

Teacher Recruitment and Retention in Public and Private Schools

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Abstract

Private school salaries are substantially below those in public school systems. Nonetheless, private school heads are as satisfied as public school principals with the quality of their new teachers and substantially more satisfied with their experienced instructors. This difference remains after controlling for school and community characteristics and for the principal's tenure and educational priorities. In addition, appraisals of experienced and new teachers suggest that private schools are more successful in retaining the best of their new teachers and in developing the teaching skills of their faculties. Apparent reasons include greater flexibility in structuring pay, more supervision and mentoring of new teachers, and freedom to dismiss teachers for poor performance. These findings suggest that improvement in the quality of public school performance will require the use of accountability tools such as pay-for-performance and dismissal.

INTRODUCTION

Since the publication of *A Nation at Risk* [National Commission on Excellence in Education, 1983], improving teacher recruitment and retention has been a high priority of school administrators and elected officials responsible for the quality of American schools. Many states have increased teacher salaries and tightened requirements for certification. Nationwide, average salaries of public elementary and secondary school teachers rose 20 percent after inflation between 1980 and 1993. By the end of this period, virtually all states had adopted teacher examinations in basic skills. More than half tested teachers in subject matter knowledge [National Association of State Directors of Teacher Education and Certification (NASDTEC), 1991]. These efforts show no sign of abating. Proposals to strengthen standards for teacher training and licensing have recently been advanced by the National Commission on Teaching and America's Future (NCTAF) in a widely publicized report, *What Matters Most: Teaching for America's Future* [NCTAF, 1996].

Such proposals illustrate what may be called a "top-down" approach to education reform. Arguments for top-down reform rest on the premise (not always explicit) that decisionmaking by local education authorities is flawed and that other agencies at the state or national level must intervene to assure satisfactory behavior. Thus, districts must be constrained to hire only those applicants who have met the state standards of satisfactory test scores and records of preservice training. Salaries, then, must be raised where necessary to attract applicants meeting these standards if the supply is insufficient. Top-down reform stands in sharp contrast to policies that would increase the autonomy of decisionmakers at the local level.

Among the reforms advocated by proponents of a "bottom-up" approach is increased parental choice, seen by many as the essential means by which to hold schools accountable for performance. In this vision of reform, market competition would largely replace regulatory oversight. Performance would be enhanced not by strengthening bureaucratic control but by increasing consumer sovereignty. The charter school movement is a case in point. Broadly speaking, reforms of the bottom-up variety often reflect the belief that public schools would improve if in certain key respects they more closely resembled private schools.

The implications for teacher recruitment are particularly interesting. Private school personnel policies differ from those in public schools in precisely those respects thought most important by advocates of top-down reform. First, private school instructors earn, on average, less than two-thirds as much as instructors with comparable experience and education in public school systems. Second, private schools are generally free to hire teachers who lack state certification. In addition, because private school faculties are rarely represented by unions in collective bargaining, and because employees are not covered by the same laws as public sector workers, school administrators have considerably more discretion in structuring personnel policies.¹

This article attempts to assess the merits of aspects of top-down versus bottom-up reform by comparing teacher recruitment and retention in public and private schools. Specifically, two questions are addressed. First, how well do schools in each sector meet their teacher recruitment and retention objectives? Second, to what extent does the private sector benefit in these efforts from the elements of market competition emphasized by advocates of bottom-up reforms? The main challenges in answering these questions are: (1) identifying appropriate criteria for comparing teacher recruitment and retention in the two sectors and controlling for sectoral bias, and (2) separating the influences of freedom from regulation and market competition from other circumstances that set private schools apart (for example, selective admissions, more affluent clientele, and the like).

COMPARING PUBLIC AND PRIVATE SCHOOL TEACHERS

Comparing public to private schools is not, of course, a novel idea. A considerable literature exists that investigates whether private school students achieve at a

¹ Analyzing data from *High School and Beyond*, Hoxby [1996] finds that the more likely a district's teachers are to be unionized, the smaller the gain in student test scores produced by such policies as raising teacher pay and reducing pupil-teacher ratios. Teachers in such districts also teach fewer hours a week and spend less time preparing lessons, studying background material, and tutoring and counseling students.

higher level than similar students in the public schools, and, if so, to what that advantage is due [see, among others, Coleman, Hoffer, and Kilgore, 1982]. However, while issues of school governance have figured prominently in this debate [see, for example, Chubb and Moe, 1990], there have been few comparisons of the tools of governance, such as the way schools recruit and retain teachers.

Data from the Schools and Staffing Survey (SASS) of 1987–1988 show that private schools employ a disproportionate share of the graduates of the nation's more selective colleges and universities [Ballou and Podgursky, 1997]. Secondary school teachers in the private sector are more likely than their public school counterparts to hold an undergraduate degree in an academic subject, as opposed to education. Because a considerable body of evidence shows that teachers with stronger cognitive skills and superior knowledge of their subjects are, on average, more effective in the classroom, these indicators suggest that the private sector appears to recruit quite well.²

Though suggestive, comparisons of public and private sector workforces on the basis of a few teacher attributes can be misleading. First, data are available on only a few of the personal characteristics that are hypothesized to influence teaching effectiveness—and these attributes may not be accorded equal importance by public and private school administrators. For example, hiring practices in public schools do not appear to give much weight to the selectiveness of the college a teacher attended [Ballou, 1996]. Whether this policy is right or wrong, it would clearly be a mistake to regard the high proportion of private school teachers from such colleges as evidence that private schools recruit more successfully. The differences may be as much a matter of preferences as anything else.

An alternative basis for comparing teacher recruitment and retention in public and private schools, one that does not prejudice the issue by focusing on teacher characteristics that are not of equal importance to administrators in the two sectors, is required. The second wave (1990–1991) of the SASS, which requested each principal or school head to rate the quality of his or her school's teaching staff on a five-point scale (poor = 1, excellent = 5), provides such data.³ Separate ratings for experienced teachers (those with more than three years' experience) and new teachers (three years or less) were identified. Because principals were free to evaluate their staffs by whatever criteria they deemed important, these assessments furnish a basis for comparison that is independent of the preconceptions of the investigators and that instead reflects the judgment of the persons most responsible for hiring.

These data are revealing. Figure 1 presents a breakdown of the ratings given new teachers in public schools and in three types of private schools (Catholic,

² Several studies have found a positive relationship between student achievement and indicators of the teacher's cognitive ability, including the quality of the college attended [see, for example, Ehrenberg and Brewer, 1993, 1994; Hanushek, 1971; Monk, 1994; Summers and Wolfe, 1977; Webster, 1988; Winkler, 1975]. Graduates of more selective colleges may also exhibit other characteristics (like drive and enthusiasm for their subjects) that contribute to teaching effectiveness. Ballou and Podgursky [1995] find that these teachers spend more time outside school preparing lessons and grading papers and that they assign homework more frequently.

³ The 1991 Schools and Staffing Survey (SASS) was a national survey of districts, teachers, schools, and administrators. Details regarding the survey may be found in Choy et al., [1993]. The teacher quality question is drawn from the administrator survey. Data for the multivariate analysis are drawn from the administrator, school, and district surveys.

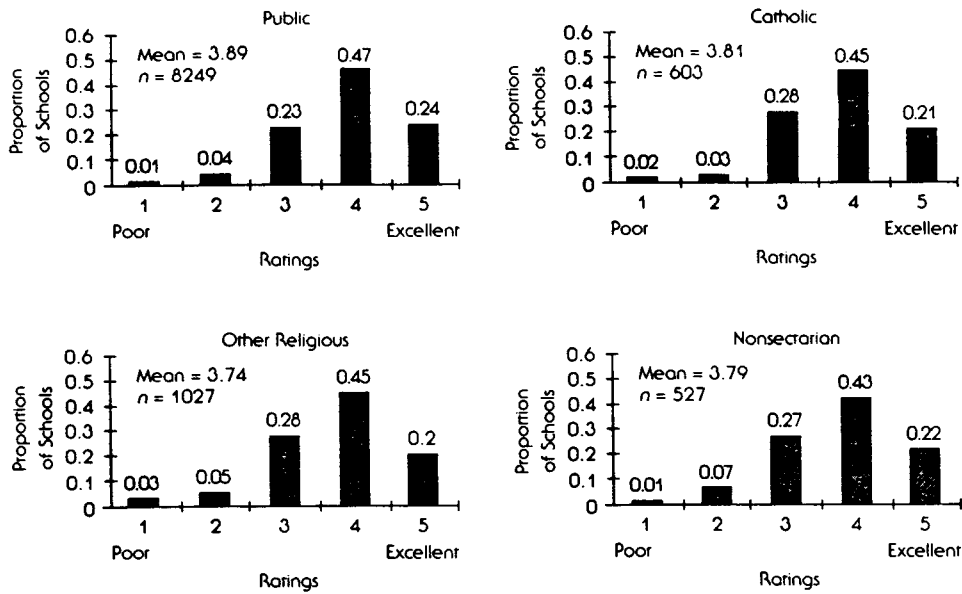


Figure 1. New teacher ratings by school type.

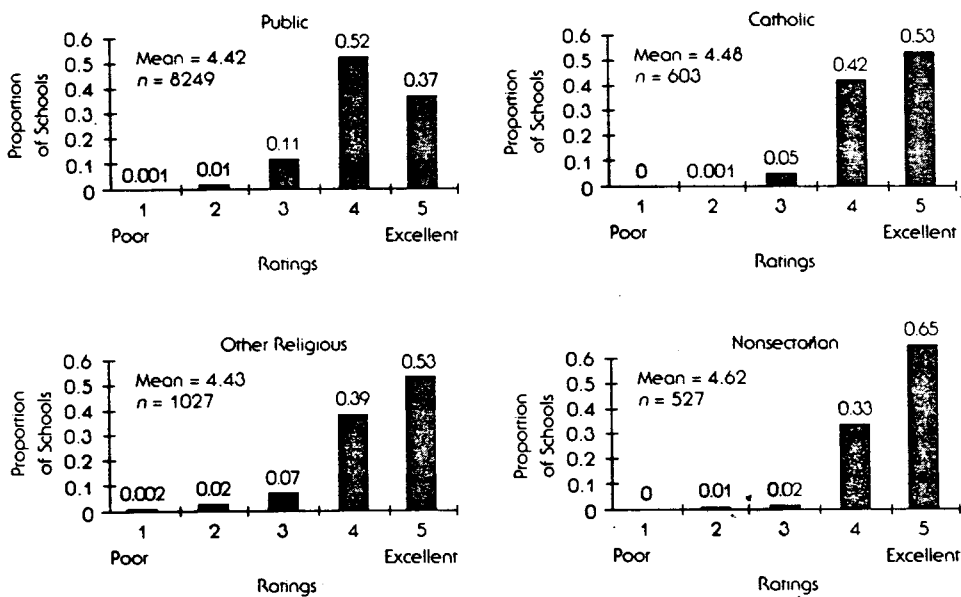


Figure 2. Experienced teacher ratings by school type.

other religious, and nonsectarian). The modal response is 4 in each category. The mean rating in public schools (3.89) is slightly higher than that in any of the three private schools, as is the proportion of schools in which principals rate their new teachers "excellent," but on the whole the histograms are similar across sectors.

A rather different picture emerges when principals' assessments of their experienced staffs are compared in the two sectors (see Figure 2). The public school mean rating (4.42) is now below all types of private schools. The proportion of private school heads who rate their experienced teachers excellent is dramatically higher than it is in the public sector—indeed, among the nonsectarian schools it is almost twice as great.

Figures 1 and 2 together suggest that private schools are able to recruit effectively, despite paying salaries substantially below those in the public sector. Moreover, while experienced teachers receive higher ratings than new teachers in all four categories, the difference is considerably larger in the private sector. This may reflect more selective retention and better staff development, because poor teachers either improve or face dismissal.

These conclusions are tentative, of course. It is necessary first to establish that principals' survey responses offer a meaningful basis for comparing teacher recruitment across sectors. For example, the apparent success of the private sector in recruiting staff may be due to personnel policies, or it may reflect features of the private school environment that attract teachers. As noted, one such feature is the practice of selective admissions, which assures private schools of comparatively well-motivated and disciplined student populations. Hence some controls are required for the character of a school's students and the community from which they are drawn.

For still more fundamental reasons, one might be skeptical about the information in these survey responses. First, it may be that school heads simply do not give sufficient consideration to the way they answer such items for the results to constitute meaningful measures of anything. This objection obtains some force from the fact that few principals give their experienced staffs ratings below the highest or next-highest levels. The essential question, however, is whether there is any useful information in the fact that a school's instructors were rated 4 as opposed to 5.⁴ On this point, the evidence presented later speaks clearly. Principals' evaluations of their staffs are systematically related to salaries and to school and community characteristics in ways one would expect. Such patterns make it highly unlikely that survey responses are merely random noise.

Second, principals' ratings may not furnish any information beyond that contained in salaries and school and community characteristics. Such ratings might have two underlying components: one that merely echoes inferences that could be drawn on the basis of public information, and one that is purely idiosyncratic, conveying nothing about teacher quality.

This view seems implausible. Principals have access to a great deal of information about their staffs—student performance on standardized tests (which principals will see), comments and complaints from parents and from

⁴ The problem is analogous to that posed by grade inflation in institutions of higher education. It is probably regrettable that C's and D's have virtually vanished from students' transcripts at many colleges and universities; nonetheless, the practices of many graduate schools and employers suggest that there is still useful information to be gleaned from the fact that a student received an A rather than a B.

other staff members, and the principal's own opportunities to observe and interact with the members of his or her staff—that researchers using the SASS are unable to tap in any way save through these ratings. Far from being poorly informed, principals are probably in a better position to assess the quality of their teaching staffs than anyone else. Indeed, studies of the academic performance of urban public elementary school students by Murnane [1975] and Armor et al. [1976] found principals' assessments of teacher quality to be strongly associated with student test gains even when the latter were unavailable at the time the assessment was made.

More recent evidence on this point is provided by the National Educational Longitudinal Survey (NELS-88). The NELS-88 followed students who were 8th graders in 1988 through the sophomore and senior years of high school (assuming regular promotion). Principals on the first follow-up survey, administered when most survey students were in the 10th grade, were asked to rate their teachers by indicating the percentages they would place in the following categories: poor, fair, good, and excellent. When these ratings are compared to scores on achievement tests administered in the NELS, 10th grade scores are found to be higher in schools with a higher proportion of "excellent" teachers, and lower in schools with a larger share of "poor" teachers.⁵ Moreover, this finding surely exhibits a severe downward bias. The teacher ratings were summary statistics applied to the school's teachers as a group, not to the subset who taught the NELS students. Intraschool variation in these ratings indicates that mismatches are the rule, not the exception. Thus, even in a school with a relatively high percentage of "poor" teachers, most of the tested students would have been assigned a teacher who was not, in fact, considered poor or even "fair." Such mismatches attenuate the observed relationship between teacher ratings and student performance. Despite this, ratings are significantly related to test scores, suggesting that principals' judgments are not merely idiosyncratic.

There will, of course, inevitably be a purely idiosyncratic component to these ratings. Some principals will be harder graders than others, assigning a "3" where another would rate the same teachers "4." The mere fact that ratings are subjective in this sense does not invalidate their use in intersectoral comparisons, because such purely subjective components will average out in the data. It is possible, however, that for some reason this "averaging out" systematically differs between public and private schools—private school heads as a group might assess their staffs by more lenient standards than public school principals.

Controls for sectoral bias, therefore, are used. Standards are regarded as free of *sectoral bias* if public and private school heads with similar characteristics would assign, on average, identical ratings to a given set of teachers working under given conditions. When teacher ratings are conditioned on an appropriate set of school, community, and principal characteristics, any remaining variation in the standards by which teachers are judged are taken to be the result of purely subjective factors, free of sectoral bias. Reasonable as this assumption seems to us, it is possible that systematic differences across sectors remain.⁶ This assumption is then relaxed, allowing for the possibility that private school

⁵ The analysis controls for students' prior achievement and school characteristics. Details are available from the authors.

⁶ For example, standards might be endogenous, conforming to the prevailing norms within the sector. Thus, the average private school head might be appalled to see what passes for "good" teaching in the public sector. Or vice versa, if norms are higher in the public sector.

teachers are on the whole measured against less exacting criteria than are instructors in the public sector. This assumption, however, does not render all comparisons across sectors invalid. The fact that two ratings are received from every school head (one for the school's experienced staff, one for the beginning teachers) permits us to control for the impact of this sector-specific "fixed effect" on survey responses. Thus, even in this case, intersectoral comparisons remain a valid way to assess the adequacy of the tools available to school administrators to build effective instructional staffs.

ECONOMETRIC MODEL: DETERMINANTS OF TEACHER RATINGS

For the analysis that follows, a principal's rating of his or her staff is assumed to be based on an underlying or latent evaluation of teacher quality that varies continuously.⁷ Changes in the observed ratings are triggered when this continuous assessment crosses certain thresholds. Let q_{in} denote the latent assessment of new teachers in the i -th school, q_{ie} the assessment of experienced staff. These latent assessments are related to characteristics of the school (S_i), particularly the mix of salary and working conditions offered to employees. Schools offering higher pay or a more attractive teaching environment, other things being equal, should succeed in attracting superior staff. Characteristics of the school may also influence the criteria by which teachers are assessed. Numerous items from the SASS are included in the model for one or both of these reasons. Among them are school size, the ratio of teachers to students, the type of program provided by the school (for example, general education, vocational education, alternative education, special education, and special emphasis in science or the arts), location (region and urbanicity), the percentage of minority students, and the principal's assessment of the severity of student behavioral problems at the school.⁸

A school's success in attracting good teachers also depends on local labor market conditions (M_i). Variation in these background factors is picked up through indicators of region and of the type and size of the community, and through cost-of-living indices [McMahon and Chang, 1991].⁹ In addition, the principal's own characteristics (P_i) may influence both recruitment policies and the evaluative criteria applied to staff. (These include statements of educational goals as well as demographic variables and measures of education and experience.) Three goals are distinguished, depending on which of several objectives the principal selects as the top priority for his or her school: academic achievement, moral or religious education, and others.

The latent quality assessment is represented as a linear function of these variables plus a residual. Thus, the quality of new teachers satisfies:

⁷ Throughout, the phrase "teacher quality" refers to the quality of the staff as perceived by the principal. No claim is made that this assessment would be shared by an ideal observer, whoever that might be.

⁸ One commonly used proxy for students' SES, namely the percentage of the student body eligible for free or reduced-price lunch, is omitted because this item was not included on the private school surveys.

⁹ Two indices are available for each state, one for metropolitan areas (population between 50,000 and 1.5 million) and one for nonmetropolitan areas.

$$q_{im} = S_i \beta_{m1} + M_i \beta_{m2} + P_i \beta_{m3} + \delta_i \alpha_m + \epsilon_{im} \quad (1)$$

with an analogous expression for q_{ie} . The residual component of quality equals $\delta_i \alpha + \epsilon_{im}$, where α is a vector of sector-specific effects (public, Catholic, other private religious, and private nonsectarian), δ_i a vector of indicator variables picking out the sector to which school i belongs, and ϵ_{im} an error term. We assume α is free of sectoral bias: that is, differences in the elements of α represent variation in teacher quality that administrators in all sectors would, on average, recognize. If teacher quality does not vary across sectors given S , M , and P , the elements of α will, of course, be equal to a common population mean. Our hypothesis is that key features of the environment in which private schools function—freedom from bureaucratic control, reduced state regulation, nonunionized workforces—will cause significant differences in the elements of α , even after one has taken account of school, market, and principal characteristics.

An observed rating is triggered when the latent continuous assessment exceeds a particular threshold. Let t_j ($j = 1, 4$) denote the four thresholds against which q_{ie} and q_{im} are measured.¹⁰ For example, new teachers are rated "1" when $q_{im} < t_1$, and rated "2" when $t_1 < q_{im} < t_2$. On the assumption that the error ϵ_{im} is an i.i.d. logistic disturbance with mean zero and unit variance, the parameters β_1 , β_2 , and β_3 can be estimated by maximum likelihood methods.¹¹

Maximum likelihood estimates of the resulting logistic regression model are reported in Tables 1 and 2. The coefficients represent the contribution of the independent variables to the underlying, latent assessment of teacher quality. Because the model contains a constant term (not shown), only differences in the α s are reported. Three variants of the model are exhibited in each table. The first contains indicators of sector only. In model 2 elements of S , M , and P , except for measures of salary, are added. Two measures of teacher salary and the cost of living index enter model 3. The salary variables are the pay offered inexperienced teachers with a bachelor of arts (BA) and the pay offered teachers with a master's (MA) degree and 20 years' experience.

Sample means are reported for the independent variables in the first column of each table. These means are taken from the sample used to estimate model 2. Missing values for some of the variables in S , M , and P reduce this sample relative to that for model 1. Still more observations are lost when teacher pay is added to the equation (model 3). Schools that do not determine salaries according to a schedule did not respond to this item on the survey. Because the latter are concentrated among the non-Catholic private schools, the character of the sample changes, indicating that some caution may be warranted in comparing coefficients across the last two columns.¹²

¹⁰ It might be thought that the t_j also varies across schools, depending on whether a given principal is a "hard" or "easy" grader. However, there is no gain in generality from introducing school-level thresholds t_{ij} , where t_{ij} differs from the population mean t_j either by virtue of a shift in the scale or as a function of S_i . This is because such components of t_{ij} can be absorbed into q_{im} , given that both the thresholds and the quality assessment are unobserved. Intuitively, it is immaterial whether we think of variation in ratings as the result of an upward shift in the latent assessment or a downward shift in the grading scale.

¹¹ The unit variance assumption is a normalization based on the fact that neither latent quality assessments nor thresholds are directly observed [Greene, 1993, pp. 672–676].

¹² Nonetheless, when model 2 is reestimated using the restricted sample of column three, results are obtained that are quite similar to those reported.

Table 1. Ordered logit coefficients (dependent variable = new teacher quality Ratings).

	Sample means	Model		
		(1)	(2)	(3)
School type				
Public	0.793	—	—	—
Catholic	0.057	-0.100 (0.078)	-0.349*** (0.097)	0.015 (0.116)
Other religious	0.099	-0.091 (0.061)	-0.321*** (0.083)	-0.031 (0.108)
Nonreligious	0.051	-0.005 (0.083)	-0.139 (0.096)	-0.026 (0.129)
School characteristics				
Total students/100	5.33	—	0.020***	0.013**
Level = elementary	0.493	—	0.294***	0.259***
Level = secondary (omitted = combined)	0.375	—	-0.144**	-0.153**
Number of teachers/ number of students	0.076	—	0.169	0.068
Black + Hispanic students/ total enrollment	0.193	—	-0.737***	-0.785***
Serious or moderate problems				
Weapons	0.020	—	0.129	0.090
Disrespect for teachers	0.163	—	-0.229***	-0.245***
Physical or verbal abuse of teachers	0.101	—	-0.199***	-0.215***
Drugs or alcohol use by students	0.243	—	-0.197***	-0.184***
Type of program (omitted=regular)				
Special emphasis	0.035	—	0.010	0.025
Special education	0.032	—	0.079	0.078
Vocational	0.019	—	-0.081	-0.093
Alternative	0.019	—	0.070	0.055
Type of community (omitted=rural)				
Large central city	0.108	—	0.124	-0.012
Medium central city	0.157	—	0.286***	0.271***
Suburb	0.222	—	0.363***	0.312***
Large town	0.027	—	0.374***	0.396***
Small town	0.229	—	0.159***	0.152***
Region (omitted = West)				
Northeast	0.182	—	0.045	-0.120*
Midwest	0.256	—	0.166***	0.173***
South	0.337	—	0.008	0.067
Principal characteristics				
Age	47.9	—	0.005*	0.005
Years principal at current school	5.7	—	0.013***	0.014***
Years principal at other schools	3.5	—	-0.005	-0.005
Male	0.719	—	-0.014	-0.003
Black	0.068	—	-0.355***	-0.342***
Hispanic	0.028	—	-0.020	-0.004
Advanced degree above (education specialist, Phd, EdD)	0.358	—	0.038	0.021
Principal has major role in hiring	0.855	—	0.447***	0.451***
Most important educational goal				
Academic excellence	0.240	—	0.087*	0.071
Values/human relations	0.103	—	0.041	0.082

(continued)

Table 1 (cont'd). Ordered logit coefficients (dependent variable = new teacher quality Ratings).

	Sample means	Model		
		(1)	(2)	(3)
Teacher pay/1000 ^a				
Starting pay (BA experience = 0)	19.7	—	—	0.019*
MA and experience = 20	32.7	—	—	0.022***
Cost of living	100.5	—	—	-0.010***
Sample size	10,406	10,878	10,406	9237

Note: Standard errors are in parentheses.

^aFor schools that pay according to a salary schedule ($n = 9237$).

*Statistically significant at the 10 percent level.

**Statistically significant at the 5 percent level.

***Statistically significant at the 1 percent level.

The sector coefficients in Table 1, column one, show that ratings of new teachers are slightly lower in each type of private school than they are in the public sector. However, the differences are small and none are significant statistically. We argued earlier that the ability of private schools to recruit on more or less equal terms with the public schools reflects the balancing of superior working conditions against lower pay. This conjecture receives strong support from the estimates in Table 1. When school, community, and principal characteristics are added to the model, the coefficients on the sector indicators fall (column two). Thus, in public and private schools that offer similar working conditions and levels of job satisfaction, public schools have a significant advantage in recruiting teachers. The source of this advantage is revealed in turn when pay is added to the model, as the differences between sectors are once again small and insignificant (column three).

With one surprising exception (weapons), student behavioral problems have significantly negative impacts on teacher ratings, as do other variables associated with poverty and illiteracy (share of minority students, urban location). Because these problems tend to occur together, their cumulative impact on teacher ratings is substantial. Elementary school teachers receive higher ratings than do secondary school teachers, perhaps an indication that the demands and stresses of high school teaching pose more difficult adjustments than those required of new instructors in the primary grades. Not surprisingly, principals who are able to choose their staffs give their teachers significantly higher marks. Ratings also rise with the tenure of the principal at the school. Tenure may signal a good match between the principal and the school/community, or it may simply reflect that the longer a principal has been at the school, the more staff members he or she is likely to have participated in hiring.

Estimates for experienced teachers are presented in Table 2. The sector coefficients are large and positive—as noted earlier, experienced teachers in private schools receive significantly higher ratings than their counterparts in the public sector. The differences remain large even when working conditions and pay are added to the model. The pattern observed in Table 1 is replicated only in part—sector coefficients fall from model 1 to model 2, but they do not

Table 2. Ordered logit coefficients (dependent variable = experienced teacher quality ratings).

	Sample means	(1)	Model (2)	(3)
<hr/>				
School type				
Public	0.793			
Catholic	0.057	0.714*** (0.083)	0.507*** (0.104)	0.452*** (0.124)
Other religious	0.099	0.815*** (0.065)	0.607*** (0.089)	0.548*** (0.115)
Nonreligious	0.051	1.148*** (0.093)	0.844*** (0.107)	0.794*** (0.143)
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School characteristics				
Total students/100	5.33	—	0.004	0.005
Level = elementary	0.493	—	0.216***	0.171**
Level = secondary (omitted = combined)	0.375	—	0.036	0.002
Number of teachers/ number of students	0.076	—	1.348**	1.072
Black + Hispanic students/ total enrollment	0.193	—	-0.559***	-0.566***
Serious or moderate problems at school				
Weapons	0.020	—	0.119	0.089
Disrespect for teachers	0.163	—	-0.488***	-0.470***
Physical or verbal abuse of teachers	0.101	—	-0.199**	-0.225***
Drugs or alcohol use by students	0.243	—	-0.206***	-0.187***
Type of program (omitted = regular)				
Special emphasis	0.035	—	0.278**	0.226*
Special education	0.032	—	0.438***	0.515***
Vocational	0.019	—	0.168	0.209
Alternative	0.019	—	0.443***	0.474***
Type of community (omitted = rural)				
Large central city	0.108	—	0.039	0.093
Medium central city	0.157	—	0.022	0.021
Suburb	0.222	—	0.126**	0.164**
Large town	0.027	—	0.196	0.219
Small town	0.229	—	0.003	0.000
Region (omitted = West)				
Northeast	0.166	—	-0.144**	-0.122*
Midwest	0.257	—	-0.015	-0.050
South	0.342	—	0.181***	0.224***
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Principal characteristics				
Age	47.9	—	0.014***	0.015***
Years principal at current school	5.7	—	0.039***	0.040***
Years principal at other schools	3.5	—	-0.012***	-0.009**
Male	0.719	—	-0.176***	-0.159***
Black	0.068	—	-0.121	-0.128
Hispanic	0.028	—	0.345***	0.371***
Advanced degree above MA (education specialist, Phd, EdD)	0.358	—	-0.063	-0.089**
Principal has major role in hiring	0.855	—	0.389***	0.405***
Most important educational goal				
Academic excellence	0.240	—	0.164***	0.167***
Values/human relations	0.103	—	0.121	0.124

(continued)

Table 2 (cont'd). Ordered logit coefficients (dependent variable = experienced teacher quality ratings).

	Sample means	Model		
		(1)	(2)	(3)
Teacher pay/1000*				
Starting pay (BA, experience = 0)	19.7	—	—	-0.056***
MA and experience = 20	32.7	—	—	0.020***
Cost of living	100.5	—	—	-0.002
Sample size	10,406	10,878	10,406	9237

Note: Standard errors are in parenthesis.

*For schools that pay according to a salary schedule ($n = 9237$).

*Statistically significant at the 10 percent level.

**Statistically significant at the 5 percent level.

***Statistically significant at the 1 percent level.

rise again in model 3 when salary is added to the equation. Indeed, they continue to fall, though the difference is not statistically significant. The reason is the ambiguous relation between pay and teacher quality in this equation. While the coefficient on experienced teacher pay (MA, 20 years experience) is positive, as expected, the coefficient on starting pay has the opposite sign and is larger in magnitude. It is difficult to know what to make of this pattern, though one possible explanation is that school systems (or states) have responded to unacceptably low levels of performance by raising pay in districts where past recruitment has suffered.

Most of the remaining coefficients are of the same sign and approximate magnitude as the estimates in Table 1. On the whole, the inclusion of controls for working conditions and pay has done nothing to overturn the tentative conclusions based on Figures 1 and 2. New teacher ratings are approximately the same in both the public and private sectors, while the latter's experienced staff are given significantly higher ratings by their supervisors. Because these differences are derived from residual variations in ratings, controlling for numerous school and community characteristics, it is unlikely that they can be explained simply as a result of student affluence or the comparative absence of discipline problems in most private schools.

CONTROLLING FOR SECTORAL BIAS

Interpretation of the results in Table 2 rested on the assumption that there was no sectoral bias in the standards by which teachers are judged. Suppose, however, that sector effects are respecified as $\alpha + \mu$. The term μ represents sectoral bias, unobserved components of q_i which depend on the sector of origin of the evaluator. (As before, both α and μ are residual components of the quality assessment conditional on S_i , M_i , and P_i .) Because neither α nor μ alone, but only the sum, is identified, it is no longer possible to determine whether estimated sector coefficients measure differences in teacher performance

recognized in all sectors, or whether they reflect variation in the standards prevailing in different sectors.

The inconclusiveness is overstated, however. If α differs between new and experienced teachers, while μ does not, it is possible to estimate the difference $\alpha_e - \alpha_n$ by exploiting the fact that each administrator is observed twice. Precisely this specification is suggested by the pattern displayed in Figures 1 and 2. Although the ratings of experienced teachers exceed those of new teachers in all types of schools, the gap varies across sectors, being widest among the private nonsectarian schools, smallest in the public sector. It is reasonable to suppose that this gap represents a genuine difference in quality (again, as perceived by the principal), because it is unlikely that an administrator would apply inconsistent criteria in evaluating two groups of teachers within the same school.¹³

This would be of little value if $\alpha_e - \alpha_n$ held no policy interest. However, the opposite is true. Given that teachers learn on the job, it is probably to be expected that experienced teachers will receive higher ratings. When the reverse occurs, it is a sign that the school is failing to retain many of the best new teachers and to improve the performance of those who stay. Similarly, the more often experienced teachers are rated above new teachers, the more likely it is that some deliberate policy, either selective retention or staff development, is a contributing factor.

To keep the analysis tractable, the ratings given teachers are collapsed to a two-point scale: less than excellent and excellent. Let y_{im} (y_{ie}) = 1 if new (experienced) teachers in school i are rated excellent, 0 otherwise. The possible outcomes for the ordered pair (y_{im}, y_{ie}) are the set $\{(0,0), (0,1), (1,0), \text{ and } (1,1)\}$. The model of the latent quality assessment is amended to

$$q_{ie} = S_i \beta_{e1} + M_i \beta_{e2} + P_i \beta_{e3} + \delta_i \alpha_e + \epsilon_{ie} \quad (2)$$

$$q_{im} = S_i \beta_{n1} + M_i \beta_{n2} + P_i \beta_{n3} + \delta_i \mu + \epsilon_{im} \quad (3)$$

While $\delta_i \mu$ appears in both equations, by conditioning on the sum $y_{im} + y_{ie}$, it is possible to remove these nuisance parameters from expressions for $\text{Prob}(y_{im}, y_{ie})$. This is a straightforward application of Chamberlain's fixed-effects logit estimator for panel data [Chamberlain, 1980]. On the assumption that ϵ_{im} and ϵ_{ie} are independent, logistic disturbances, the probability of the event $(y_{im}, y_{ie}) = (1,0)$, conditional on $y_{im} + y_{ie} = 1$, is:

$$\exp(Z_i \pi_e - Z_i \pi_n) / (1 + \exp(Z_i \pi_e - Z_i \pi_n)) \quad (4)$$

where $Z_i \pi_e = (S_i \beta_{e1} + M_i \beta_{e2} + P_i \beta_{e3} + \delta_i \alpha_e)$ and $Z_i \pi_n = (S_i \beta_{n1} + M_i \beta_{n2} + P_i \beta_{n3} + \delta_i \alpha_n)$.¹⁴ It follows from equation (4) that:

¹³ Even this is a stronger assumption than we actually require. Inconsistencies of this sort can exist, provided that there is no systematic difference across sectors in the extent to which school heads judge their experienced and new teachers by distinct standards. It is hard to think of compelling arguments against this assumption.

¹⁴ The assumption that ϵ_{ie} is independent of ϵ_{im} seems strong, but it can be easily relaxed by admitting a school effect common to both equations. This error component is differenced out in the same manner as the $\delta_i \mu$.

$$\text{Prob}(y_{in} = 0, y_{ie} = 1 | y_{in} + y_{ie} = 1) = 1/(1 + \exp(Z_i \pi_n - Z_i \pi_e)) \quad (5)$$

Parameter estimates can be obtained by maximizing the conditional likelihood function. The inverse information matrix provides a consistent estimator of the asymptotic covariance matrix. Because the events (0,0) and (1,1) necessarily occur with probability 1 when conditioned on $y_{in} + y_{ie}$, the value of the likelihood function is not affected by observations in which new and experienced teachers receive the same rating. Note also that only those elements of S , M , and P which have a differential impact on quality of new and experienced teachers ($\pi_e \neq \pi_n$) will affect the outcome.

Estimates are presented in Table 3. (We report only those coefficients that are statistically significant in at least one column.) A positive coefficient increases the probability that experienced teachers will be rated above new teachers. In all three formulations of the model, this outcome is more likely in the private sector. Although adding controls for working conditions and salary reduce the magnitude of the effect, it remains strong and statistically significant (though only at 10 percent for parochial schools in model 3). Sample sizes are, of course, considerably smaller than in Tables 1 and 2, because observations in which experienced and new teachers receive the same rating are not used for estimation. For this reason, it is wise not to press comparisons with Tables 1 and 2. Nonetheless, we find (as expected) that most covariates have an insignificant effect on the dependent variable, because they influence the quality of new and experienced teachers by roughly the same amount.

IS THE PRIVATE SCHOOL ADVANTAGE AN ARTIFACT OF THE DATA OR ANALYSIS?

The foregoing analysis suggests that private schools enjoy some significant advantages in building effective instructional teams. New teachers in private schools receive about the same ratings as new public school instructors. Experienced teachers are rated significantly higher. The differences are only partly explained by salary levels and by school and community characteristics affecting the working environment, in that private schools retain a significant advantage when these variables are factored in. Even if we suppose that private school heads judge their staffs by more lenient standards, so that comparisons of absolute quality cannot be made across sectors, it remains the case that experienced teachers in private schools receive higher ratings, relative to the quality of the beginning workforce, than do experienced teachers in the public sector. Whatever the absolute quality of the initial workforce, then, private schools appear to do a better job of retaining superior instructors and developing the talents of their staffs.

Because these conclusions may be disputed, we begin this discussion by considering three alternative readings of the evidence. These center on the presence of cohort effects, the implications of high turnover in the private sector, and the adequacy of our controls for the different working conditions that prevail in public and private schools. We take up these arguments in turn.

Our comparison of experienced to new teachers has implicitly relied on a steady-state assumption, namely, that when today's experienced teachers started their careers they resembled today's beginning teachers. If this assumption is violated, the gap between the ratings given new and experienced teachers may reflect differences in the initial quality of the two groups—that is, cohort effects.

Table 3. Selected logit coefficients^a (dependent variable = joint experienced/new teacher quality ratings).

		Model		
	Sample means	(1)	(2)	(3)
<hr/>				
School type				
Public	0.740	_____	_____	_____
Catholic	0.071	1.150*** (0.212)	1.053*** (0.250)	0.538* (0.292)
Other religious	0.126	1.298*** (0.171)	1.197*** (0.218)	0.628** (0.264)
Nonreligious	0.067	1.830*** (0.289)	1.545*** (0.312)	1.010*** (0.362)
<hr/>				
School characteristics				
Total students/100	5.09	_____	_____	_____
Level = elementary	0.498	_____	_____	_____
Level = secondary (omitted = combined)	0.359	_____	_____	_____
Number of teachers/ number of students	0.079	_____	_____	_____
Black + Hispanic students/ total enrollment	0.184	_____	_____	_____
Serious or moderate problems at school				
Weapons	0.015	_____	_____	_____
Disrespect for teachers	0.134	_____	-0.473***	-0.433***
Physical or verbal abuse of teachers	0.085	_____	_____	_____
Drugs or alcohol use by students	0.221	_____	_____	_____
Type of program (omitted = regular)				
Special emphasis	0.040	_____	_____	_____
Special education	0.038	_____	0.650*	0.759*
Vocational	0.014	_____	0.773*	0.884*
Alternative	0.024	_____	_____	_____
Type of community (omitted = rural)				
Large central city	0.111	_____	0.552**	0.552**
Medium central city	0.155	_____	-0.256**	-0.256*
Suburb	0.238	_____	-0.239*	-0.239*
Large town	0.029	_____	_____	_____
Small town	0.220	_____	_____	_____
Region (omitted = West)				
Northeast	0.182	_____	_____	_____
Midwest	0.256	_____	_____	_____
South	0.337	_____	0.520***	0.526***
<hr/>				
Principal characteristics				
Age	47.9	_____	0.016**	0.018**
Years principal at current school	6.1	_____	0.037***	0.035***
Years principal at other schools	3.3	_____	_____	_____
Male	0.695	_____	-0.256**	-0.204***
Black	0.064	_____	_____	_____
Hispanic	0.033	_____	0.627**	0.652**
Advanced degree above MA (education specialist, Phd, EdD)	0.352	_____	-0.160*	-0.160*
Principal has major role in hiring	0.886	_____	_____	_____
Most important educational goal				
Academic excellence	0.251	_____	_____	_____
Values/human relations	0.118	_____	_____	_____

(continued)

Table 3 (cont'd). Selected logit coefficients^a (dependent variable = joint experienced/new teacher quality ratings).

	Sample means	Model		
		(1)	(2)	(3)
Teacher pay/1000 ^b				
Starting pay (BA, experience = 0)	19.3	_____	_____	-0.101***
MA and experience = 20	32.3	_____	_____	_____
Cost of living	100.6	_____	_____	_____
Sample size	3525	3688	3525	3121

Note: Standard errors are in parenthesis.

^aStatistically insignificant differences not reported.

^bFor schools that pay according to a salary schedule ($n = 3121$).

*Statistically significant at the 10 percent level.

**Statistically significant at the 5 percent level.

***Statistically significant at the 1 percent level.

Note that cohort effects are an issue only in the interpretation of the estimates in Table 3. They pose no problems for the interpretation of Tables 1 and 2, where we compare new to new, experienced to experienced. The trouble arises when, to avoid sectoral bias, we restrict inferences to the difference in ratings given new and experienced staff (Table 3). To see how cohort effects can lead us astray, suppose that today's experienced teachers were simply better as new teachers than those who are entering the profession now. This hypothesis is, of course, consistent with the widely held view that teacher quality has exhibited a long-term secular decline resulting from such factors as the expansion of employment opportunities for women and mounting behavioral problems in the schools. This affects in turn our understanding of what differences in ratings mean. Far from indicating that private schools do a better job of retaining the best teachers, large coefficients on the private school variables in Table 3 might, under this analysis, imply that the public sector has been comparatively *more* successful in recruiting new staff, at least in recent years.

Despite its superficial plausibility, this account is inconsistent with a broader set of data. First, if the secular decline hypothesis were correct, one would expect teacher ratings to vary positively with the age and experience of the workforce. We found no evidence for this in the SASS data.¹⁵ To test the hypothesis that more recent changes have affected the quality of teachers hired just prior to the survey, we introduced into the model the proportional change in teacher salaries (at the state level) over the period 1980–1990. This did not appear to explain the differences in ratings across sectors: Indeed, the sector coefficients actually increased and remained strongly significant.

A second objection to our findings concerns teacher turnover. Although the quality of experienced teachers relative to new teachers is higher in the private sector, turnover is also higher in private schools.¹⁶ Higher turnover in the private

¹⁵ A detailed set of econometric results exploring cohort effects is in a longer version of this article available upon request from the authors.

¹⁶ School-level teacher turnover rates in the year prior to the 1990–1991 SASS were 8.7 percent in public schools, and 14.5, 17.7, and 13.2 percent in Catholic, other religious, and secular schools, respectively [Choy et al., 1992].

sector means private schools employ many more beginning teachers relative to their size. Even if their experienced teachers outperform those in the public sector, the outcome as a whole may be inferior to that achieved in public schools, because the latter retain so many more of their experienced staff. Thus, the average quality of the entire workforce in the public schools may well be greater. Can we conclude that private schools are pursuing a more effective policy without taking turnover into account?

Additional econometric analysis indicates that the private sector advantage remains even when we condition on the experience profile of the teaching workforce in a school. Moreover, while it is true that turnover is higher in private schools, it is surely the case that at least some of the difference is due to lower pay and benefits.¹⁷ Our results indicate that, controlling for the level of pay, the personnel policies of private schools are more successful than those in the public sector. If private schools paid what the public schools do, they would perform better still.

Finally, it is possible that the controls for school and community characteristics are inadequate. Indeed, the controls themselves are suspect when based on principals' evaluations of student conduct, because these assessments may suffer from the same kind of sectoral bias discussed earlier. Thus, a problem termed "moderately serious" by a typical public school principal might strike a private school head as "very serious" if standards of conduct are endogenous to the sector.

To test this hypothesis, the model was reestimated, using only those public schools judged to be most nearly like private schools with respect to clientele and academic mission. Three separate tests were performed: (1) with only public schools in suburban locations; (2) with only public schools located in districts with strong academic requirements for graduation (at least four years of English and three years of mathematics); and (3) with only public schools in which the percentage of high school seniors who apply to college is above the sample mean (54 percent).

The results show that sectoral gaps are similar to those reported in Tables 1 and 2; in fact, the point estimates are generally larger (though not significantly so). We conclude that our earlier estimates did not suffer from failure to control adequately for working conditions. Rather, private schools appear to enjoy advantages with respect to teacher recruitment and retention that are not available to even the most favorably situated public schools.

In sum, a comparison of teacher ratings in public and private schools indicates that administrators in the latter are better pleased with the performance of their staffs despite paying salaries 35 percent below those in the public sector. Although new teachers are rated about the same in both types of schools, experienced teachers in private schools receive significantly higher marks. This difference remains even after controls for background information about the school and community and for the principal's characteristics and educational priorities are introduced. The possibility does exist that private school teachers are judged by more lenient standards than teachers in the public schools. Even so, valid inferences can still be drawn from the difference in ratings given

¹⁷ Data from the 1989 and 1992 Teacher Follow-Up Surveys show that private school teachers who leave their teaching jobs are more likely to cite low pay as a reason than are public school teachers [Bobbitt, Faupel, and Burns, 1994].

experienced and new instructors within each sector. This evidence indicates that private schools are pursuing more successful policies with respect to the retention of superior teachers and staff development.

SOURCES OF THE PRIVATE SCHOOL ADVANTAGE

The argument to this point has been principally negative. Because the pattern in Figures 1 and 2 cannot be explained as a function of school or community characteristics, the comparative success of the private sector in recruiting and retaining good teachers would appear to result from more effective personnel policies. If so, this may support the claim made by proponents of bottom-up education reform, that when schools are freed from regulation and bureaucratic oversight and placed in a competitive marketplace, superior policies and practices emerge. There is positive evidence supporting this conclusion. There are private school advantages in each of the following areas: (1) pay flexibility; (2) recruitment of noncertified teachers; (3) staff development through in-service programs and informal mentoring; and (4) authority to dismiss poor teachers.

Pay Flexibility

In public school systems, teacher pay is almost universally determined by salary schedules as a function of a teacher's experience and educational credentials, with few if any differentials by teaching field, school conditions, effort, or performance. Although there has been some effort in recent years to introduce various types of merit pay into public school compensation, these efforts have met strong resistance from teacher unions. Merit pay plans that have been adopted are frequently transformed into arrangements to provide extra pay for extra work rather than superior classroom performance [Murnane and Cohen, 1986; Cornett and Gaines, 1994].

Evidence from the SASS suggests that pay structures in private schools are far less rigid. Only 65 percent of non-Catholic religious schools and 52 percent of nonreligious schools report that they use salary schedules to determine compensation. Among those that do, the typical schedule variables (experience and education) have considerably less predictive power than in the public sector. Because private schools are more heterogeneous than public schools, greater variation is to be expected. However, this statement remains true even when controls are added for the level of pay within the school.

Table 4 presents results from several wage regressions using samples of full-time teachers from the SASS.¹⁸ Annual pay was regressed on the teacher's highest degree and years of experience, as well as three variables measuring the overall level of the salary schedule in the school (district), plus starting pay at the master's level. Because these regression equations include these variables from the salary schedule, these regressions explain a high proportion of the variance in the salaries of public school teachers. However, they perform more poorly in explaining private sector pay. Indeed, the estimated regression variance among non-Catholic private schools is twice that among public school teachers. The

¹⁸ Only married teachers were used in the Catholic school sample in order to exclude members of religious orders whose salaries are often far below market levels.

Table 4. Estimated earnings equations in public and private schools: Summary statistics* (dependent variable = \ln (annual base pay)).

	Estimated regression variance	R^2	Sample size
Public			
unadjusted	0.022	0.734	38,299
adjusted for clustering ^b	0.023	0.725	38,299
Catholic (married)	0.027	0.683	934
Other religious	0.055	0.580	1,685
Nonreligious	0.050	0.584	543

*Sample = full-time teachers. These are summary statistics from a regression of \ln (base pay) on: educational credentials (MA, education specialist, EdD/PhD), tenure at school, full-time teaching experience in public and private schools, scheduled starting pay at school for BA (experience = 0), scheduled pay for MA with experience = 20. In addition, private school model included separate indicators for receipt of: housing or housing expenses, meals, child care, and tuition for children.

^bThese estimates adjust for repeated observations in the same school district in the public school sample. Weights are constructed so that the weighted mean observations per school district in the public school sample equal mean observations per school in the private school sample.

fact that schedule variables are less informative about the compensation of private school faculty suggests that unobserved factors (for example, individual merit) play a greater role in determining salaries.¹⁹ The evidence, of course, is indirect. However, the competitive pressures faced by private schools create a presumption that systematic differences in compensation have an economic explanation. Pay differentials that are unrelated to teaching quality lack a clear economic rationale.

Recruitment of Noncertified Teachers

In most states, private schools are free to recruit teachers who lack state certification. The SASS responses show that they make use of this freedom. In Table 5 we present a breakdown of staff according to certification status in public and private sectors. In every type of private school and at every level there is greater use of personnel who lack state certification in their primary subject assignments. Indeed, in nonsectarian secondary schools, instructors are more likely to lack certification than to have it.

¹⁹ The residual disturbance also includes errors in approximating salary schedules in actual use. This creates another explanation for the difference in regression variances, stemming from the fact that the SASS often surveys several schools from the same public school district. Because private schools are independent entities or belong to much smaller parish districts, the number of private school teachers covered by any one schedule is typically much smaller. This feature of the sample design might account for our findings, if one source of the residual disturbance is a district (literally, schedule) random effect. To remove this influence from our estimates of the regression variance, we reweighted observations so that a given public school salary schedule would be represented in the sample neither more nor less often, on average, than a given private school schedule. As shown in the second row of Table 4, reweighting to adjust for clustered sampling has virtually no effect on regression variances.

Table 5. Teachers certified in primary teaching field as a percentage of all teachers.

	Public school teachers	Private school teachers		
		Catholic	Other religious	Nonreligious
All teachers	95.7	75.2	54.1	61.5
Elementary	96.5	77.2	53.8	64.6
Secondary	94.8	69.9	55.1	36.7

*Source: The 1987–1988 Schools and Staffing Survey (SASS). Sample restricted to teachers in states that do not require that private school teachers be certified.

The fact that private schools prefer to hire a noncertified instructor rather than the best available certified applicant is probably sufficient evidence that this option is valuable to them. However, because some states require private schools to employ certified instructors, it is possible to go further. Thus, we reestimate the model, interacting private school status with a second binary variable indicating that the school was located in such a state. In every set of estimates, required certification entered with a negative sign (though the difference was not statistically significant in the new teacher equations). The coefficient in the experienced model was -0.24, with or without salary variables in the equation.²⁰ To the extent that private schools are constrained by this regulation, the effect is to reduce principals' satisfaction with the quality of their faculties. In fact, this coefficient almost certainly understates the cost of restricting hiring to certified applicants, because even in those states where certification is nominally required, compliance is far from universal. Based on responses to the 1987–1988 SASS, 22 percent of private school teachers in the states in question lacked certification. It is therefore reasonable to conclude that stricter enforcement of this regulation would yield a coefficient of larger absolute magnitude.

Staff Development through In-Service Training and Mentoring

It is also possible that private schools do more to develop the skills of their teachers. Items on the teacher components of the 1990–1991 SASS furnish evidence on this point. The 1990–1991 SASS contained a series of questions concerning the assistance provided new teachers in four areas: student discipline, instructional methods, curriculum, and adjusting to the school environment. We have regressed teachers' responses to these questions on an indicator variable for school sector, and control variables for school level and teacher demographics. The sector coefficients are reported in Table 6. In all four areas, teachers at private schools report significantly *more* assistance for new hires. In other regressions (not reported) we find that inexperienced private school

²⁰ Coefficients on the sector indicators rose slightly, as one would expect: The fact that private schools in some states are subject to this regulation depresses mean ratings, an effect that becomes apparent when an index of regulation enters the model explicitly.

Table 6. Assistance for new teachers in public and private schools.

Variable	(1) Student discipline	(2) Instructional methods	(3) Curriculum	(4) Adjusting to the school environment
Dependent variable mean	2.12 (0.93)	2.13 (0.88)	2.04 (0.76)	1.99 (0.74)
Public				
Catholic	-0.278*** (0.021)	-0.181*** (0.020)	-0.252*** (0.017)	-0.268*** (0.019)
Other religious	-0.303*** (0.018)	-0.138*** (0.017)	-0.227*** (0.026)	-0.279*** (0.017)
Nonreligious	-0.173*** (0.028)	-0.087*** (0.026)	-0.107*** (0.009)	-0.159*** (0.025)
Sample size	53,347	53,347	53,347	53,347

Note: The question posed to teachers was as follows: "Indicate whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree that this school is effective in assisting new teachers in each of the following matters: student discipline, instructional methods, curriculum, and adjusting to the school environment" (1 = strongly agree ... 4 = strongly disagree). Standard errors are in parentheses.

*OLS estimates. Other regressors not shown: male teacher, black teacher, secondary school indicator, years tenure at the school.

*** Statistically significant at the 1 percent level.

teachers also report more cooperative relationships with other staff than do new instructors in public schools. Thus, the SASS data clearly suggest that less experienced teachers receive more help and on-the-job training in the private sector.

Authority to Dismiss Poor Teachers

Although neither the SASS nor the 1989 Teacher Follow-Up Survey indicates how many teachers were dismissed for unsatisfactory performance, other data show that the number of public school teachers who lose their jobs for incompetence is exceedingly small. Collectively bargained grievance procedures and state regulations make it extremely difficult for administrators to remove instructors whose performance is unsatisfactory. Theobald [1990] reviews employment records for all public school teachers in Washington State between 1984 and 1987 and finds only 42 teachers whose contracts were officially terminated. This is consistent with statistics from other states. Fewer than 0.6 percent of the teachers in 141 California districts surveyed in 1982-1984 were dismissed for incompetence [Bridges, 1986]. Between 1986 and 1991 the state of Tennessee averaged 25 cases annually [Data and Decision Analysis, 1994].

Unfortunately, data are not available for a direct comparison with the private sector on this score. It is reasonable to suppose that they find it considerably easier to dismiss poor teachers, if only because so few private school teachers are unionized. However, the private sector advantage extends considerably beyond the power to dismiss incompetents. Private schools also enjoy much greater flexibility in restructuring staff to meet changes in enrollment and curriculum. By contrast, layoffs in the public sector are almost always governed

by collectively bargained procedures and are typically seniority-based; it is a newsworthy event when public school systems win a concession from teacher unions allowing administrators any discretion in deciding who is to be laid off during reductions in force.

To summarize, the evidence examined here indicates that the option to recruit noncertified teachers is of significant benefit to private schools. Private schools also enjoy greater flexibility in structuring pay, provide more effective support for new teachers, and find it easier to dismiss teachers for poor performance and to restructure staff on the basis of changing instructional needs. These findings bear on several policy questions of current interest.

IMPLICATIONS FOR PUBLIC EDUCATION

As noted in the introduction, influential voices continue to urge that the nation raise standards for teacher licensing. The National Commission on Teaching and America's Future (NCTAF) has recommended increasing preservice training by adding a fifth year to undergraduate programs of teacher preparation. Programs that train teachers would have to meet standards promulgated by the National Council for Accreditation of Teacher Education (NCATE) or be closed down. Teacher testing would increase; new teachers would pass through extended internships before becoming fully licensed.

Well-intentioned though these proposals may be, they stand in sharp contrast to personnel practices within the private sector. The policies recommended by the NCTAF would raise barriers to entry and further restrict the applicant pool from which public schools may hire. Yet the evidence reviewed here clearly indicates that private schools find the option to hire outside this set advantageous. This does not establish that public schools would necessarily make good use of the same freedom, because these schools are not under the same competitive pressures as those in the private sector. Researchers have defended current licensing requirements by noting that corrupt local school boards would otherwise be able to award teaching positions to relatives or cronies.²¹

No doubt such abuses would occur. It does not follow, however, that the current system for teacher training and licensing is the appropriate policy prescription. A teaching certificate is a minimal signal of competence. Constraining a school board to hire certified teachers is a weak device for dealing with local graft and corruption. Moreover, because the same requirement applies to all districts, it ties the hands of those boards (one hopes, the great majority) that are not corrupt. As a result, current licensing requirements would appear to represent the worst of both worlds: too weak to prevent gross abuses by a corrupt board, but strong enough to bind districts that would benefit from an expanded choice set.

The case for teacher licensing is far weaker when applied to charter schools, which are disciplined by the market. In addition, most charters stipulate performance objectives that must be met if the charter is to be renewed. Despite this, policymakers continue to debate whether the regulatory burden in charter

²¹ Murnane et al., 1991. This top-down view also motivates the analysis and recommendations of the National Commission on Teaching report [NCTAF, 1996] mentioned in the introduction to this article.

schools should be increased by requiring them to follow personnel practices pursued by traditional public schools. Teacher certification is one issue. Whether charter schools formed in unionized districts are to be bound by the provisions of collectively bargained contracts is another. The private school model suggests that on both counts it would be a mistake to impose on charter schools the constraints that bind traditional public school officials. Such policies would deprive charter school administrators of flexibility in structuring salaries and of the power to dismiss ineffective teachers.

Finally, the findings here have implications for trials underway in the privatization of school administration. Several communities have contracted management of public school systems to private companies. Such experiments have not always been happy ones, as shown by the cancellation of contracts between Education Alternatives, Inc., and the cities of Baltimore and Hartford. Significantly, these contracts often place severe restrictions on the ability of the private management firm to make changes in personnel. Agreements between these firms and school boards have included stipulations that teachers are not to be laid off and that other provisions of previously negotiated contracts with unions be honored, effectively tying the company's hands with respect to staffing decisions. Although firms accepting these terms may have felt that such concessions would not have a significant impact on their ability to upgrade the performance of the schools in their charge, the evidence presented here suggests that they were mistaken. As we have shown, there are important differences in the personnel policies followed by public and private schools. When private management firms sign away the flexibility enjoyed by private schools with respect to personnel matters, they give up significant powers that have helped these schools to recruit and retain effective instructional staffs.

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