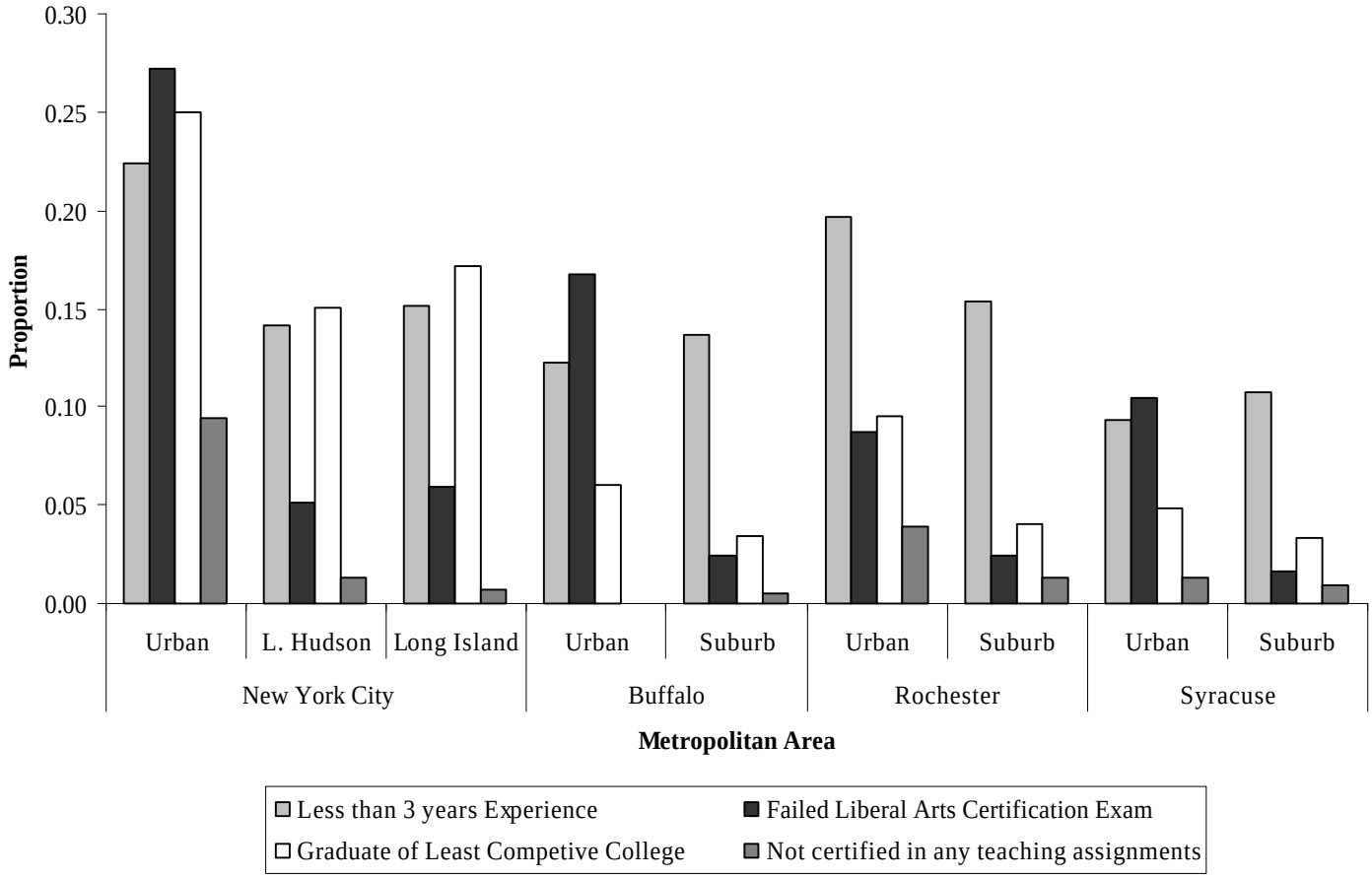


Figure 6
Average Attributes of Teachers Teaching Poor and Non Poor Students by Region, 1998-99

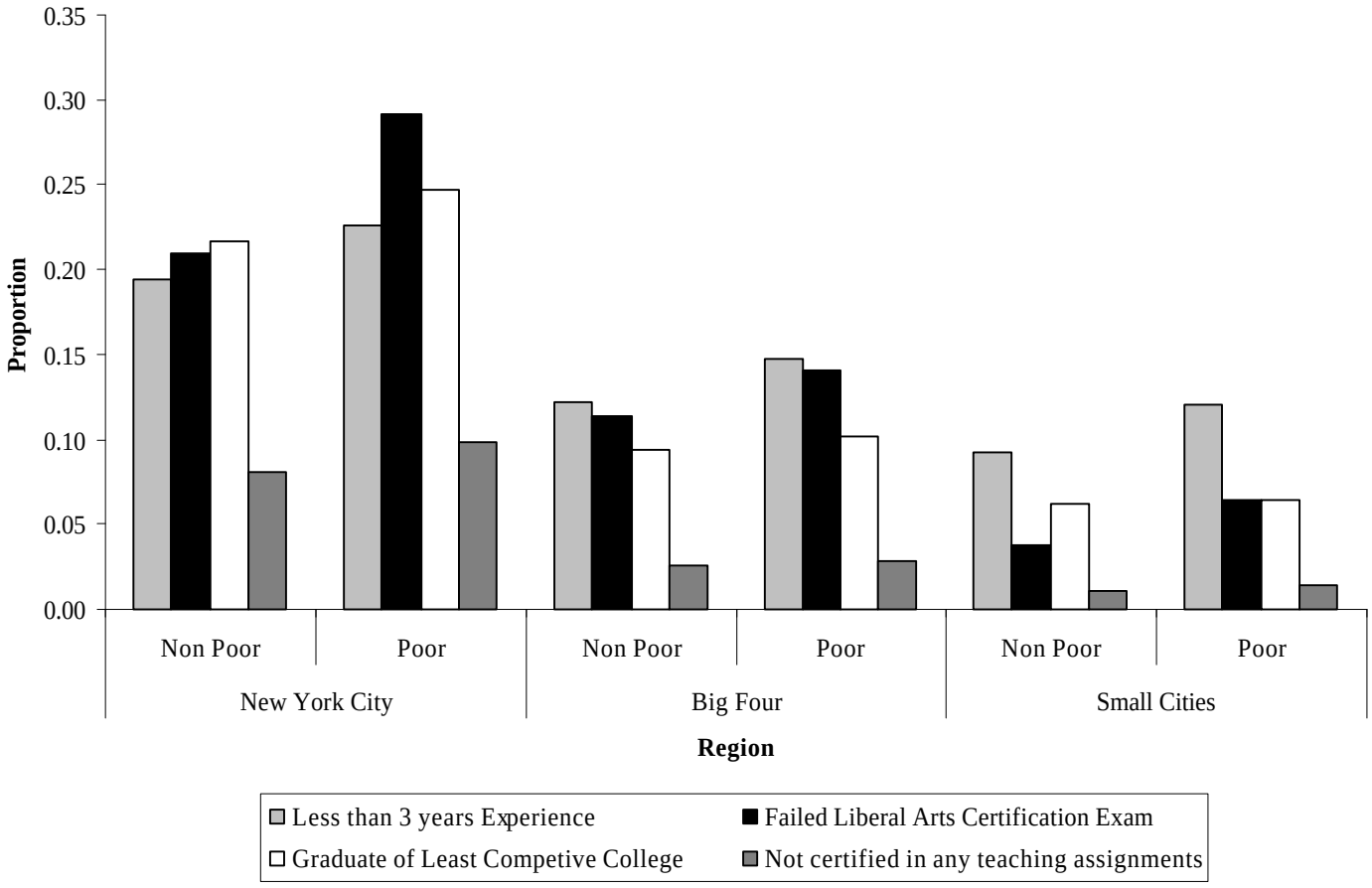


Figure 7
Average Attributes of Teachers Teaching White and Black and Latino Students by Region, 1998-99

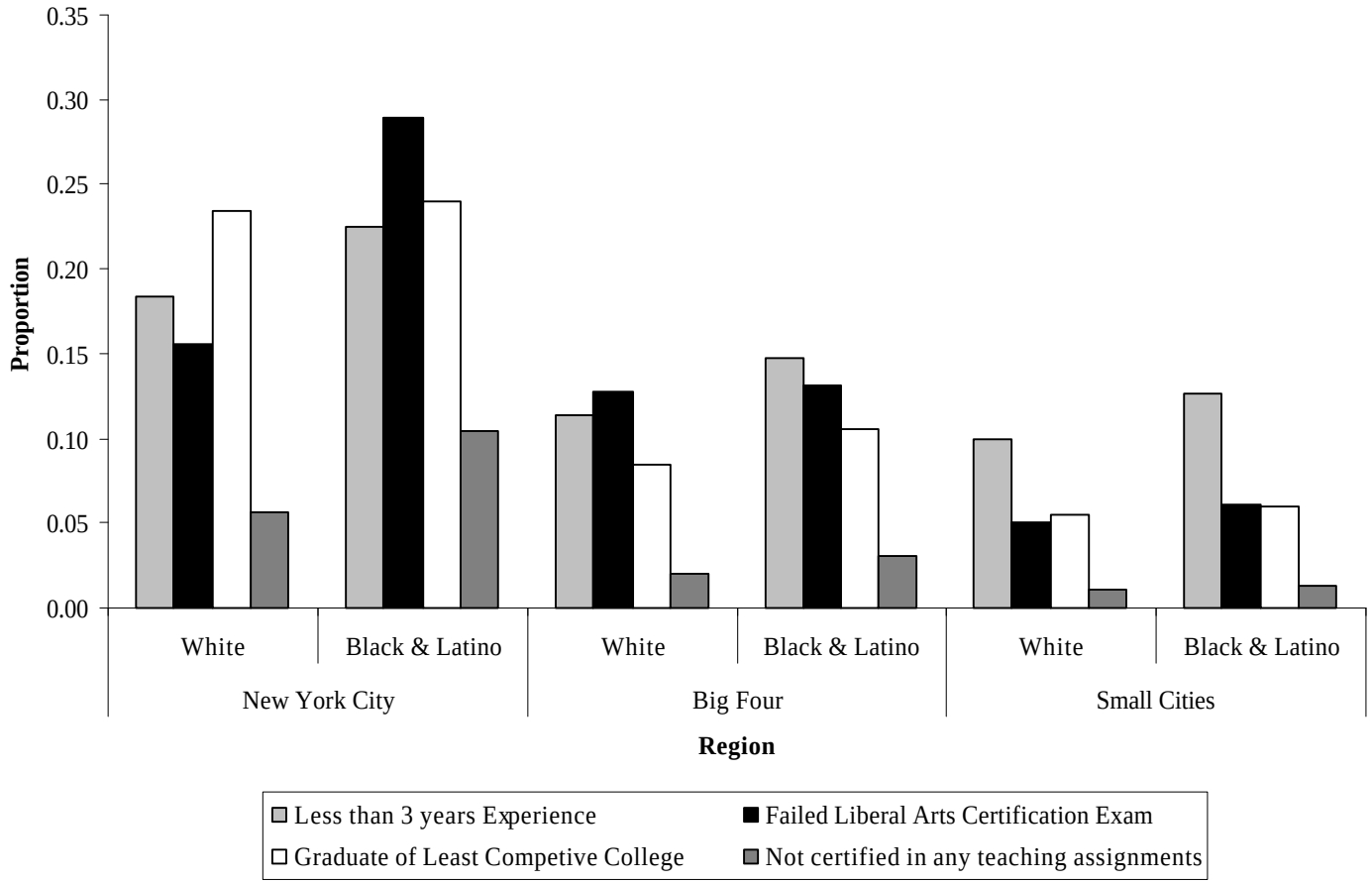


Figure 8
Proportion of New Hires Who are Transfers, by Region

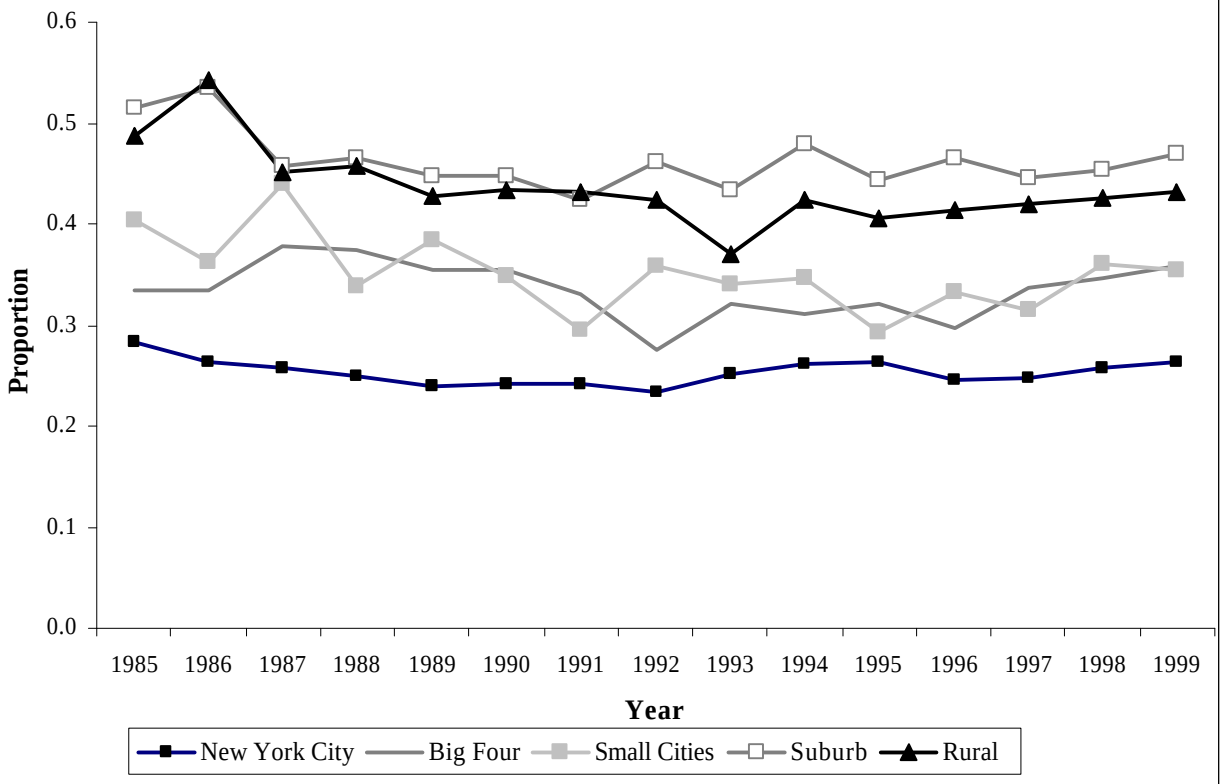


Figure 9
Proportion of New Hires having No Prior Experience, by Region

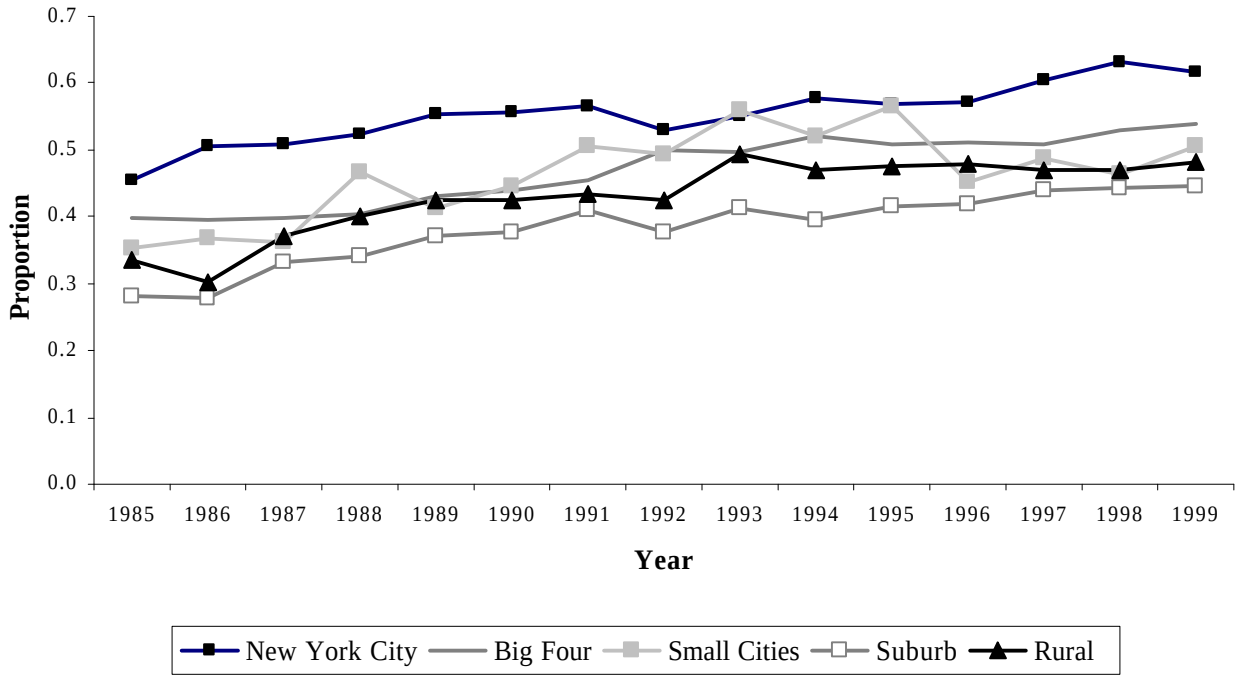


Figure 10
Proportion of Novice Teachers Not Certified in Any Teaching Assignment by Region, 1985-99

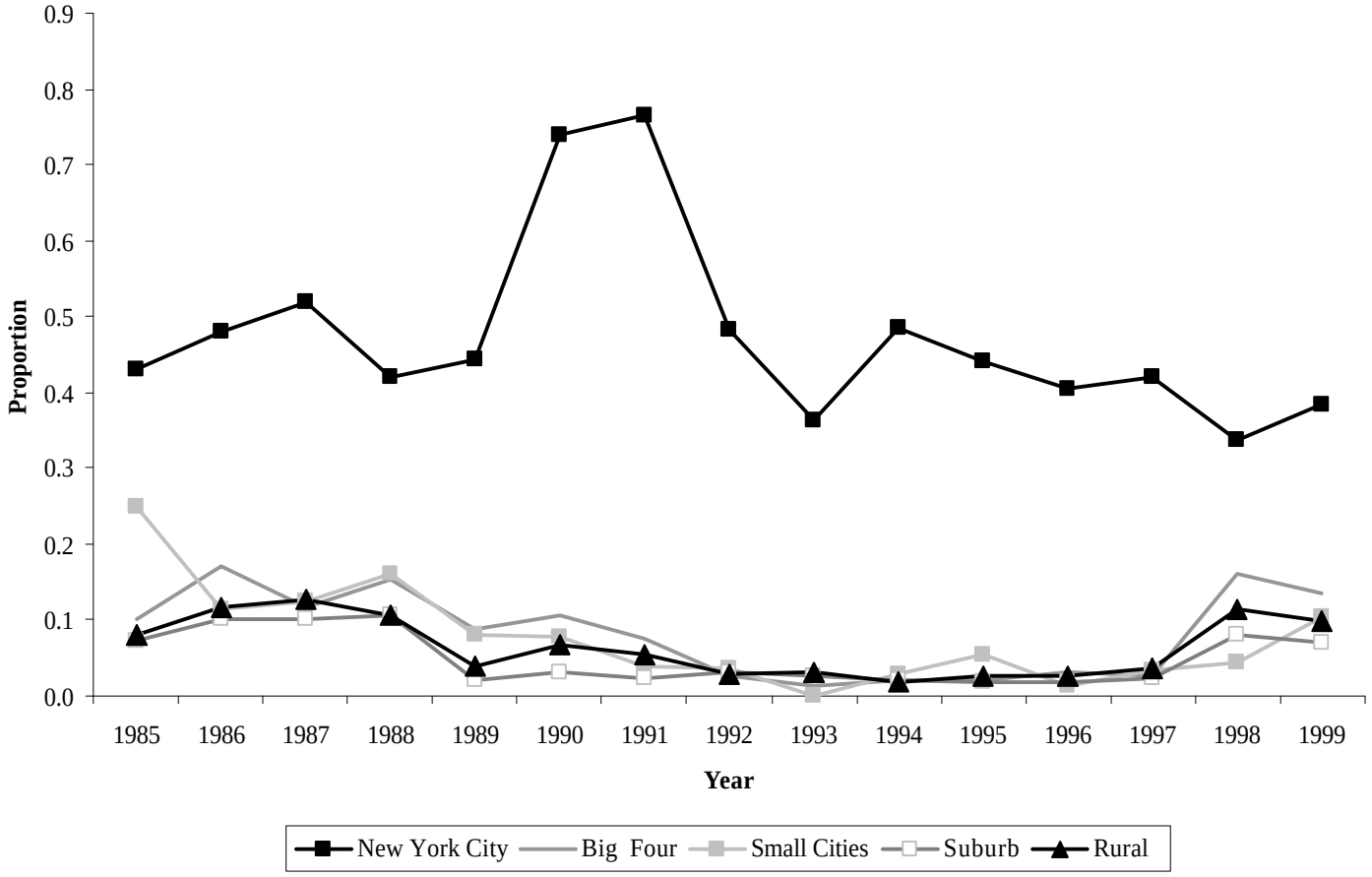


Figure11
Proportion of NoviceTeachers Failing NTE General Knowledge Certification Exam

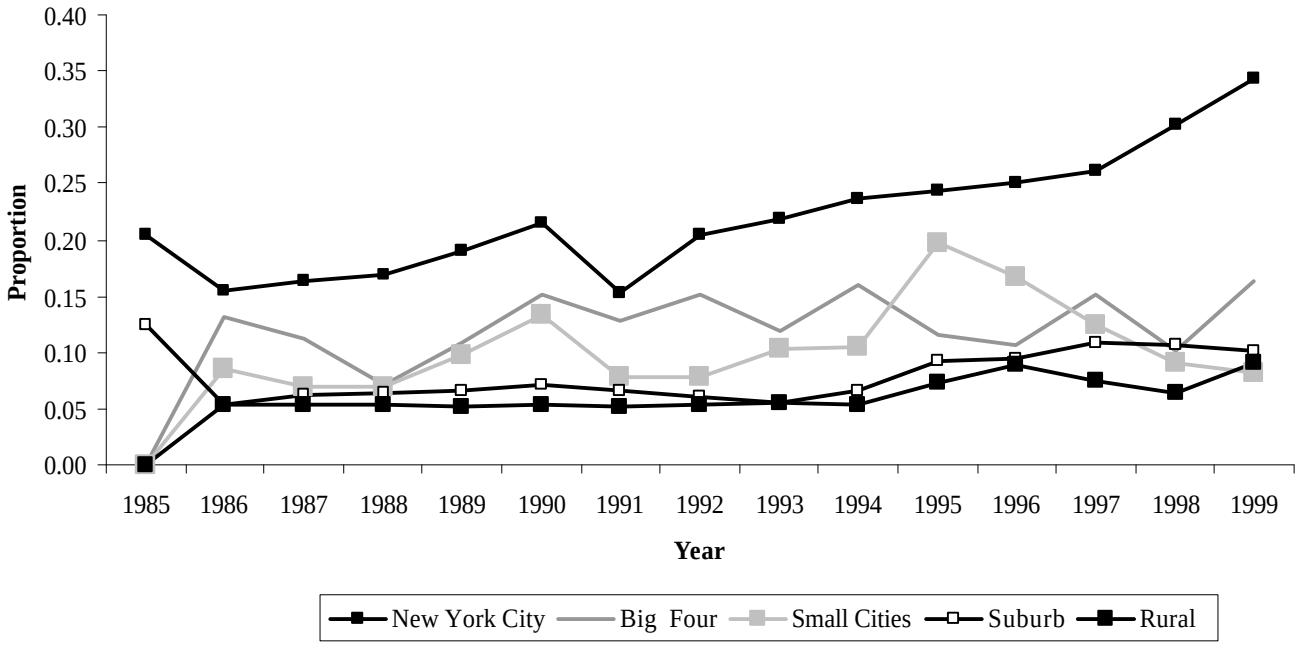


Figure 12
Proportion of Novice Teachers Not Certified in Any Teaching Assignment, by Predominant Teaching Assignment, 1985-99

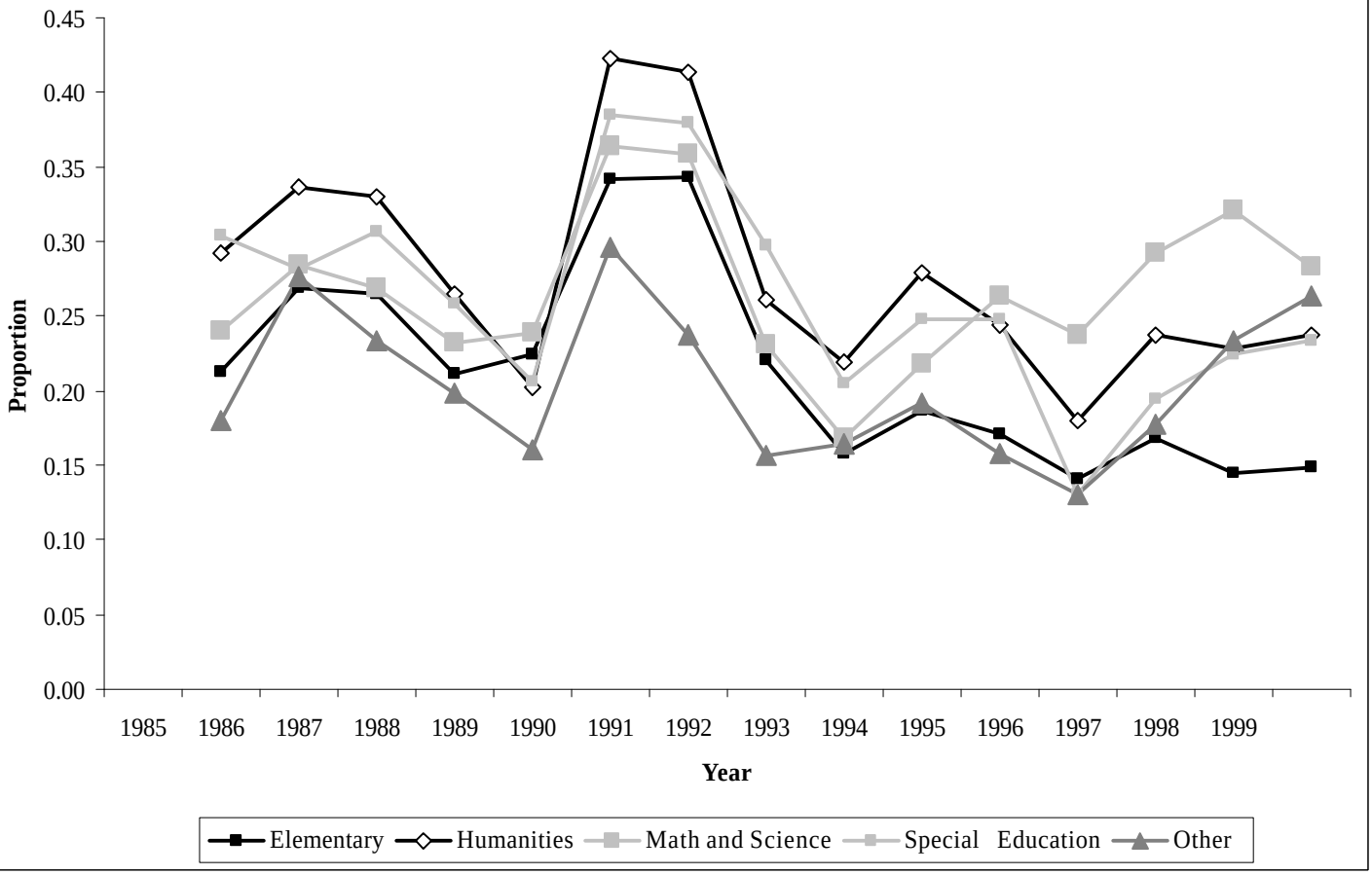


Figure 13
Proportion of Novice Teachers Failing the NTE General Knowledge Certification Exam by Predominant Teaching Assisgnment, 1985-99

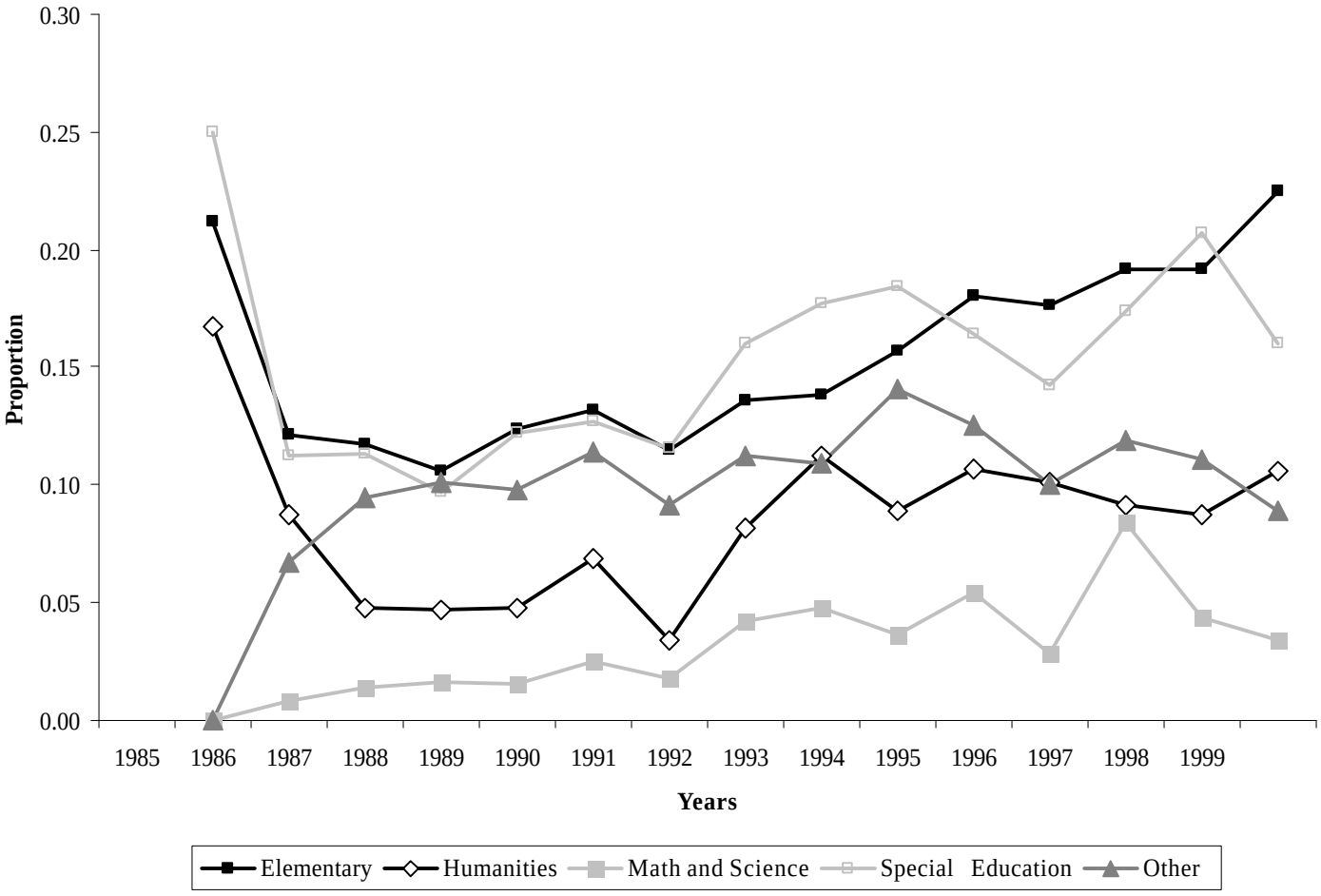


Figure 14
Estimated Real Salaries for Teachers having an MA and No Prior Experience, New York City Metropolitan Area

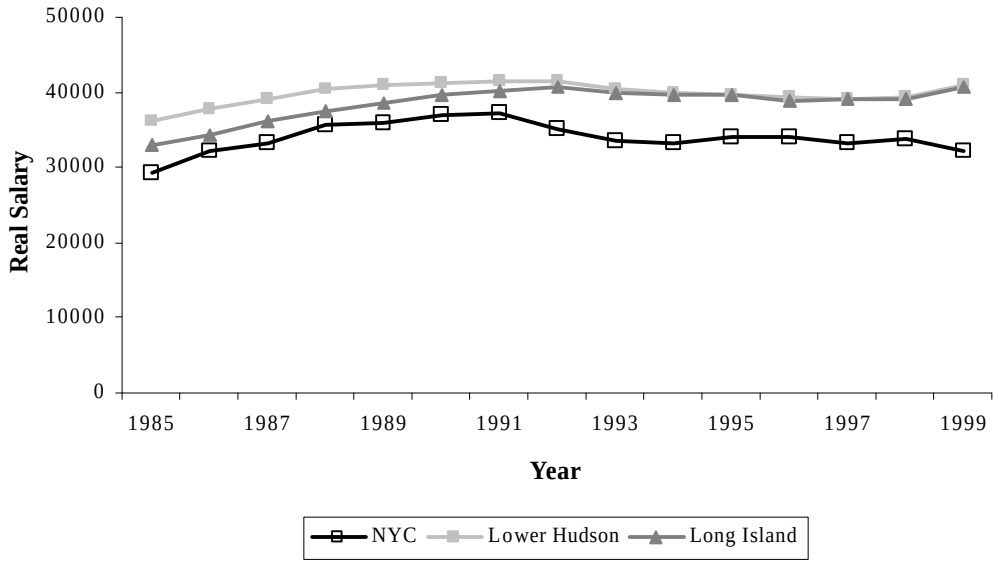


Figure 15
Estimated Real Salaries for Teachers having an MA and 20 Years Experience, New York City Metropolitan Area

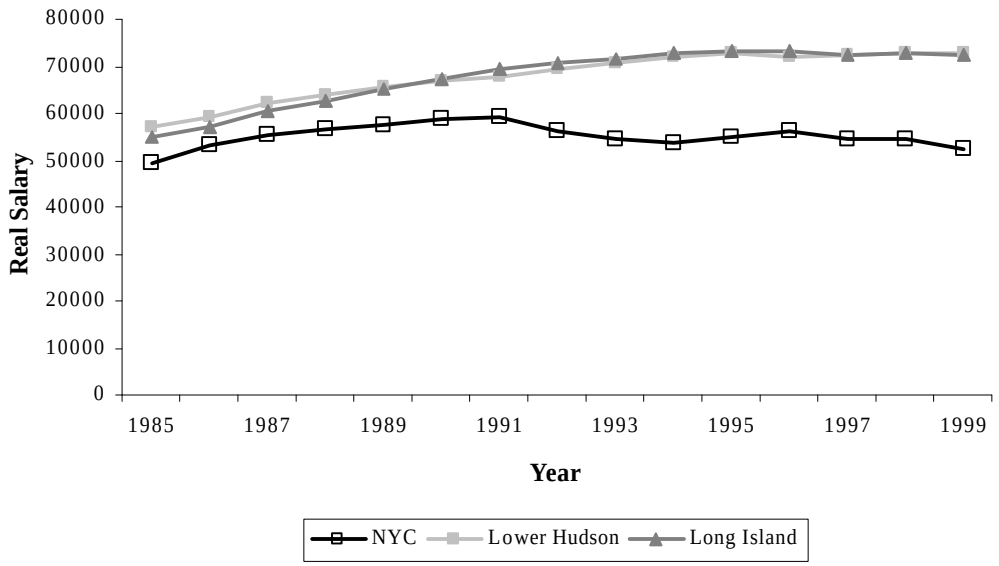


Figure 16
Estimated Real Salaries for Teachers having an MA and No Prior Experience, Rochester Metropolitan Area

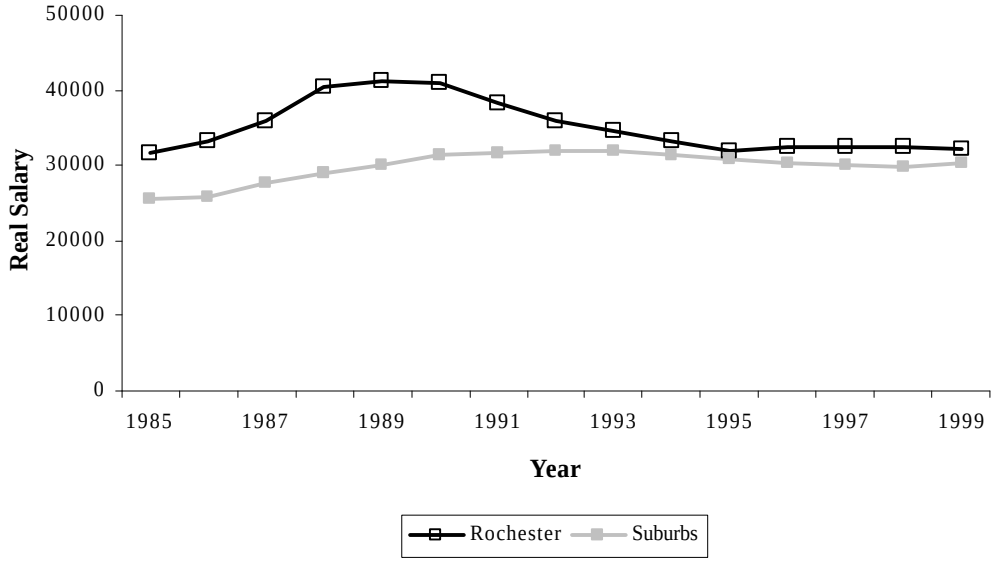


Figure 17
Estimated Real Salaries for Teachers having an MA and 20 Years Experience, Rochester Metropolitan Area

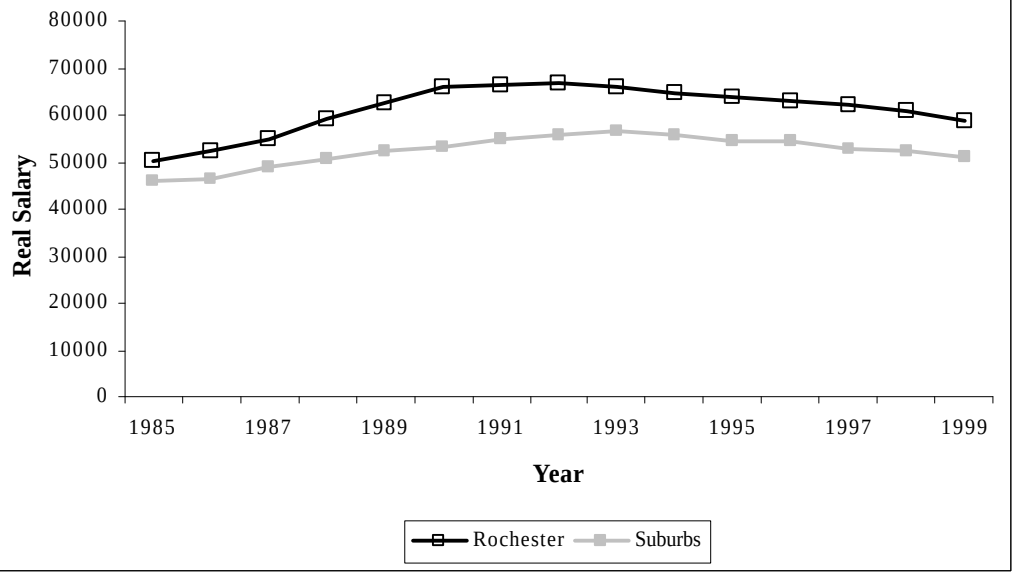


Figure 18
Estimated Real Salaries for Teachers having an MA and No Prior Experience, Buffalo Metropolitan Area

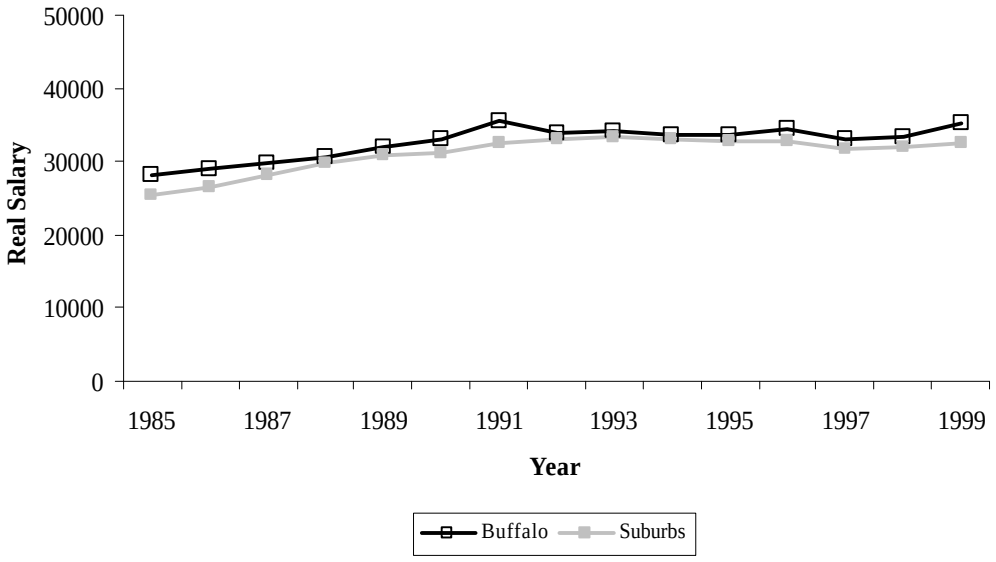


Figure 19
Estimated Real Salaries for Teachers having an MA and 20 Years Experience, Buffalo Metropolitan Area

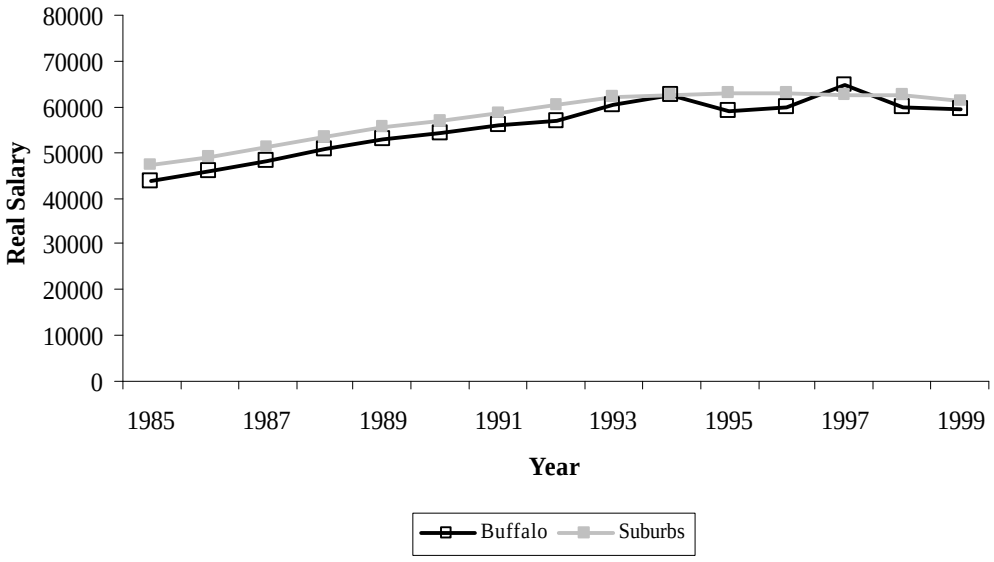


Figure 20
Estimated Real Salaries for Teachers having an MA and No Prior Experience, Syracuse Metropolitan Area

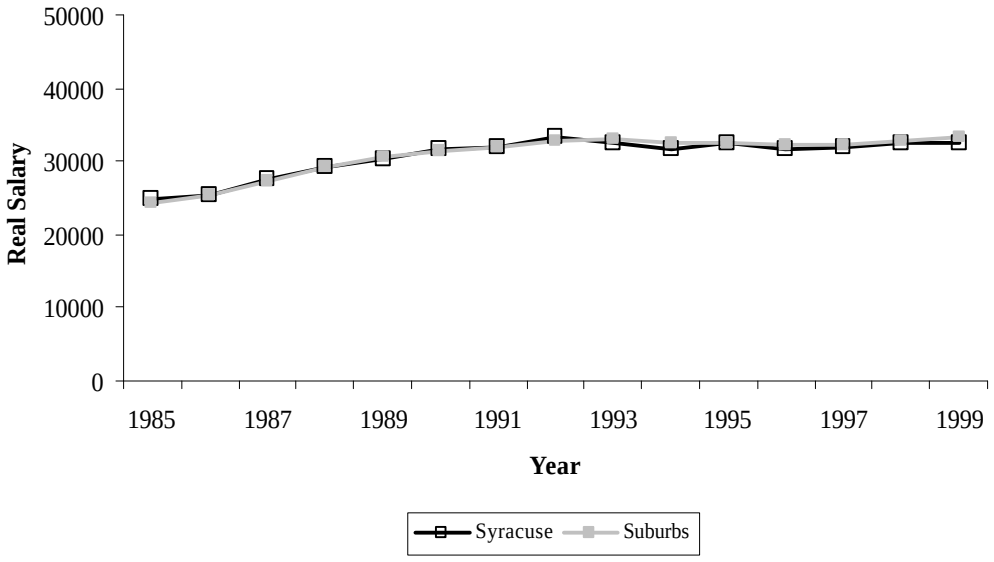
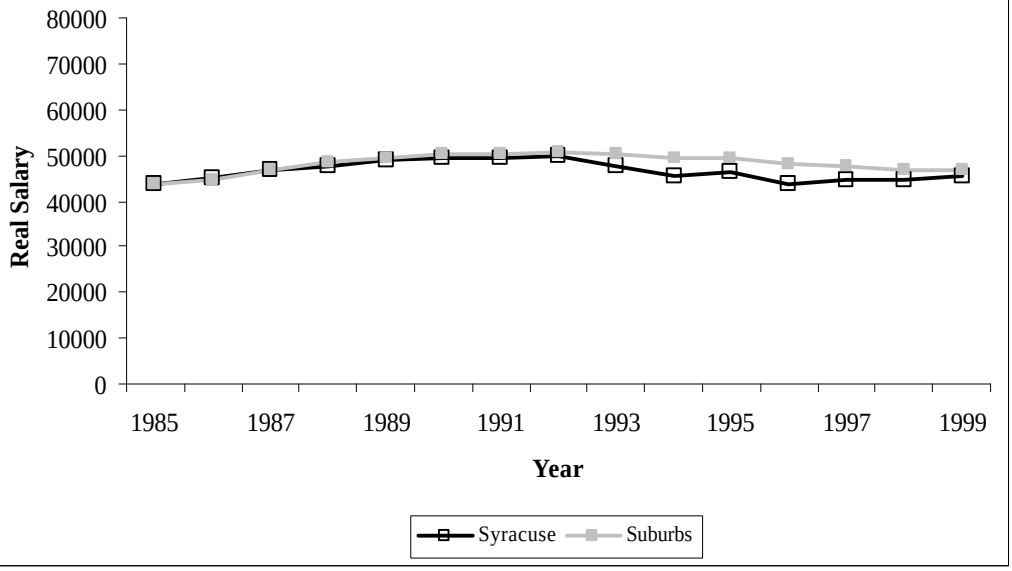


Figure 21
Estimated Real Salaries for Teachers having an MA and 20 Years Experience, Syracuse Metropolitan Area



Appendix A
Analysis of Teacher Attributes 1998-99

Table A-1
Proportion of All New York State Public Teachers with Various Attributes by Region, 1998-99

Teacher Attributes	New York City	Big Four	Small Cities	Suburb	Rural	New York State
Female	0.733	0.746	0.751	0.728	0.711	0.728
Experience						
No Experience	0.077	0.053	0.051	0.046	0.047	0.057
< 3 years Experience	0.225	0.145	0.124	0.141	0.132	0.166
Education						
Bachelors degree or less	0.138	0.108	0.090	0.089	0.116	0.110
Masters degree	0.402	0.639	0.660	0.596	0.745	0.566
Certification Status						
Not certified in any teaching assignments	0.096	0.027	0.013	0.009	0.012	0.038
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.211	0.204	0.152	0.160	0.158	0.177
Permanently certified in some assignments	0.052	0.024	0.029	0.031	0.041	0.039
Permanently certified in all assignments	0.642	0.745	0.807	0.800	0.789	0.746
Performance on NTE Exams (of test takers)						
Fail Communication Skills	0.234	0.111	0.066	0.050	0.047	0.114
Fail General Knowledge	0.288	0.144	0.111	0.083	0.066	0.152
Fail Professional Knowledge	0.196	0.068	0.041	0.039	0.032	0.092
Performance on NYSTCE Exams (of test takers)						
Fail Liberal Arts	0.273	0.139	0.074	0.044	0.039	0.164
Fail Elementary ATS-W	0.227	0.072	0.037	0.027	0.023	0.135
Fail Secondary ATS-W	0.227	0.103	0.008	0.031	0.032	0.119
Barron's ranking of Undergraduate College						
Most or highly competitive	0.085	0.125	0.088	0.123	0.111	0.111
Very competitive	0.196	0.202	0.209	0.218	0.260	0.220
Competitive	0.467	0.577	0.649	0.553	0.566	0.537
Least competitive	0.251	0.096	0.054	0.105	0.063	0.132

* Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Table A-2

Proportion of All New York State Public Teachers with Various Attributes by Metropolitan Areas and Urbanicity, 1998-99

Teacher Attributes	Albany/ Schenectady/Troy		Buffalo		New York City		Long Island	Rochester	
	Urban	Suburb	Urban	Suburb	Urban	Suburb	Suburb	Urban	Suburb
Female	0.752	0.735	0.744	0.702	0.733	0.728	0.735	0.733	0.729
Experience									
No Experience	0.048	0.042	0.053	0.046	0.077	0.044	0.048	0.071	0.053
< 3 years Experience	0.132	0.124	0.122	0.136	0.224	0.141	0.152	0.197	0.154
Education									
Bachelors degree or less	0.083	0.082	0.103	0.111	0.137	0.057	0.078	0.137	0.126
Masters degree	0.793	0.774	0.583	0.703	0.405	0.492	0.454	0.708	0.750
Certification Status*									
Not certified in any teaching assignments	0.015	0.007	na	0.005	0.094	0.013	0.007	0.039	0.013
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.151	0.145	na	0.156	0.210	0.161	0.168	0.247	0.174
Permanently certified in some assignments	0.037	0.040	na	0.026	0.051	0.042	0.026	0.028	0.026
Permanently certified in all assignments	0.798	0.808	na	0.813	0.646	0.784	0.798	0.686	0.787
Performance on NTE Exams (of test takers)									
Fail Communication Skills	0.045	0.039	0.106	0.050	0.232	0.054	0.056	0.104	0.044
Fail General Knowledge	0.087	0.064	0.144	0.069	0.286	0.097	0.104	0.128	0.058
Fail Professional Knowledge	0.031	0.024	0.065	0.029	0.195	0.043	0.051	0.056	0.030
Performance on NYSTCE Exams									
Fail Liberal Arts	0.062	0.031	0.168	0.024	0.272	0.051	0.059	0.087	0.024
Fail Elementary ATS-W	0.000	0.013	0.143	0.009	0.225	0.035	0.037	0.031	0.011
Fail Secondary ATS-W	0.015	0.016	0.105	0.018	0.226	0.044	0.041	0.052	0.014
Barron's ranking of Undergraduate College									
Most or highly competitive	0.070	0.092	0.036	0.065	0.085	0.142	0.087	0.187	0.234
Very competitive	0.235	0.238	0.196	0.234	0.195	0.208	0.227	0.255	0.226
Competitive	0.642	0.631	0.709	0.668	0.471	0.499	0.514	0.464	0.500
Least competitive	0.053	0.039	0.060	0.034	0.250	0.151	0.172	0.095	0.040

* Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Table A-2 continued
Proportion of All New York State Public Teachers with Various Attributes by Metropolitan Areas and Urbanicity, 1998-99

Teacher Attributes	Syracuse		Utica/Rome		Mid Hudson	Southern Tier	North Country
	Urban	Suburb	Urban	Suburb	Rural	Rural	Rural
Female	0.769	0.725	0.763	0.717	0.719	0.707	0.705
Experience							
No Experience	0.026	0.034	0.049	0.045	0.053	0.046	0.039
< 3 years Experience	0.093	0.107	0.096	0.123	0.144	0.132	0.115
Education							
Bachelors degree or less	0.095	0.101	0.078	0.101	0.116	0.125	0.101
Masters degree	0.726	0.745	0.568	0.767	0.732	0.745	0.765
Certification Status							
Not certified in any teaching assignments	0.013	0.009	0.009	0.010	0.012	0.011	0.012
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.160	0.140	0.114	0.134	0.169	0.161	0.136
Permanently certified in some assignments	0.026	0.026	0.017	0.044	0.037	0.040	0.050
Permanently certified in all assignments	0.801	0.825	0.860	0.812	0.782	0.788	0.802
Performance on NTE Exams (of test takers)							
Fail Communication Skills	0.087	0.042	0.086	0.055	0.047	0.045	0.051
Fail General Knowledge	0.103	0.060	0.128	0.079	0.070	0.059	0.072
Fail Professional Knowledge	0.041	0.028	0.045	0.057	0.037	0.028	0.033
Performance on NYSTCE Exams							
Fail Liberal Arts	0.104	0.016	0.082	0.037	0.054	0.020	0.040
Fail Elementary ATS-W	0.019	0.013	0.037	0.007	0.024	0.023	0.022
Fail Secondary ATS-W	0.033	0.022	0.000	0.031	0.047	0.022	0.021
Barron's ranking of Undergraduate College							
Most or highly competitive	0.226	0.167	0.144	0.145	0.081	0.158	0.081
Very competitive	0.179	0.169	0.178	0.156	0.334	0.266	0.135
Competitive	0.547	0.631	0.608	0.656	0.485	0.544	0.728
Least competitive	0.048	0.033	0.070	0.043	0.101	0.032	0.056

Table A-3

Proportion of All New York State Public Teachers with Various Attributes by Predominant Teaching Assignment, 1998-99

Teacher Attributes	Elem-entary	Human-ities	Math and Science	Special Education	Other
Female	0.857	0.615	0.500	0.840	0.658
Experience					
No Experience	0.059	0.061	0.058	0.055	0.049
< 3 years Experience	0.174	0.184	0.174	0.158	0.140
Education					
Bachelors degree or less	0.122	0.110	0.103	0.077	0.088
Masters degree	0.591	0.547	0.525	0.573	0.557
Certification Status*					
Not certified in any teaching assignments	0.028	0.045	0.052	0.039	0.040
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.189	0.210	0.183	0.147	0.145
Permanently certified in some assignments	0.013	0.068	0.065	0.015	0.041
Permanently certified in all assignments	0.771	0.674	0.701	0.799	0.774
Performance on NTE Exams (of test takers)					
Fail Communication Skills	0.117	0.100	0.094	0.124	0.107
Fail General Knowledge	0.185	0.120	0.053	0.182	0.131
Fail Professional Knowledge	0.091	0.097	0.086	0.080	0.091
Performance on NYSTCE Exams					
Fail Liberal Arts	0.178	0.126	0.099	0.219	0.196
Fail Elementary ATS-W	0.118	0.293	0.125	0.146	0.156
Fail Secondary ATS-W	0.176	0.088	0.102	0.249	0.173
Barron's ranking of Undergraduate College					
Most or highly competitive	0.090	0.142	0.138	0.136	0.098
Very competitive	0.196	0.300	0.246	0.184	0.231
Competitive	0.572	0.443	0.497	0.516	0.565
Least competitive	0.143	0.115	0.120	0.163	0.107

* Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Table A-4a

Average Attributes of New York State Public Teachers for Poor and Non Poor Students by Region, 1998-99

Teacher Attributes	New York City		Big Four		Small Cities	
	Non Poor	Poor	Non Poor	Poor	Non Poor	Poor
Female	0.609	0.712	0.663	0.728	0.658	0.727
Experience						
No Experience	0.06	0.077	0.044	0.054	0.037	0.049
< 3 years Experience	0.194	0.226	0.122	0.148	0.092	0.12
Education						
Bachelors degree or less	0.113	0.143	0.098	0.107	0.062	0.081
Masters degree	0.344	0.401	0.629	0.627	0.693	0.726
Certification Status*						
Not certified in any teaching assignments	0.081	0.098	0.026	0.028	0.01	0.014
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.188	0.214	0.168	0.203	0.119	0.141
Permanently certified in some assignments	0.074	0.053	0.036	0.025	0.043	0.035
Permanently certified in all assignments	0.657	0.635	0.77	0.745	0.828	0.811
Performance on NTE Exams (of test takers)						
Fail Communication Skills	0.185	0.248	0.1	0.119	0.059	0.063
Fail General Knowledge	0.193	0.294	0.117	0.15	0.082	0.1
Fail Professional Knowledge	0.165	0.213	0.059	0.074	0.05	0.043
Performance on NYSTCE Exams						
Fail Liberal Arts	0.21	0.291	0.114	0.14	0.038	0.064
Fail Elementary ATS-W	0.197	0.241	0.045	0.069	0.022	0.017
Fail Secondary ATS-W	0.191	0.246	0.095	0.111	0.009	0.015
Barron's ranking of Undergraduate College						
Most or highly competitive	0.099	0.083	0.144	0.117	0.103	0.099
Very competitive	0.232	0.199	0.212	0.196	0.28	0.239
Competitive	0.452	0.472	0.55	0.585	0.555	0.598
Less or none competitive or no rating	0.217	0.247	0.094	0.102	0.062	0.064

* Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Table A-4 continued
Average Attributes of New York State Public Teachers for Poor and Non Poor Students by Region, 1998-99

Teacher Attributes	Suburbs		Rural		New York State	
	Non Poor	Poor	Non Poor	Poor	Non Poor	Poor
Female	0.678	0.718	0.667	0.708	0.655	0.714
Experience						
No Experience	0.044	0.045	0.047	0.046	0.049	0.069
< 3 years Experience	0.138	0.138	0.133	0.127	0.153	0.201
Education						
Bachelors degree or less	0.08	0.086	0.103	0.105	0.094	0.13
Masters degree	0.571	0.573	0.742	0.743	0.53	0.468
Certification Status*						
Not certified in any teaching assignments	0.007	0.01	0.009	0.011	0.03	0.076
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.16	0.162	0.162	0.156	0.168	0.201
Permanently certified in some assignments	0.033	0.029	0.041	0.039	0.047	0.047
Permanently certified in all assignments	0.8	0.799	0.788	0.795	0.754	0.676
Performance on NTE Exams (of test takers)						
Fail Communication Skills	0.046	0.06	0.041	0.048	0.092	0.202
Fail General Knowledge	0.074	0.103	0.059	0.071	0.111	0.245
Fail Professional Knowledge	0.038	0.052	0.033	0.033	0.079	0.171
Performance on NYSTCE Exams						
Fail Liberal Arts	0.034	0.06	0.036	0.05	0.113	0.259
Fail Elementary ATS-W	0.022	0.047	0.024	0.042	0.084	0.213
Fail Secondary ATS-W	0.025	0.047	0.028	0.037	0.105	0.214
Barron's ranking of Undergraduate College						
Most or highly competitive	0.121	0.104	0.11	0.105	0.115	0.091
Very competitive	0.232	0.203	0.281	0.27	0.24	0.207
Competitive	0.54	0.566	0.539	0.557	0.52	0.506
Less or none competitive or no rating	0.106	0.127	0.069	0.068	0.125	0.197

* Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Table A-5
Average Attributes of New York State Public Teachers, Whites and Blacks and Latinos by Region, 1998-99

Teacher Attributes	New York City		Big Four		Small Cities	
	White	Black & Latino	White	Black & Latino	White	Black & Latino
Female	0.671	0.670	0.696	0.708	0.683	0.697
Experience						
No Experience	0.060	0.075	0.039	0.055	0.039	0.051
< 3 years Experience	0.184	0.225	0.114	0.148	0.100	0.127
Education						
Bachelors degree or less	0.097	0.144	0.093	0.108	0.075	0.087
Masters degree	0.334	0.394	0.638	0.626	0.642	0.698
Certification Status*						
Not certified in any teaching assignments	0.056	0.104	0.020	0.030	0.011	0.013
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.175	0.213	0.165	0.198	0.138	0.154
Permanently certified in some assignments	0.074	0.059	0.031	0.029	0.036	0.038
Permanently certified in all assignments	0.695	0.624	0.784	0.744	0.815	0.795
Performance on NTE Exams (of test takers)						
Fail Communication Skills	0.144	0.246	0.092	0.118	0.065	0.067
Fail General Knowledge	0.179	0.279	0.117	0.145	0.103	0.101
Fail Professional Knowledge	0.134	0.212	0.058	0.072	0.050	0.047
Performance on NYSTCE Exams						
Fail Liberal Arts	0.156	0.289	0.128	0.131	0.050	0.061
Fail Elementary ATS-W	0.138	0.251	0.051	0.063	0.044	0.030
Fail Secondary ATS-W	0.149	0.241	0.100	0.106	0.010	0.007
Barron's ranking of Undergraduate College						
Most or highly competitive	0.086	0.089	0.134	0.125	0.097	0.085
Very competitive	0.213	0.202	0.200	0.203	0.244	0.251
Competitive	0.468	0.470	0.582	0.567	0.604	0.604
Least competitive	0.234	0.240	0.084	0.105	0.055	0.060

* Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Table A-5 continued
Average Attributes of New York State Public Teachers, Whites and Blacks and Latinos by Region, 1998-99

Teacher Attributes	Suburb		Rural		New York State	
	White	Black & Latino	White	Black & Latino	White	Black & Latino
Female	0.683	0.685	0.676	0.680	0.680	0.675
Experience						
No Experience	0.043	0.048	0.046	0.052	0.046	0.069
< 3 years Experience	0.136	0.145	0.131	0.137	0.141	0.206
Education						
Bachelors degree or less	0.082	0.076	0.103	0.107	0.089	0.131
Masters degree	0.590	0.489	0.749	0.695	0.587	0.434
Certification Status*						
Not certified in any teaching assignments	0.007	0.011	0.008	0.016	0.015	0.085
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.158	0.171	0.159	0.167	0.160	0.205
Permanently certified in some assignments	0.033	0.035	0.041	0.040	0.041	0.053
Permanently certified in all assignments	0.803	0.784	0.791	0.778	0.782	0.657
Performance on NTE Exams (of test takers)						
Fail Communication Skills	0.044	0.068	0.041	0.054	0.060	0.211
Fail General Knowledge	0.069	0.118	0.060	0.083	0.086	0.245
Fail Professional Knowledge	0.035	0.067	0.031	0.046	0.050	0.181
Performance on NYSTCE Exams						
Fail Liberal Arts	0.030	0.072	0.035	0.070	0.062	0.262
Fail Elementary ATS-W	0.018	0.058	0.023	0.068	0.046	0.225
Fail Secondary ATS-W	0.020	0.062	0.026	0.058	0.053	0.215
Barron's ranking of Undergraduate College						
Most or highly competitive	0.123	0.099	0.112	0.085	0.116	0.093
Very competitive	0.231	0.215	0.268	0.364	0.237	0.211
Competitive	0.549	0.514	0.556	0.442	0.543	0.486
Least competitive	0.097	0.172	0.064	0.109	0.103	0.210

* Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Table A-6

Average Attributes of Novice New York State Public Teachers, Whites and Blacks and Latinos by Region, 1998-99*

Teacher Attributes	New York City		Big Four		Small Cities	
	White	Black & Latino	White	Black & Latino	White	Black & Latino
Female	0.692	0.657	0.715	0.721	0.726	0.747
Experience						
No Experience	1.000	1.000	1.000	1.000	1.000	1.000
< 3 years Experience	1.000	1.000	1.000	1.000	1.000	1.000
Education						
Bachelors degree or less	0.573	0.618	0.571	0.555	0.582	0.567
Masters degree	0.355	0.321	0.376	0.391	0.359	0.386
Certification Status**						
Not certified in any teaching assignments	0.406	0.510	0.096	0.089	0.088	0.085
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.542	0.445	0.812	0.825	0.793	0.808
Permanently certified in some assignments	0.010	0.008	0.002	0.002	0.001	0.001
Permanently certified in all assignments	0.042	0.037	0.091	0.085	0.117	0.106
Performance on NTE Exams (of test takers)						
Fail Communication Skills	0.092	0.151	0.078	0.093	0.064	0.066
Fail General Knowledge	0.151	0.207	0.113	0.129	0.093	0.101
Fail Professional Knowledge	0.105	0.146	0.048	0.049	0.040	0.046
Performance on NYSTCE Exams						
Fail Liberal Arts	0.113	0.183	0.092	0.099	0.042	0.052
Fail Elementary ATS-W	0.105	0.156	0.030	0.040	0.016	0.017
Fail Secondary ATS-W	0.114	0.136	0.039	0.047	0.014	0.010
Barron's ranking of Undergraduate College						
Most or highly competitive	0.113	0.124	0.164	0.154	0.117	0.089
Very competitive	0.242	0.214	0.208	0.218	0.228	0.236
Competitive	0.415	0.439	0.554	0.541	0.611	0.643
Least competitive	0.230	0.223	0.074	0.087	0.044	0.032

* Novice means no prior teaching experience.

** Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Table A-6 continued

Average Attributes of Novice New York State Public Teachers, Whites and Blacks and Latinos by Region, 1998-99*

Teacher Attributes	Suburb		Rural		New York State	
	White	Black & Latino	White	Black & Latino	White	Black & Latino
Female	0.740	0.719	0.719	0.723	0.723	0.665
Experience						
No Experience	1.000	1.000	1.000	1.000	1.000	1.000
< 3 years Experience	1.000	1.000	1.000	1.000	1.000	1.000
Education						
Bachelors degree or less	0.570	0.547	0.654	0.638	0.589	0.611
Masters degree	0.395	0.415	0.319	0.328	0.368	0.330
Certification Status**						
Not certified in any teaching assignments	0.044	0.054	0.048	0.070	0.132	0.460
Provisionally certified in at least 1 assignment, permanently certified in no assignments	0.854	0.835	0.881	0.856	0.785	0.488
Permanently certified in some assignments	0.005	0.004	0.004	0.003	0.005	0.008
Permanently certified in all assignments	0.098	0.107	0.067	0.071	0.078	0.044
Performance on NTE Exams (of test takers)						
Fail Communication Skills	0.040	0.045	0.036	0.047	0.049	0.133
Fail General Knowledge	0.063	0.099	0.056	0.073	0.077	0.186
Fail Professional Knowledge	0.032	0.046	0.030	0.033	0.043	0.126
Performance on NYSTCE Exams						
Fail Liberal Arts	0.028	0.054	0.032	0.073	0.049	0.165
Fail Elementary ATS-W	0.020	0.059	0.017	0.048	0.038	0.139
Fail Secondary ATS-W	0.018	0.043	0.024	0.057	0.040	0.119
Barron's ranking of Undergraduate College						
Most or highly competitive	0.149	0.112	0.130	0.102	0.137	0.124
Very competitive	0.231	0.221	0.289	0.393	0.245	0.218
Competitive	0.523	0.496	0.526	0.412	0.503	0.449
Least competitive	0.097	0.171	0.055	0.093	0.114	0.210

* Novice means no prior teaching experience.

** Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Appendix B
Analysis of Teacher Attributes 1985-99

Newly Hired Teachers

Table B-1
Proportion of New Hires Who are Transfers, by Region

Year	New York City	Big Four	Small Cities	Suburb	Rural
1985	0.283	0.334	0.403	0.514	0.488
1986	0.264	0.334	0.362	0.534	0.542
1987	0.258	0.379	0.439	0.458	0.452
1988	0.250	0.375	0.338	0.465	0.458
1989	0.240	0.355	0.385	0.447	0.427
1990	0.241	0.354	0.348	0.447	0.433
1991	0.242	0.330	0.296	0.424	0.431
1992	0.233	0.275	0.359	0.461	0.424
1993	0.251	0.320	0.340	0.433	0.371
1994	0.262	0.311	0.347	0.479	0.423
1995	0.264	0.321	0.293	0.443	0.405
1996	0.245	0.298	0.333	0.465	0.414
1997	0.248	0.337	0.315	0.446	0.420
1998	0.257	0.346	0.361	0.454	0.425
1999	0.263	0.359	0.354	0.469	0.431

Table B-2
Proportion of New Hires without Any Prior Experience, by Region

Year	New York City	Big Four	Small Cities	Suburb	Rural
1985	0.455	0.399	0.354	0.282	0.335
1986	0.505	0.394	0.368	0.278	0.303
1987	0.509	0.398	0.361	0.331	0.372
1988	0.524	0.404	0.468	0.341	0.400
1989	0.554	0.432	0.412	0.371	0.424
1990	0.555	0.440	0.447	0.377	0.424
1991	0.564	0.455	0.507	0.411	0.435
1992	0.529	0.501	0.494	0.378	0.426
1993	0.551	0.497	0.558	0.412	0.495
1994	0.578	0.521	0.520	0.395	0.469
1995	0.568	0.508	0.564	0.417	0.477
1996	0.571	0.512	0.451	0.418	0.478
1997	0.605	0.508	0.487	0.439	0.470
1998	0.632	0.529	0.463	0.442	0.471
1999	0.615	0.537	0.506	0.446	0.483

Table B-3
Proportion of New Hires Who are Transfers, by Primary Teaching Assignment

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.301	0.404	0.389	0.512	0.462
1986	0.297	0.385	0.389	0.603	0.504
1987	0.300	0.415	0.369	0.449	0.467
1988	0.309	0.401	0.394	0.458	0.467
1989	0.294	0.408	0.363	0.429	0.426
1990	0.290	0.375	0.373	0.429	0.428
1991	0.284	0.364	0.358	0.428	0.402
1992	0.279	0.355	0.385	0.395	0.437
1993	0.278	0.349	0.360	0.375	0.409
1994	0.292	0.367	0.360	0.479	0.444
1995	0.299	0.371	0.374	0.410	0.410
1996	0.314	0.407	0.407	0.425	0.435
1997	0.305	0.371	0.363	0.406	0.406
1998	0.314	0.380	0.395	0.388	0.419
1999	0.324	0.412	0.400	0.414	0.425

Table B-4
Proportion of New Hires without Any Prior Experience, by Primary Teaching Assignment

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.396	0.345	0.396	0.356	0.292
1986	0.426	0.396	0.445	0.290	0.290
1987	0.442	0.391	0.474	0.387	0.299
1988	0.475	0.407	0.457	0.387	0.305
1989	0.505	0.436	0.486	0.407	0.366
1990	0.517	0.466	0.470	0.399	0.369
1991	0.552	0.477	0.481	0.398	0.395
1992	0.525	0.476	0.447	0.411	0.343
1993	0.559	0.511	0.484	0.442	0.378
1994	0.572	0.513	0.518	0.386	0.385
1995	0.562	0.504	0.491	0.434	0.394
1996	0.561	0.461	0.479	0.418	0.394
1997	0.588	0.506	0.527	0.444	0.421
1998	0.593	0.521	0.513	0.489	0.433
1999	0.591	0.507	0.504	0.469	0.440

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-5
Proportion Female

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.728	0.750	0.700	0.798	0.774
1986	0.710	0.759	0.788	0.801	0.736
1987	0.709	0.826	0.770	0.802	0.741
1988	0.706	0.705	0.712	0.805	0.751
1989	0.707	0.769	0.752	0.807	0.741
1990	0.716	0.781	0.865	0.803	0.747
1991	0.717	0.779	0.811	0.818	0.749
1992	0.731	0.819	0.791	0.797	0.765
1993	0.717	0.806	0.667	0.800	0.740
1994	0.729	0.716	0.777	0.770	0.735
1995	0.757	0.741	0.829	0.787	0.739
1996	0.767	0.737	0.767	0.748	0.716
1997	0.744	0.754	0.727	0.740	0.706
1998	0.766	0.760	0.745	0.727	0.713
1999	0.777	0.737	0.795	0.734	0.707

Table B-6
Proportion Bachelors degree or Less

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.612	0.566	0.557	0.676	0.776
1986	0.650	0.633	0.615	0.676	0.744
1987	0.667	0.587	0.580	0.653	0.734
1988	0.649	0.629	0.597	0.644	0.716
1989	0.683	0.561	0.634	0.622	0.707
1990	0.676	0.581	0.685	0.605	0.713
1991	0.686	0.564	0.684	0.595	0.701
1992	0.650	0.585	0.572	0.540	0.666
1993	0.644	0.540	0.613	0.554	0.669
1994	0.628	0.561	0.534	0.548	0.646
1995	0.589	0.533	0.559	0.526	0.629
1996	0.554	0.491	0.547	0.501	0.608
1997	0.565	0.519	0.506	0.520	0.623
1998	0.564	0.523	0.609	0.516	0.610
1999	0.514	0.499	0.535	0.490	0.566

* Novice means no prior teaching experience

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-7
Proportion Masters degree

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.334	0.398	0.393	0.305	0.213
1986	0.300	0.320	0.317	0.304	0.234
1987	0.276	0.386	0.339	0.317	0.239
1988	0.292	0.329	0.363	0.324	0.263
1989	0.267	0.367	0.330	0.346	0.271
1990	0.278	0.368	0.213	0.366	0.268
1991	0.267	0.390	0.293	0.380	0.284
1992	0.295	0.362	0.370	0.423	0.305
1993	0.312	0.422	0.369	0.421	0.314
1994	0.322	0.396	0.417	0.420	0.332
1995	0.359	0.414	0.396	0.446	0.342
1996	0.394	0.455	0.430	0.466	0.355
1997	0.385	0.421	0.471	0.446	0.349
1998	0.385	0.426	0.373	0.446	0.352
1999	0.427	0.437	0.407	0.465	0.395

Table B-8
Proportion Not Certified in Any Teaching Assignment

Year	New York City	Big Four**	Small Cities	Suburban	Rural
1985	0.431	0.102	0.250	0.073	0.081
1986	0.481	0.170	0.115	0.100	0.117
1987	0.519	0.116	0.124	0.102	0.126
1988	0.420	0.153	0.160	0.106	0.107
1989	0.443	0.087	0.080	0.022	0.039
1990	0.740	0.107	0.079	0.031	0.067
1991	0.765	0.076	0.038	0.024	0.055
1992	0.483	0.027	0.036	0.032	0.028
1993	0.362	0.012	0.000	0.025	0.030
1994	0.486	0.022	0.029	0.021	0.019
1995	0.442	0.020	0.054	0.019	0.025
1996	0.405	0.030	0.012	0.019	0.025
1997	0.419	0.027	0.034	0.024	0.036
1998	0.336	0.160	0.045	0.081	0.113
1999	0.383	0.134	0.105	0.069	0.099

* Novice means no prior teaching experience
** Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-9
Proportion Provisionally Certified in at Least One Assignment Permanently Certified in None

Year	New York City	Big Four**	Small Cities	Suburban	Rural
1985	0.536	0.766	0.583	0.788	0.838
1986	0.494	0.698	0.692	0.768	0.801
1987	0.459	0.744	0.690	0.744	0.779
1988	0.549	0.732	0.616	0.762	0.790
1989	0.531	0.733	0.752	0.782	0.827
1990	0.241	0.779	0.843	0.865	0.869
1991	0.214	0.823	0.925	0.882	0.892
1992	0.491	0.863	0.856	0.856	0.926
1993	0.609	0.914	0.946	0.887	0.919
1994	0.476	0.911	0.864	0.894	0.932
1995	0.510	0.921	0.865	0.882	0.933
1996	0.547	0.896	0.919	0.887	0.916
1997	0.548	0.905	0.886	0.891	0.906
1998	0.518	0.720	0.900	0.814	0.824
1999	0.496	0.774	0.814	0.836	0.820

Table B-10
Proportion Permanently Certified in Some Assignments

Year	New York City	Big Four**	Small Cities	Suburban	Rural
1985	0.002	0.000	0.000	0.005	0.006
1986	0.001	0.000	0.000	0.003	0.002
1987	0.001	0.000	0.009	0.004	0.002
1988	0.000	0.000	0.000	0.003	0.002
1989	0.002	0.012	0.000	0.010	0.008
1990	0.002	0.000	0.000	0.005	0.004
1991	0.002	0.000	0.000	0.005	0.004
1992	0.001	0.000	0.000	0.005	0.000
1993	0.001	0.000	0.009	0.003	0.003
1994	0.001	0.000	0.000	0.001	0.004
1995	0.001	0.000	0.000	0.007	0.003
1996	0.001	0.000	0.000	0.005	0.003
1997	0.001	0.000	0.000	0.003	0.003
1998	0.030	0.000	0.000	0.007	0.003
1999	0.036	0.003	0.000	0.002	0.008

* Novice means no prior teaching experience
** Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-11
Proportion Permanently Certified in all Assignments

Year	New York City	Big Four**	Small Cities	Suburban	Rural
1985	0.032	0.131	0.167	0.134	0.075
1986	0.025	0.132	0.192	0.129	0.080
1987	0.021	0.140	0.177	0.150	0.093
1988	0.030	0.115	0.224	0.129	0.100
1989	0.025	0.168	0.168	0.186	0.127
1990	0.017	0.114	0.079	0.099	0.060
1991	0.018	0.101	0.038	0.090	0.049
1992	0.025	0.110	0.108	0.107	0.046
1993	0.029	0.074	0.045	0.085	0.048
1994	0.036	0.067	0.107	0.084	0.046
1995	0.046	0.059	0.081	0.092	0.039
1996	0.047	0.074	0.070	0.089	0.055
1997	0.033	0.067	0.080	0.082	0.056
1998	0.116	0.120	0.055	0.099	0.060
1999	0.085	0.089	0.081	0.092	0.073

Table B-12
Proportion of Failing NTE Communication Skills Exam*

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.110	0.000	0.000	0.000	0.000
1986	0.103	0.072	0.057	0.034	0.033
1987	0.085	0.059	0.018	0.030	0.033
1988	0.107	0.064	0.068	0.032	0.035
1989	0.123	0.065	0.060	0.031	0.041
1990	0.147	0.119	0.067	0.042	0.033
1991	0.097	0.109	0.051	0.037	0.039
1992	0.133	0.119	0.009	0.033	0.041
1993	0.156	0.048	0.075	0.030	0.038
1994	0.162	0.082	0.063	0.040	0.037
1995	0.167	0.078	0.088	0.045	0.038
1996	0.155	0.095	0.074	0.060	0.053
1997	0.186	0.097	0.106	0.051	0.063
1998	0.201	0.052	0.091	0.061	0.049
1999	0.221	0.109	0.063	0.072	0.059

* Novice means no prior teaching experience

** Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

*** Of test takers

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-13
Proportion of Failing NTE General Knowledge Exam**

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.205	0.000	0.000	0.125	0.000
1986	0.155	0.131	0.086	0.053	0.054
1987	0.163	0.112	0.070	0.063	0.054
1988	0.169	0.071	0.069	0.064	0.054
1989	0.191	0.108	0.098	0.066	0.052
1990	0.216	0.152	0.133	0.072	0.054
1991	0.153	0.128	0.078	0.066	0.052
1992	0.204	0.152	0.078	0.061	0.054
1993	0.219	0.119	0.103	0.056	0.055
1994	0.236	0.160	0.105	0.066	0.054
1995	0.244	0.116	0.198	0.092	0.073
1996	0.251	0.106	0.167	0.095	0.089
1997	0.261	0.151	0.125	0.109	0.074
1998	0.302	0.102	0.091	0.106	0.064
1999	0.343	0.164	0.082	0.102	0.090

* Novice means no prior teaching experience

Table B-14
Proportion of Failing NTE Professional Knowledge Exam**

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.120	0.000	0.000	0.000	0.000
1986	0.104	0.024	0.057	0.030	0.025
1987	0.077	0.052	0.000	0.023	0.025
1988	0.086	0.023	0.055	0.022	0.025
1989	0.108	0.054	0.048	0.026	0.026
1990	0.117	0.069	0.027	0.027	0.026
1991	0.093	0.053	0.060	0.037	0.031
1992	0.141	0.061	0.017	0.032	0.041
1993	0.156	0.044	0.047	0.025	0.026
1994	0.154	0.066	0.021	0.032	0.025
1995	0.171	0.049	0.089	0.038	0.025
1996	0.165	0.032	0.038	0.048	0.049
1997	0.179	0.056	0.043	0.041	0.030
1998	0.155	0.036	0.030	0.046	0.035
1999	0.179	0.043	0.041	0.048	0.041

** Of test takers

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-15
Proportion of Failing NYSTCE Liberal Arts and Science Exam**

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985					
1986					
1987					
1988					
1989					
1990					
1991					
1992					
1993					
1994	a	a	a	a	a
1995	a	a	a	a	a
1996	0.182	0.059	0.067	0.032	0.033
1997	0.179	0.100	0.100	0.040	0.037
1998	0.170	0.113	0.054	0.039	0.033
1999	0.172	0.096	0.047	0.040	0.034

Table B-16
Proportion of Failing NYSTCE Elementary ATS-W Exam**

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985					
1986					
1987					
1988					
1989					
1990					
1991					
1992					
1993					
1994	a	a	a	a	a
1995	a	a	a	a	a
1996	0.176	0.000	0.111	0.023	0.024
1997	0.142	0.065	0.038	0.023	0.022
1998	0.135	0.038	0.000	0.026	0.015
1999	0.125	0.035	0.000	0.026	0.015

* Novice means no prior teaching experience
** Of test takers
a: results from the NYSTCE are first available in 1994 but cell sizes are generally too small to report.

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-17
Proportion of Failing NYSTCE Secondary ATS-W Exam**

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985					
1986					
1987					
1988					
1989					
1990					
1991					
1992					
1993					
1994	a	a	a	a	a
1995	a	a	a	a	a
1996	0.144	0.031	0.000	0.016	0.024
1997	0.133	0.082	0.000	0.030	0.037
1998	0.130	0.019	0.042	0.022	0.016
1999	0.114	0.044	0.000	0.028	0.032

Table B-18
Proportion with Bachelors Degree from Most or Highly Competitive Colleges

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.089	0.148	0.089	0.154	0.145
1986	0.089	0.148	0.179	0.142	0.141
1987	0.089	0.177	0.121	0.149	0.129
1988	0.090	0.170	0.112	0.138	0.121
1989	0.101	0.135	0.118	0.146	0.127
1990	0.102	0.167	0.099	0.153	0.112
1991	0.128	0.134	0.066	0.147	0.145
1992	0.110	0.152	0.129	0.162	0.134
1993	0.126	0.132	0.127	0.167	0.131
1994	0.122	0.166	0.135	0.169	0.126
1995	0.106	0.171	0.063	0.154	0.107
1996	0.123	0.156	0.063	0.151	0.123
1997	0.132	0.137	0.075	0.145	0.108
1998	0.122	0.146	0.081	0.140	0.094
1999	0.120	0.139	0.068	0.132	0.097

* Novice means no prior teaching experience
** Of test takers
a: results from the NYSTCE are first available in 1994 but cell sizes are generally too small to report.

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-19
Proportion with Bachelors Degree from Very Competitive Colleges

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.192	0.227	0.125	0.192	0.222
1986	0.201	0.195	0.221	0.197	0.238
1987	0.221	0.194	0.253	0.195	0.271
1988	0.203	0.210	0.187	0.209	0.267
1989	0.206	0.221	0.157	0.211	0.286
1990	0.212	0.172	0.198	0.209	0.267
1991	0.202	0.191	0.207	0.205	0.240
1992	0.202	0.200	0.177	0.234	0.279
1993	0.222	0.222	0.137	0.221	0.275
1994	0.227	0.232	0.180	0.216	0.279
1995	0.230	0.251	0.211	0.224	0.295
1996	0.216	0.216	0.225	0.225	0.304
1997	0.213	0.210	0.175	0.227	0.285
1998	0.206	0.214	0.182	0.228	0.289
1999	0.194	0.231	0.209	0.225	0.317

Table B-20
Proportion with Bachelors Degree from Competitive Colleges

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.487	0.547	0.732	0.544	0.576
1986	0.500	0.560	0.579	0.549	0.560
1987	0.460	0.565	0.576	0.560	0.536
1988	0.489	0.520	0.664	0.559	0.559
1989	0.448	0.559	0.657	0.538	0.535
1990	0.453	0.570	0.679	0.539	0.566
1991	0.431	0.565	0.711	0.552	0.570
1992	0.447	0.557	0.645	0.515	0.555
1993	0.419	0.591	0.706	0.525	0.563
1994	0.418	0.520	0.629	0.512	0.543
1995	0.423	0.506	0.684	0.517	0.543
1996	0.426	0.564	0.700	0.533	0.513
1997	0.415	0.530	0.700	0.523	0.545
1998	0.429	0.544	0.717	0.523	0.557
1999	0.432	0.564	0.696	0.527	0.516

* Novice means no prior teaching experience

Proportion of Novice New York State Public Teachers with Various Attributes by Region, 1985-99*

Table B-21
Proportion with Bachelors Degree
from Least Competitive Colleges

Year	New York City	Big Four	Small Cities	Suburban	Rural
1985	0.232	0.079	0.054	0.111	0.057
1986	0.211	0.097	0.021	0.111	0.061
1987	0.229	0.065	0.051	0.096	0.064
1988	0.218	0.100	0.037	0.094	0.053
1989	0.246	0.086	0.069	0.106	0.052
1990	0.233	0.091	0.025	0.099	0.054
1991	0.239	0.111	0.017	0.096	0.044
1992	0.241	0.090	0.048	0.089	0.033
1993	0.234	0.054	0.029	0.088	0.031
1994	0.234	0.082	0.056	0.103	0.052
1995	0.240	0.072	0.042	0.104	0.055
1996	0.234	0.064	0.013	0.090	0.060
1997	0.240	0.123	0.050	0.104	0.062
1998	0.244	0.097	0.020	0.109	0.059
1999	0.255	0.067	0.027	0.116	0.069

* Novice means no prior teaching experience

Proportion of Novice NYS Public Teachers with Various Attributes by Predominant Teaching Assignment, 1985-99*

Table B-22
Proportion Masters degree

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.294	0.310	0.279	0.353	0.329
1986	0.280	0.296	0.272	0.330	0.324
1987	0.280	0.298	0.268	0.323	0.335
1988	0.284	0.317	0.316	0.330	0.327
1989	0.275	0.315	0.311	0.335	0.332
1990	0.286	0.290	0.328	0.346	0.376
1991	0.279	0.311	0.363	0.363	0.388
1992	0.327	0.323	0.333	0.372	0.431
1993	0.338	0.338	0.364	0.392	0.387
1994	0.357	0.341	0.367	0.401	0.418
1995	0.376	0.374	0.374	0.447	0.438
1996	0.401	0.432	0.394	0.513	0.407
1997	0.392	0.425	0.365	0.475	0.422
1998	0.394	0.399	0.358	0.499	0.401
1999	0.433	0.411	0.398	0.519	0.454

Table B-23
Proportion Not Certified in Any Teaching Assignment**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.212	0.292	0.240	0.304	0.180
1986	0.269	0.337	0.285	0.282	0.277
1987	0.265	0.330	0.269	0.306	0.233
1988	0.211	0.265	0.232	0.258	0.198
1989	0.224	0.202	0.239	0.206	0.160
1990	0.342	0.423	0.364	0.385	0.296
1991	0.343	0.413	0.359	0.380	0.237
1992	0.221	0.261	0.231	0.297	0.157
1993	0.158	0.219	0.168	0.205	0.164
1994	0.186	0.279	0.218	0.248	0.192
1995	0.171	0.244	0.264	0.248	0.158
1996	0.141	0.180	0.237	0.130	0.131
1997	0.168	0.238	0.292	0.194	0.177
1998	0.145	0.228	0.321	0.225	0.233
1999	0.149	0.237	0.283	0.234	0.264

* Novice means no prior teaching experience
** Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Proportion of Novice NYS Public Teachers with Various Attributes by Predominant Teaching Assignment, 1985-99*

Table B-24
Proportion Provisionally Certified in At Least One Assignment, Permanently Certified in None**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.702	0.627	0.685	0.624	0.743
1986	0.646	0.602	0.658	0.646	0.630
1987	0.632	0.589	0.671	0.605	0.660
1988	0.692	0.665	0.711	0.641	0.717
1989	0.670	0.696	0.674	0.652	0.727
1990	0.599	0.530	0.593	0.537	0.660
1991	0.602	0.552	0.605	0.548	0.689
1992	0.720	0.692	0.716	0.631	0.765
1993	0.781	0.750	0.798	0.731	0.761
1994	0.752	0.683	0.732	0.686	0.720
1995	0.760	0.714	0.690	0.667	0.751
1996	0.791	0.782	0.723	0.739	0.793
1997	0.774	0.722	0.664	0.721	0.755
1998	0.730	0.680	0.566	0.617	0.670
1999	0.747	0.684	0.617	0.633	0.618

Table B-25
Proportion Permanently Certified in Some Assignments**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.001	0.010	0.008	0.001	0.007
1986	0.000	0.004	0.001	0.001	0.002
1987	0.001	0.004	0.003	0.002	0.005
1988	0.000	0.006	0.002	0.001	0.003
1989	0.001	0.012	0.016	0.001	0.011
1990	0.000	0.006	0.007	0.007	0.000
1991	0.002	0.003	0.005	0.006	0.006
1992	0.000	0.006	0.004	0.001	0.000
1993	0.000	0.004	0.003	0.003	0.002
1994	0.000	0.002	0.004	0.001	0.004
1995	0.000	0.006	0.011	0.002	0.005
1996	0.000	0.004	0.003	0.003	0.005
1997	0.000	0.003	0.003	0.001	0.003
1998	0.008	0.025	0.047	0.002	0.013
1999	0.012	0.026	0.043	0.002	0.015

* Novice means no prior teaching experience
** Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Proportion of Novice NYS Public Teachers with Various Attributes by Predominant Teaching Assignment, 1985-99*

Table B-26
Proportion Permanently Certified in all Assignments**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.085	0.072	0.067	0.071	0.072
1986	0.085	0.057	0.055	0.071	0.092
1987	0.102	0.077	0.057	0.088	0.105
1988	0.097	0.064	0.055	0.101	0.084
1989	0.105	0.090	0.071	0.141	0.104
1990	0.058	0.041	0.037	0.072	0.049
1991	0.053	0.032	0.031	0.066	0.072
1992	0.059	0.041	0.049	0.071	0.084
1993	0.060	0.028	0.031	0.061	0.072
1994	0.061	0.036	0.046	0.065	0.083
1995	0.069	0.036	0.036	0.083	0.084
1996	0.067	0.034	0.037	0.128	0.073
1997	0.058	0.038	0.041	0.084	0.066
1998	0.118	0.067	0.066	0.156	0.082
1999	0.092	0.052	0.057	0.131	0.103

Table B-27
Proportion of Failing NTE Communication Skills Exam***

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.057	0.167	0.143	0.154	0.200
1986	0.075	0.054	0.027	0.043	0.067
1987	0.062	0.029	0.014	0.050	0.041
1988	0.057	0.028	0.014	0.051	0.101
1989	0.068	0.027	0.041	0.062	0.080
1990	0.087	0.054	0.033	0.060	0.071
1991	0.068	0.025	0.036	0.055	0.069
1992	0.082	0.064	0.038	0.088	0.076
1993	0.082	0.083	0.051	0.098	0.094
1994	0.091	0.062	0.062	0.104	0.111
1995	0.087	0.078	0.081	0.105	0.092
1996	0.099	0.062	0.049	0.086	0.073
1997	0.102	0.063	0.081	0.101	0.101
1998	0.111	0.049	0.073	0.133	0.086
1999	0.113	0.069	0.052	0.107	0.114

* Novice means no prior teaching experience

*** Of test takers.

** Buffalo is excluded from certification status calculations. Buffalo has its own certification system.

Proportion of Novice NYS Public Teachers with Various Attributes by Predominant Teaching Assignment, 1985-99*

Table B-28
Proportion of Failing NTE General Knowledge Exam**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.212	0.167	0.000	0.250	0.000
1986	0.121	0.087	0.008	0.112	0.067
1987	0.117	0.048	0.014	0.113	0.095
1988	0.106	0.047	0.016	0.097	0.101
1989	0.124	0.048	0.015	0.122	0.098
1990	0.132	0.069	0.025	0.127	0.114
1991	0.115	0.034	0.018	0.116	0.091
1992	0.136	0.082	0.042	0.160	0.112
1993	0.138	0.112	0.048	0.177	0.109
1994	0.157	0.089	0.036	0.184	0.141
1995	0.180	0.107	0.054	0.164	0.125
1996	0.176	0.101	0.028	0.142	0.100
1997	0.192	0.091	0.084	0.174	0.119
1998	0.192	0.087	0.044	0.207	0.111
1999	0.225	0.106	0.034	0.160	0.089

Table B-29
Proportion of Failing NTE Professional Knowledge Exam**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.109	0.167	0.143	0.063	0.000
1986	0.069	0.068	0.024	0.034	0.062
1987	0.045	0.036	0.016	0.025	0.044
1988	0.044	0.022	0.014	0.034	0.042
1989	0.055	0.040	0.018	0.041	0.067
1990	0.060	0.038	0.033	0.040	0.066
1991	0.053	0.046	0.029	0.043	0.069
1992	0.066	0.067	0.060	0.083	0.097
1993	0.079	0.083	0.066	0.077	0.087
1994	0.081	0.058	0.071	0.078	0.095
1995	0.082	0.084	0.075	0.074	0.110
1996	0.091	0.084	0.049	0.045	0.080
1997	0.085	0.078	0.071	0.067	0.084
1998	0.083	0.092	0.064	0.062	0.072
1999	0.089	0.089	0.028	0.052	0.068

* Novice means no prior teaching experience
** Of test takers.

Proportion of Novice NYS Public Teachers with Various Attributes by Predominant Teaching Assignment, 1985-99*

Table B-30
Proportion of Failing NYSTCE Liberal Arts and Science Exam**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985					
1986					
1987					
1988					
1989					
1990					
1991					
1992					
1993					
1994	a	a	a	a	a
1995	a	a	a	a	a
1996	0.134	0.044	0.021	0.108	0.093
1997	0.133	0.075	0.053	0.150	0.110
1998	0.117	0.071	0.042	0.141	0.151
1999	0.116	0.067	0.051	0.126	0.102

Table B-31
Proportion of Failing NYSTCE Elementary ATS-W Exam**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985					
1986					
1987					
1988					
1989					
1990					
1991					
1992					
1993					
1994	a	a	a	a	a
1995	a	a	a	a	a
1996	0.089	0.269	0.037	0.082	0.077
1997	0.076	0.196	0.068	0.087	0.123
1998	0.075	0.199	0.043	0.083	0.097
1999	0.059	0.181	0.052	0.081	0.078

* Novice means no prior teaching experience
** Of test takers
a: results from the NYSTCE are first available in 1994 but cell sizes are generally too small to report.

Proportion of Novice NYS Public Teachers with Various Attributes by Predominant Teaching Assignment, 1985-99*

Table B-32
Proportion of Failing NYSTCE Secondary ATS-W Exam**

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985					
1986					
1987					
1988					
1989					
1990					
1991					
1992					
1993					
1994	a	a	a	a	a
1995	a	a	a	a	a
1996	0.132	0.060	0.024	0.133	0.080
1997	0.119	0.074	0.050	0.118	0.122
1998	0.053	0.045	0.041	0.141	0.158
1999	0.095	0.038	0.039	0.179	0.103

Table B-33
Proportion with Bachelors Degree from Most or Highly Competitive Colleges

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.075	0.142	0.157	0.170	0.088
1986	0.092	0.147	0.164	0.151	0.093
1987	0.102	0.138	0.177	0.150	0.112
1988	0.086	0.141	0.168	0.177	0.085
1989	0.097	0.173	0.173	0.137	0.131
1990	0.100	0.163	0.152	0.147	0.124
1991	0.115	0.207	0.181	0.142	0.114
1992	0.111	0.202	0.160	0.130	0.104
1993	0.121	0.188	0.199	0.131	0.098
1994	0.120	0.217	0.195	0.133	0.079
1995	0.098	0.190	0.166	0.129	0.091
1996	0.114	0.192	0.208	0.129	0.091
1997	0.102	0.190	0.200	0.130	0.096
1998	0.094	0.188	0.175	0.118	0.101
1999	0.094	0.170	0.172	0.119	0.105

* Novice means no prior teaching experience. ** Of test takers.
a: results from the NYSTCE are first available in 1994 but cell sizes are generally too small to report.

Proportion of Novice NYS Public Teachers with Various Attributes by Predominant Teaching Assignment, 1985-99*

Table B-34
Proportion with Bachelors Degree from Very Competitive Colleges

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.182	0.291	0.249	0.145	0.253
1986	0.192	0.299	0.225	0.158	0.233
1987	0.200	0.323	0.230	0.170	0.253
1988	0.193	0.312	0.246	0.181	0.263
1989	0.210	0.296	0.270	0.160	0.266
1990	0.212	0.300	0.254	0.176	0.215
1991	0.197	0.255	0.237	0.177	0.234
1992	0.205	0.291	0.242	0.180	0.262
1993	0.210	0.297	0.240	0.195	0.263
1994	0.215	0.274	0.248	0.220	0.245
1995	0.221	0.289	0.300	0.205	0.244
1996	0.206	0.328	0.254	0.201	0.245
1997	0.204	0.298	0.258	0.189	0.222
1998	0.202	0.301	0.251	0.187	0.233
1999	0.198	0.301	0.260	0.208	0.209

Table B-35
Proportion with Bachelors Degree from Competitive Colleges

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.590	0.400	0.487	0.502	0.586
1986	0.566	0.420	0.499	0.530	0.598
1987	0.562	0.411	0.468	0.526	0.538
1988	0.584	0.445	0.478	0.506	0.556
1989	0.537	0.409	0.433	0.532	0.486
1990	0.539	0.415	0.449	0.522	0.562
1991	0.540	0.418	0.460	0.517	0.527
1992	0.528	0.376	0.481	0.530	0.523
1993	0.527	0.380	0.415	0.505	0.532
1994	0.512	0.373	0.426	0.478	0.560
1995	0.507	0.402	0.418	0.491	0.541
1996	0.519	0.394	0.415	0.539	0.562
1997	0.509	0.364	0.418	0.506	0.561
1998	0.509	0.382	0.432	0.513	0.549
1999	0.521	0.408	0.433	0.473	0.538

* Novice means no prior teaching experience

Proportion of Novice NYS Public Teachers with Various Attributes by Predominant Teaching Assignment, 1985-99*

Table B-36
Proportion with Bachelors Degree
from Least Competitive Colleges

Year	Elem-entary	Human-ities	Math and Science	Special Education	Other
1985	0.153	0.168	0.107	0.183	0.073
1986	0.150	0.134	0.113	0.162	0.076
1987	0.136	0.128	0.125	0.154	0.097
1988	0.137	0.103	0.108	0.135	0.097
1989	0.156	0.123	0.124	0.171	0.116
1990	0.149	0.122	0.145	0.155	0.099
1991	0.148	0.120	0.122	0.164	0.124
1992	0.156	0.131	0.116	0.159	0.111
1993	0.142	0.135	0.145	0.168	0.107
1994	0.153	0.136	0.132	0.169	0.116
1995	0.174	0.119	0.116	0.174	0.124
1996	0.160	0.086	0.122	0.131	0.102
1997	0.185	0.148	0.124	0.175	0.120
1998	0.195	0.130	0.143	0.182	0.117
1999	0.187	0.120	0.134	0.200	0.148

* Novice means no prior teaching experience

Appendix C

Cohort Analysis of All Teachers Who Began Their Careers in 1991
Attributes of Teachers Depending on Career Path

Table C-1
Attributes of New York City Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.114	0.102	0.104	0.078
Fail General Knowledge	0.198	0.131	0.176	0.116
Fail Professional Knowledge	0.106	0.110	0.045	0.072
Barron's ranking of Undergraduate College				
Most or highly competitive	0.076	0.099	0.087	0.220
Very competitive	0.212	0.202	0.239	0.185
Competitive	0.474	0.450	0.478	0.356
Least competitive	0.237	0.250	0.196	0.239

Table C-2
Attributes of Big Four Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.095	0.078	0.000	0.192
Fail General Knowledge	0.160	0.107	0.056	0.137
Fail Professional Knowledge	0.097	0.052	0.000	0.000
Barron's ranking of Undergraduate College				
Most or highly competitive	0.144	0.071	0.182	0.193
Very competitive	0.156	0.214	0.091	0.211
Competitive	0.556	0.619	0.682	0.491
Least competitive	0.144	0.095	0.045	0.105

Table C-3
Attributes of Small City Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.059	0.054	0.000	0.069
Fail General Knowledge	0.088	0.108	0.000	0.071
Fail Professional Knowledge	0.059	0.108	0.000	0.034
Barron's ranking of Undergraduate College				
Most or highly competitive	0.056	0.027	0.100	0.094
Very competitive	0.278	0.108	0.300	0.188
Competitive	0.667	0.838	0.600	0.688
Least competitive	0.000	0.027	0.000	0.031

Table C-4
Attributes of Suburban Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.044	0.043	0.030	0.034
Fail General Knowledge	0.074	0.059	0.060	0.067
Fail Professional Knowledge	0.038	0.040	0.037	0.036
Barron's ranking of Undergraduate College				
Most or highly competitive	0.152	0.092	0.158	0.183
Very competitive	0.185	0.188	0.254	0.216
Competitive	0.561	0.622	0.505	0.499
Least competitive	0.101	0.098	0.082	0.103

Table C-5
Attributes of Rural Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.065	0.065	0.036	0.058
Fail General Knowledge	0.111	0.087	0.065	0.082
Fail Professional Knowledge	0.057	0.065	0.034	0.048
Barron's ranking of Undergraduate College				
Most or highly competitive	0.139	0.124	0.172	0.155
Very competitive	0.216	0.281	0.234	0.271
Competitive	0.600	0.562	0.566	0.519
Least competitive	0.044	0.033	0.028	0.055

Table C-6
Attributes of Elementary Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.064	0.083	0.063	0.069
Fail General Knowledge	0.133	0.112	0.081	0.098
Fail Professional Knowledge	0.050	0.074	0.044	0.050
Barron's ranking of Undergraduate College				
Most or highly competitive	0.095	0.084	0.149	0.174
Very competitive	0.197	0.188	0.202	0.206
Competitive	0.557	0.577	0.565	0.445
Least competitive	0.152	0.151	0.083	0.174

Table C-7
Attributes of Humanities Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.012	0.038	0.012	0.034
Fail General Knowledge	0.043	0.000	0.012	0.043
Fail Professional Knowledge	0.048	0.067	0.025	0.044
Barron's ranking of Undergraduate College				
Most or highly competitive	0.185	0.115	0.207	0.287
Very competitive	0.232	0.281	0.333	0.218
Competitive	0.442	0.518	0.379	0.368
Least competitive	0.141	0.086	0.080	0.126

Table C-8
Attributes of Math and Science Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.056	0.034	0.000	0.038
Fail General Knowledge	0.037	0.000	0.000	0.015
Fail Professional Knowledge	0.043	0.017	0.000	0.030
Barron's ranking of Undergraduate College				
Most or highly competitive	0.172	0.161	0.172	0.208
Very competitive	0.250	0.237	0.224	0.253
Competitive	0.469	0.441	0.500	0.403
Least competitive	0.109	0.161	0.103	0.136

Table C-9
Attributes of Special Education Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.070	0.052	0.016	0.069
Fail General Knowledge	0.125	0.084	0.116	0.141
Fail Professional Knowledge	0.050	0.040	0.024	0.047
Barron's ranking of Undergraduate College				
Most or highly competitive	0.148	0.106	0.158	0.152
Very competitive	0.165	0.175	0.237	0.178
Competitive	0.528	0.498	0.518	0.505
Least competitive	0.159	0.221	0.086	0.165

Table C-10
Attributes of Other Teachers Beginning in 1991 as of 1997 by Their Career Paths

Teacher Attributes	Same School	Different School	Different District	Not in NYS System
Performance on NTE Exams				
Fail Communication Skills	0.110	0.061	0.056	0.054
Fail General Knowledge	0.110	0.146	0.070	0.066
Fail Professional Knowledge	0.097	0.120	0.043	0.036
Barron's ranking of Undergraduate College				
Most or highly competitive	0.218	0.250	0.260	0.230
Very competitive	0.218	0.250	0.260	0.230
Competitive	0.574	0.567	0.575	0.443
Least competitive	0.122	0.115	0.096	0.137

Cohort Analysis of Transferring Teachers Who Began Their Careers in 1991
Attributes of Sending and Receiving Schools

Table C-11

Attributes of Sending and Receiving New York City Schools for Transferring Teachers

School & District Attributes	Within District			Between Districts		
	Sending School	Receiving School	Difference	Sending School	Receiving School	Difference
Proportion students poor	0.721	0.670	-0.051	0.708	0.218	-0.490
Proportion students LEP	0.164	0.156	-0.008	0.154	0.077	-0.077
Proportion students nonwhite	0.864	0.847	-0.017	0.895	0.418	-0.477
Class Size	24.2	24.6	0.4	25.6	20.5	-5.1
Salary	na	na	na	$33,383	$38,112	$4,729

Table C-12

Attributes of Sending and Receiving Big Four Schools for Transferring Teachers

School & District Attributes	Within District			Between Districts		
	Sending School	Receiving School	Difference	Sending School	Receiving School	Difference
Proportion students poor	0.671	0.673	0.002	0.675	0.190	-0.485
Proportion students LEP	0.134	0.129	-0.005	0.180	0.067	-0.113
Proportion students nonwhite	0.744	0.716	-0.028	0.660	0.233	-0.427
Class Size	24.2	23.8	-0.4	27.9	23.9	-4.0
Salary	na	na	na	$36,189	$33,214	-$2,975

Table C-13
Attributes of Sending and Receiving Small City Schools for Transferring Teachers

School & District Attributes	Within District			Between Districts		
	Sending School	Receiving School	Difference	Sending School	Receiving School	Difference
Proportion students poor	0.638	0.602	-0.036	0.560	0.118	-0.442
Proportion students LEP	0.048	0.075	0.027	0.032	0.008	-0.024
Proportion students nonwhite	0.531	0.482	-0.049	0.403	0.081	-0.322
Class Size	22.0	26.2	4.2	21.4	24.1	2.7
Salary	na	na	na	$27,070	$28,677	$1,607

Table C-14
Attributes of Sending and Receiving Suburban Schools for Transferring Teachers

School & District Attributes	Within District			Between Districts		
	Sending School	Receiving School	Difference	Sending School	Receiving School	Difference
Proportion students poor	0.174	0.171	-0.003	0.179	0.164	-0.015
Proportion students LEP	0.035	0.033	-0.002	0.021	0.027	0.006
Proportion students nonwhite	0.203	0.201	-0.002	0.166	0.178	0.012
Class Size	23.2	24.1	0.9	21.0	21.6	0.6
Salary	na	na	na	$30,337	$32,072	$1,735

Table C-15
Attributes of Sending and Receiving Rural Schools for Transferring Teachers

School & District Attributes	Within District			Between Districts		
	Sending School	Receiving School	Difference	Sending School	Receiving School	Difference
Proportion students poor	0.288	0.266	-0.022	0.294	0.230	-0.064
Proportion students LEP	0.015	0.015	0.000	0.016	0.011	-0.005
Proportion students nonwhite	0.118	0.119	0.001	0.108	0.102	-0.006
Class Size	22.8	23.9	1.1	19.4	20.7	1.3
Salary	na	na	na	$28,300	$30,129	$1,829