EPI BRIEFING PAPER
ECONOMIC POLICY INSTITUTE • MAY 28, 2010 • BRIEFING PAPER #266

WHAT TEACHERS WANT
Teacher Preferences Regarding Nontraditional Pay Approaches

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Executive summary

One of the lightning rods in the discourse over teacher pay has been the question of "how much" teachers should be paid. What the "how much" debate does not directly address, however, is the question of "how" teachers should be paid. This paper attempts to help lay groundwork for a better understanding of what exactly teachers want in terms of how they should be paid.

Nontraditional teacher pay (NTTP), which is considered here to be pay systems that diverge from exclusive reliance on the traditional salary schedule, continues to be a high-profile and controversial issue. Often lost in the debate over NTTP is a thorough assessment of what teachers *actually prefer* in a pay system, which has important implications for teacher recruitment, retention, and motivation. While teachers are sometimes broadly described as resisting NTTP, the truth is much more nuanced. Using data collected in 2005 from over 2,500 unionized teachers in a single state, this paper explores: (1) whether teachers favor or oppose four different bonus-based NTTP systems, and the demographic and attitudinal characteristics associated with these preferences; (2) levels of teacher support for traditional (i.e., education, service) and nontraditional (e.g., standardized test score) criteria for salary increases, as well as teacher characteristics related to this support; and (3) changes over time in NTTP preferences, as additional survey data from six years earlier allow for a unique opportunity to examine possible cohort versus service effects.

The main findings are:

- Teachers supported an emphasis on education and service as the basis for salary increases, preferring these criteria to student test scores and performance evaluation.

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- Teachers with more service and education preferred service and education, respectively, as salary increase criteria. Moreover, possessing more service also appeared to cast doubt on the suitability of all alternative salary increase criteria, predicting lower support for education, performance evaluation, and test scores as criteria.
- Merit-based bonus plans were the least favored of the four bonus plans presented, as only 28% of teachers favored their adoption. Teachers opposed the merit bonus plan even though there was no downside risk associated with the potential add-on pay (possible explanations include teachers suspecting that money for the bonus pool will ultimately mean less money for the salary schedule increments, the violation of teachers' strongly held norms of equity, and an aversion to any perceived subjectivity in pay allocations that might make favoritism more likely).
- Agreement with whether a teacher's performance evaluation should be an important factor in salary increases fell about midway between the embracing of service and education as criteria and the rejection of test scores.
- Thirty-five percent of the teachers here either agreed or strongly agreed that job performance should play an important role in salary increases. When asked to report how much of a role, however, many of these merit pay "supporters" retreated from this position, as half of them indicated that only one-fifth or less of their pay increases should be linked to performance evaluation (in fact, 16% of this supposedly pro-merit group actually recommend that 0% of pay should be tied to performance). Assuming a generous 5% merit increase pool, this means that half of the teachers that supported the use of merit-based salary increases advocated having only 1% or less of their pay dispersed via a merit increase format.
- Fifty-two percent of all teachers recommended that 0% of salary increases be tied to performance evaluation, while another 25% of teachers recommended that performance evaluation be used to determine just 1-10% or 11-20% of the increase.
- Teachers were strongly opposed to the use of student test scores as bases for salary increases. While 83% of teachers either disagreed or strongly disagreed that the school's student test scores should be an important factor in their pay increases, 87% of teachers either disagreed or strongly disagreed that their own students' test scores should play such a role. Teachers also rated the linking of pay to standardized test scores as the most ineffective of several potential methods for improving academic performance.
- Job satisfaction and the belief that the school administration acts fairly in dealing with teachers (procedural justice) reduced aversion to test scores as a pay determinant. However, even at very high levels of these two attitudes, teachers still clearly disagreed with such use of test scores. Thus, despite high procedural justice perceptions and high job satisfaction alleviating test score concerns to some degree, the opposition remained unambiguous and robust.
- Samples from both 1999 and 2005 provided an opportunity to determine whether the tendency for teachers with more service to oppose NTTP was the result of (a) a cohort effect (recent cohorts being more NTTP-friendly upon entering teaching than were earlier cohorts), or (b) changes within teachers as they accumulate service. There was no support for a cohort effect. Evidence indicated that the average teacher becomes less NTTP-friendly over time, growing less likely to favor the adoption of the bonus-based NTTP plans or to support the use of NTTP criteria in salary increases.

Introduction

There are approximately 50 million students and 3.7 million teachers in public elementary and secondary schools in the United States (Snyder 2008). Given the enormous role of teaching quality in academic success (e.g., Hanushek 1992; Hanushek, Kain, and Rivkin 2005), frequent calls for changes affecting the teaching profession are not surprising. Of particularly high profile has been the composition of teacher pay, with many believing that alternative approaches to pay may subsequently improve teachers' attraction to the profession, retention, and motivation to perform. These alternative approaches, referred to here as nontraditional teacher pay (NTTP), represent an array of departures from the traditional salary schedule, in which teacher pay is purely a function of service and education. This NTTP definition is rather broad, and includes pay plans that focus on either one-time bonuses, salary increases, or both, with the amount of pay allocated a function of such criteria as performance evaluations, responsibilities, standardized test scores, and skills. This chapter draws upon a large survey of teachers to empirically explore what it is that practicing teachers prefer regarding NTTP plan types and NTTP criteria.

Why teacher pay preferences are important

Teacher preferences over how pay is structured may at first seem secondary to the larger goal of educational improvement. From a policy perspective, the overriding concern is what type of pay system will most effectively contribute to a high-performing public education system, not the satisfaction of teachers per se. Indeed, NTTP plans have been found to influence outcomes of the education process. Jackson (2010), for example, reported positive effects of incentive pay on students' ACT/SAT scores and college matriculation, while Figlio and Kenny (2007) found a positive association between teacher pay incentives and student test scores (although the authors of the latter study also acknowledge that their results could simply reflect a competing explanation in which better schools are more likely to adopt incentive pay). Moreover, several studies suggest that the traditional salary schedule may be detrimental to the attraction and retention of high-quality teachers (Ballou and Podgursky 1997; Hoxby and Leigh 2004; Murnane and Olsen 1990). Indirect evidence for the potential efficacy of NTTP can be found outside of the teaching realm, where pay-for-performance has been shown to positively affect the attraction of high-ability, high-performing employees (Cadsby et al. 2007; Lazear 2000), and the retention of high performers (e.g., Trevor, Gerhart, and Boudreau 1997). Yet, such work is tempered by the many examples of dysfunctional pay-for-performance programs in the public and private sectors (see Adams, Heywood, and Rothstein 2009, for a review).

This considerable uncertainty about the efficacy of NTTP speaks to the importance of teacher pay preferences.[1] It is likely that the success of NTTP will depend on the support it receives from the teachers affected (Jacob and Springer 2008). Implementation of pay plans that conflict with preferences may well lead to dissatisfaction with pay and perceptions of low pay equity. Research across occupational domains indicates that pay dissatisfaction and pay inequity perceptions not only impair job performance and employee retention, but also prompt increased theft and absenteeism (for a review, see Heneman and Judge 2000). Additionally, given that the low incidence of merit pay may be in part due to the opposition of teachers (Ballou and Podgursky 1993), the ability to even implement certain types of NTTP, and the subsequent learning about what does and does not work, will to some extent be a function of teacher preferences. Finally, preferences reflect and—depending on the workplace conditions—contribute to the formation of attitudes. Teacher attitudes are of substantial importance as they have been found in a variety of settings to be positively related to student learning (Black 2001; Curral et al. 2005; Lumsden 1998; Ostroff 1992). In short, careful study of teacher pay preferences and what drives them can help us to identify exactly what aspects of NTTP teachers find to be most objectionable and most desirable, which can only be beneficial in seeking to understand the exact conditions under which NTTP may prove most successful (Goldhaber et al. 2007).

Conceptual rationale and hypotheses

Given that pay preferences can affect employee recruitment, retention, and motivation, it is necessary to better understand what teachers want in a pay system. To this end, an expectancy theory framework (Vroom 1964) has been adopted, which posits that choice, motivation, preference, or behavior is a multiplicative function of three key model components: valence (the perceived attractiveness or anticipated satisfaction with outcomes, such as pay or benefits), instrumentality (the perceived probability that one outcome—such as a pay plan adoption, or a plan's specific service or performance criteria—will lead to another outcome, such as pay), and expectancy (the perceived likelihood that effort will lead to adequate performance).[2] Across a wide variety of employee samples, expectancy theory (VIE, for short) has been shown to predict numerous work-related outcomes, such as performance, effort, motivation, turnover, organizational and occupational choice, goal commitment, and preferences for numerous organizational dimensions (Van Erde & Thierry 1996). Instrumentality perceptions are typically central to such findings. Because instrumentality perceptions also should be salient for teachers, it is generally expected that the teachers studied here will prefer pay options that have higher levels of instrumentality (i.e., clearer links between plan or plan criteria and desired pay outcomes).[3]

This study first investigates teachers' preferences about the role of different criteria for salary increases. In particular, it examines preferences for the traditional salary schedule criteria of education and years of service, as well as for three NTTP criteria that diverge from this traditional approach. These three criteria are: teacher performance as measured by a typical (subjective) performance evaluation; teacher performance as measured by their students' test score improvement; and school performance as measured by student improvement on standardized tests. Research documents a certain level of teacher opposition to tying pay to performance evaluation (Ballou & Podgursky 1993) and to test scores (e.g., Goldhaber et al. 2007), potentially due to teacher mistrust, perceived performance evaluation subjectivity, and concerns about the validity of test scores as a performance indicator. To the extent that this skepticism associated with using these NTTP pay criteria to reflect performance reveals concerns about the subsequent reception of pay outcomes, the criteria are associated with low instrumentality (i.e., low perceived likelihood that plans with these criteria will yield desired pay outcomes). In contrast, the traditional salary schedule's reliance on formulaic returns to education and service should yield strong, if not perfect, instrumentality perceptions. The relative instrumentalities associated with the salary increase criteria motivate this study's first hypothesis:

Hypothesis 1: *To the extent NTTP criteria are associated with low instrumentality, as would be expected when performance evaluation and test scores are used as indicators of teacher performance, teachers may prefer the traditional service and education salary increase criteria found in the single-salary schedule.*

Second, this study examines whether teachers favor or oppose the adoption of various bonus-based NTTP plans that are often cited as complements to the traditional salary schedule (such as a merit bonus for outstanding teachers, a skill-based pay system, a school-wide bonus for all teachers in a high-performing or improving school, or additional pay for additional responsibilities as a master or mentor teacher). To the extent that teachers perceive pay outcomes from these NTTP plans as relatively uncertain, even no-risk bonus plans suffer from low instrumentality and may thus lose their appeal. This is particularly likely in NTTP bonus plans in which pay outcomes are tied to the typical teacher performance evaluation and standardized test scores criteria, as concerns about the validity of these measures will constrain teacher confidence that their performance will be rewarded.

Hypothesis 2: *Teacher preferences for NTTP plans may vary according to the plans' different instrumentalities. In particular, preferences for bonus plans that are based on merit (performance evaluation) or standardized test scores, given these plans' lower instrumentalities, may differ from preferences for bonus plans based on skills or mentoring responsibilities.*

Third, this study analyzes teacher characteristics that are associated with preferences for the above teacher pay elements. This analysis can yield insight into the overall viability of NTTP plans, as well as their viability in teaching subpopulations. In general, it is expected that individual characteristics will influence instrumentality perceptions, with pay preferences reflecting these instrumentality levels. For example, given the near perfect instrumentality, teachers with higher levels of service and education should prefer pay allocations based on service and education. Furthermore, such teachers may prefer to avoid departures from this status quo. For example, teachers with greater experience in contentious negotiations over tight budgets in which most concessions come at a price may well not see NTTP plans as occurring in a vacuum. Rather, should support for NTTP be seen as potentially leading to a reduction in resources available for the traditional salary schedule, those more vested in that schedule (i.e., those higher in service and education) should be more likely to resist NTTP. Consistent with this logic, Goldhaber et al. (2007), Jacob and Springer (2008), and Ballou and Podgursky (1993) reported such service effects on NTTP opposition.

In addition to individual characteristics, workplace perceptions may also affect instrumentality and pay preferences. Specifically, procedural justice, defined here as the belief that the school administration is acting fairly, should constrain the uncertainty or mistrust associated with typical performance evaluation and standardized test scores as pay criteria, thereby raising instrumentality and increasing the favorability of these pay approaches. Thus, one could hypothesize that teacher characteristics and workplace perceptions will influence preferences over pay systems:

Hypothesis 3: *Years of service and educational attainment will be positively related to the favorability of pay tied to service and education, as in the traditional single salary schedule, and negatively related to the favorability of NTTP criteria. Further, procedural justice perceptions will be positively related to the favorability of NTTP approaches such as pay tied to teacher performance evaluation and standardized test scores.*

Finally, this study examines changes over time in what teachers prefer, with particular emphasis on what service effects on pay preferences actually tell us. While some researchers have documented lower preferences for NTTP among teachers with more years of service (e.g., Ballou & Podgursky 1993; Goldhaber et al. 2007; Jacob & Springer 2008), it is not clear what is driving this relationship. A unique data set provides an opportunity to shine new light on whether such associations are the result of changes in perceptions by the same teachers as they accumulate more years of service or are instead the result of changes across different teacher cohorts entering the teaching profession in different years. The answer to this has considerable policy implications for the adoption and potential success of NTTP. While a cohort effect is possible, the VIE-based arguments for opposition to NTTP specified above support the notion of within-teacher effects as teachers accumulate years of service. That is, high service produces high instrumentality associated with the traditional salary schedule, but should yield low instrumentality with regard to NTTP, especially if it is seen as a threat to the status quo. Therefore, VIE theory suggests that, regardless of cohort effects, support for NTTP may be lower as within-teacher service increases.

Hypothesis 4: *Negative service effects on teacher preferences for NTTP plans may persist even when accounting for cohort—i.e., year-of-entry—effects.*

Data and methods

Data sources

The sample for this study is comprised of public school teachers from 418 school districts in a state with a compulsory bargaining law. Districts are largely autonomous, as collective bargaining and work condition decision-making occur at the district level. Thus, school districts function as the organizations in this study. Data were acquired from two sources.

Individual teacher characteristics data were collected in 2005 from surveys of teachers who were members of the state education association, which is the umbrella organization for the district bargaining units. Surveys were sent to 6,524 state education association teachers in 2005, from which 3,588 responses were acquired for a total response rate of 55%. Limiting respondents to classroom teachers reduced the usable sample to 3,291, and missing district-level data from an alternative source (see below) further reduced the sample to 2,948. Finally, missing survey data brought the usable sample to 2,548.

The second data source was the state's education association. The association provided the 2004-05 district-level salary schedule data used to control for district pay differences likely to be correlated with teacher characteristics and preferences. Each district's teachers in this state were paid according to a single salary schedule typical of those used by most public school systems (Odden & Kelley 1997). The schedule specifies teacher pay according to service years and education (degree and number of credits earned toward the next degree). The state education association data were merged with the survey records, thus yielding a single individual-level data set with attitudinal data accompanied by district-level information.

As noted earlier, a subset of the teachers in this survey had also responded to a related survey in 1999. As a result, this study is able to merge in 1999 data for several key variables for 1,108 of the 2,548 respondents that comprise this study's primary 2005 sample. **Table 1** indicates which measures were available for both years. I use this subset, as well as the entire 1999 sample of 2,235, to address potential changes over time that might occur within teachers and between teaching cohorts.

Measures of preferred salary increase criteria

Six measures in the survey assessed the extent to which teachers agreed that stated criteria should play important roles in salary increases (in contrast to the bonus-type plans described in the next section). For all but the sixth measure, responses were reported on 5-point Likert scales anchored by "strongly disagree" (1) and "strongly agree" (5).

Education. The level of agreement that "educational attainment (e.g., graduate credits, a master's degree) should be an important factor in determining my salary increase."

Seniority. The level of agreement that "seniority (i.e., years of teaching in the district) should be an important factor in determining my salary increase."

Evaluation. The level of agreement that "teacher performance, as measured by my performance evaluation, should be an important factor in determining my salary increase." Performance evaluations in this state are conducted by the principal.

Student scores. The level of agreement that "teacher performance, as measured by my students' improvement on standardized test scores, should be an important factor in determining my salary increase."

School scores. The level of agreement that "school performance, as measured by student improvement on standardized test scores, should be an important factor in determining my salary increase."

Evaluation percentage. Because merit pay systems are of particular interest here, teachers were also asked to respond to the following: "What percentage of your salary increase, if any, should be based on your performance evaluation?" Response choices were 0%, 1-10%, 11-20%, 21-30%, 31-40%, 41-50%, 51-60%, 61-70%, 71-80%, 81-90%, and 91-100%. Hence, scores on the measure ranged from zero to 11.

TABLE 1

Variable names, descriptive statistics, and prior survey presence

	Variable	Mean	SD	Min	Max	Measure also available in 1999
1	*Merit-based bonus*	0.28	0.45	0	1	Yes
2	*Skill-based pay*	0.62	0.49	0	1	Yes
3	*School-based bonus*	0.46	0.50	0	1	Yes
4	*Master pay*	0.98	0.14	0	1	Yes
5	*Education*	3.98	0.78	1	5	No
6	*Service*	3.97	0.79	1	5	No
7	*School scores*	1.73	0.86	1	5	No
8	*Student scores*	1.59	0.80	1	5	No
9	*Evaluation*	2.87	1.13	1	5	No
10	*Evaluation percentage*	2.55	2.38	1	11	Yes
11	*Local tax effort*	22.04	5.04	10.80	42.50	Yes
12	*District market value*	1.70	1.74	0.05	8.86	Yes
13	*Career rate*	66.49	8.26	48.18	89.08	Yes
14	*Starting salary*	34.78	3.68	18.50	46.02	Yes
15	*Test scores (district)*	10.87	9.46	-24.83	31.26	Yes
16	*Salary*	4.84	1.52	1	8	Yes
17	*Topped out*	0.34	0.48	0	1	Yes
18	*Teacher education*	0.67	0.50	0	1	Yes
19	*Teacher service*	16.91	10.95	0	49	Yes
20	*Age*	43.56	11.53	2	73	Yes
21	*Female*	0.74	0.44	0	1	Yes
22	*Pay equity*	3.26	0.82	1	5	Yes
23	*Job satisfaction*	3.76	0.60	1	5	Yes
24	*Union instrumentality*	3.86	0.68	1	5	Yes
35	*Procedural justice*	3.01	0.92	1	5	Yes

NOTE: Career rate (district) and starting salary (district) variables are in thousands, market value is in billions, and other means and standard deviations are reported in the original metric.

SOURCE: Author's analysis of state education association data.

Measures of bonus-based NTTP plan acceptability

Four measures in the survey were dichotomous indicators of whether teachers deem specific bonus-type plans acceptable. All are presented as "add-ons" to existing pay, rather than alterations to the salary schedule.

Merit-based bonus. Teachers were asked to indicate whether they favor ("1") or oppose ("0") "a merit pay bonus for the most outstanding teachers of a given year." The survey did not specify how the "outstanding" determination would be made.

School-based bonus. Teachers were asked to indicate whether they favor ("1") or oppose ("0") "a school-wide bonus for all teachers in a school which shows exceptional performance or improvement in a given year."

Skill-based pay. Teachers were asked to indicate whether they favor ("1") or oppose ("0") "a skill-based pay system that rewards teachers for acquiring skills and accomplishing tasks the school board and teachers jointly believe will improve education in the district."

Master teacher pay. Teachers were asked to indicate whether they favor ("1") or oppose ("0") "additional pay for assuming additional responsibility as a master or mentor teacher (e.g., supervising new teachers)."

Explanatory variables

Both individual-level and district-level variables were used to explain teacher pay preferences. For five of these variables (the four perceptual measures and the test score index), it was possible to calculate coefficient alpha, a commonly used estimate of a measure's internal consistency or reliability. Alpha ranges from zero to one and estimates the proportion of variance in the measure that is systematic, rather than random (Schwab 2005).

Teacher service. Teachers indicated the number of years they had been employed as an educator. This variable correlates at .92 with an item assessing the years as a member of the state education association, which indicates that the teacher service measure largely represents employment in the state. Because I expected larger service effects earlier in teacher tenure, I included service squared in the analyses.

Teacher education. Teachers checked one of five categories describing their highest level of education. Because the master's degree is a critical threshold for teacher pay purposes, the data were recoded into a dummy variable with "1" indicating the attainment of a master's degree.

Age. Teachers reported their age in years at the time of the survey.

Female. Responses to a question on gender were coded as "1" for female.

Salary. Teachers checked one of eight categories to indicate the interval in which their salary fell during the 2004-05 school year. Categories were: (1) less than $20,000; (2) $20,000 - $29,999; (3) $30,000 - $39,999; (4) $40,000 - $49,999; (5) $50,000 - $59,999; (6) $60,000 - $69,999; (7) $70,000 - $79,999; and (8) $80,000 or more.

Topped out. Discussions with state education association personnel indicated that *topping out* on the salary schedule is quite salient to teachers. On the survey, teachers answered yes (coded as "1") or no (coded as "0") to a single item asking them if they had reached the highest step on the salary schedule, given their education level.

Pay equity. Four perceptual variables were chosen for this study based on their relevance for the analysis of teacher pay preferences. Each of these has considerable history in pay research in a variety of occupational domains. The first of these was created by taking the mean from six items used to assess teachers' perceptions of pay equity (item means were used for the other three perceptual variables as well). The items were adapted from those used in earlier studies (e.g., Martin & Peterson 1987) to assess teachers' perceptions of pay fairness. Using 5-point scales anchored by "strongly disagree" and "strongly agree," subjects indicated level of agreement with statements that they were being paid fairly considering their experience, considering their education, considering their responsibilities, compared to teachers in other districts, compared to other professionals in the community, and considering their overall pay level. Coefficient alpha for the scale was .87.

Job satisfaction. On 5-point scales anchored by "very dissatisfied" and "very satisfied," teachers responded to six items addressing various aspects of the teaching job. The items assessed extent satisfied with the job itself, personal fulfillment from teaching, pay, benefits, career advancement opportunity, the pension benefit, and most recent pay increase. Coefficient alpha for the measure was .79.

Procedural justice. Three items tapped into teacher perceptions of the fairness of the process by which the school administration makes decisions. The items used 5-point scales to address agreement with the extent to which the school administration dealt with employees truthfully, treated educators with dignity and respect, and used procedures that ensure all involved parties can influence decisions. Coefficient alpha for the scale was .87.

Union instrumentality. Union instrumentality was assessed with six items that address the belief that the local association can be influential in furthering member goals. Teachers indicated the extent to which they agreed that the local association: works hard to improve salaries, benefits, and working conditions; has been successful at improving salaries, benefits, and working conditions; works hard to protect members' rights; has been successful at protecting member rights; works hard to improve the quality of education in the district; and has been successful at improving the quality of education in the district. Coefficient alpha was .91.

District-level variables. To account for the potential influence of high-paying and resource-rich districts on teacher preferences, this study controlled for *district starting salary* and *district career rate*, which is the salary paid to those with a master's degree that have also reached the highest service step in the salary schedule. Similarly, this study controlled for *district market value* and *district local tax effort* as indicators of district ability and willingness, respectively, to financially support the local schools.

District test score index. A *test score* index was created for each district based on students' reading and math scores. Students in four different grades took standardized reading and math achievement tests in 2005. Scores were aggregated by district into four categories, with "advanced" as the highest achievement level and "below basic standards" as the lowest. For each of the four test-taking grades, this study used the district's proportion of students in these highest and lowest reading and math achievement categories to create a single test score index. Thus, the index is the mean of 16 district test outcomes, as it is comprised of each of the four grades' proportion advanced in math, proportion advanced in reading, proportion below standards in math, and proportion below standards in reading (the latter two of these were first multiplied by negative one because lower proportions scoring in this category indicate higher achievement). The 16 scores correlated well, resulting in a highly reliable index (coefficient alpha = .96).

Other considerations

The final data set contained an average of about 6.1 teachers per school district. In estimating regression models with multiple survey respondents per district, it is important to recognize the potential dependency between observations. Thus, a series of Hausman (1978) tests were conducted, which indicated that random effects models were appropriate. Random effects models account for the observation dependency within districts by creating parameter estimates as weighted averages of between-district and within-district effects, and the resulting estimates are more efficient than those from a fixed effects approach. While this study focuses on the random effects models (Tables 3 and 4), it also presents fixed effects models as a robustness check on the findings (Table 5). These more conservative models, which controlled for district-level effects that were constant across teachers (thus necessitating the dropping of the five district-level controls) confirmed the key inferences from the random effects analyses.

A second issue facing this study is non-response bias. Few variables were available on those teachers that did not respond to the survey, but age was coded for each teacher to whom a survey was sent. Respondents were statistically older than non-respondents. To correct for this potential source of bias, this study weighted each observation by the inverse of the likelihood of returning the survey, with this likelihood determined for each observation by the predicted probability of responding, given teacher age, ethnicity, and gender. This had the effect of weighting older teachers—those with more service and education—proportionately less, allowing the sample to better replicate the population. Because the estimation of random effects models with sampling weights is not well established, the correction was made to the data used for the fixed effects models in Table 5.

Results

Hypothesis 1: Preferred salary increase criteria

The driving question behind this paper—what do teachers prefer in a pay system—is initially addressed by examining Hypothesis 1's prediction that, in terms of salary increase criteria, teachers will tend to prefer service and education, given their higher levels of instrumentality, to performance evaluation and test scores.

Means, standard deviations, and ranges for the salary increase items are provided in Table 1, with zero-order correlations presented in **Table 2**. The means for the five salary increase criteria preferences in Table 1 reflect the extent of agreement, on a 5-point scale, that the criterion should be an important factor in determining salary increases (also see **Figure A**. Noteworthy among these is the relative satisfaction with the service and education criteria utilized in the salary schedule. The service and education means of approximately 4, which is anchored by "agree" on the scale, indicate that, overall, teachers support an emphasis on these two factors as the basis for differentiating pay levels. Moreover, 83% of teachers indicated either "agree" or "strongly agree" on the scale for each of these pay bases. Only 6% of teachers indicated that they "disagree" or "strongly disagree" with each of these two factors playing an important role. In stark contrast, teachers did *not* agree that student test scores should be bases for salary increases. The 1.73 and 1.59 means for school scores and student scores, respectively, were statistically smaller than the service and education means ($p < .001$), and positioned the average teacher as between "disagree" and "strongly disagree" on the Likert scale. Furthermore, 83% of teachers either disagreed or strongly disagreed that the *school's* student test scores should be an important factor in their pay increases, while only 4% agreed or strongly agreed that these scores should be used in this manner. Similarly, 87% of teachers either disagreed or strongly disagreed that *their own students'* test scores should be an important factor in their pay increases, while only 3% agreed or strongly agreed that these scores should play such a role.

Agreement with whether a teacher's performance evaluation should be an important factor in salary increases fell about midway (the evaluation mean = 2.87) between the approval of service and education as criteria and the rejection of test scores. This score is both statistically smaller than the service and education means ($p < .001$) and statistically larger than the test score means ($p < .001$). Taken together, surveyed teachers were agreeable to using education and service as salary increase criteria, were split with regard to performance evaluation (38% either disagree or strongly disagree with it playing an important role, while 35% either agree or strongly agree), and were opposed to the use of standardized test scores, with significant differences between these three groupings.

Hypothesis 2: Bonus-based NTTP plans

This study next examines teachers' preferences for bonus-based NTTP plans (Figure A, bottom). Master teacher pay was favored by 98% of teachers, by far the most favorable rating of any of the four NTTP plans. T-tests indicated statistical differences between the favorability level for master teacher pay and the favorability for each of the other three NTTP plans ($p < .001$). In contrast, skill-based pay plans were favored by 62%, statistically greater ($p < .001$) than the 46% approval for school-based bonuses. Both of these rates were statistically larger ($p < .001$) than the proportion of teachers favoring a merit-based bonus, which was deemed acceptable by only 28% of the sample.[4] Notably, for bonus plans the ordering of teachers' preferences for merit-based and test score-based pay allocation was the reverse of what was found with respect to salary increase criteria.

TABLE 2

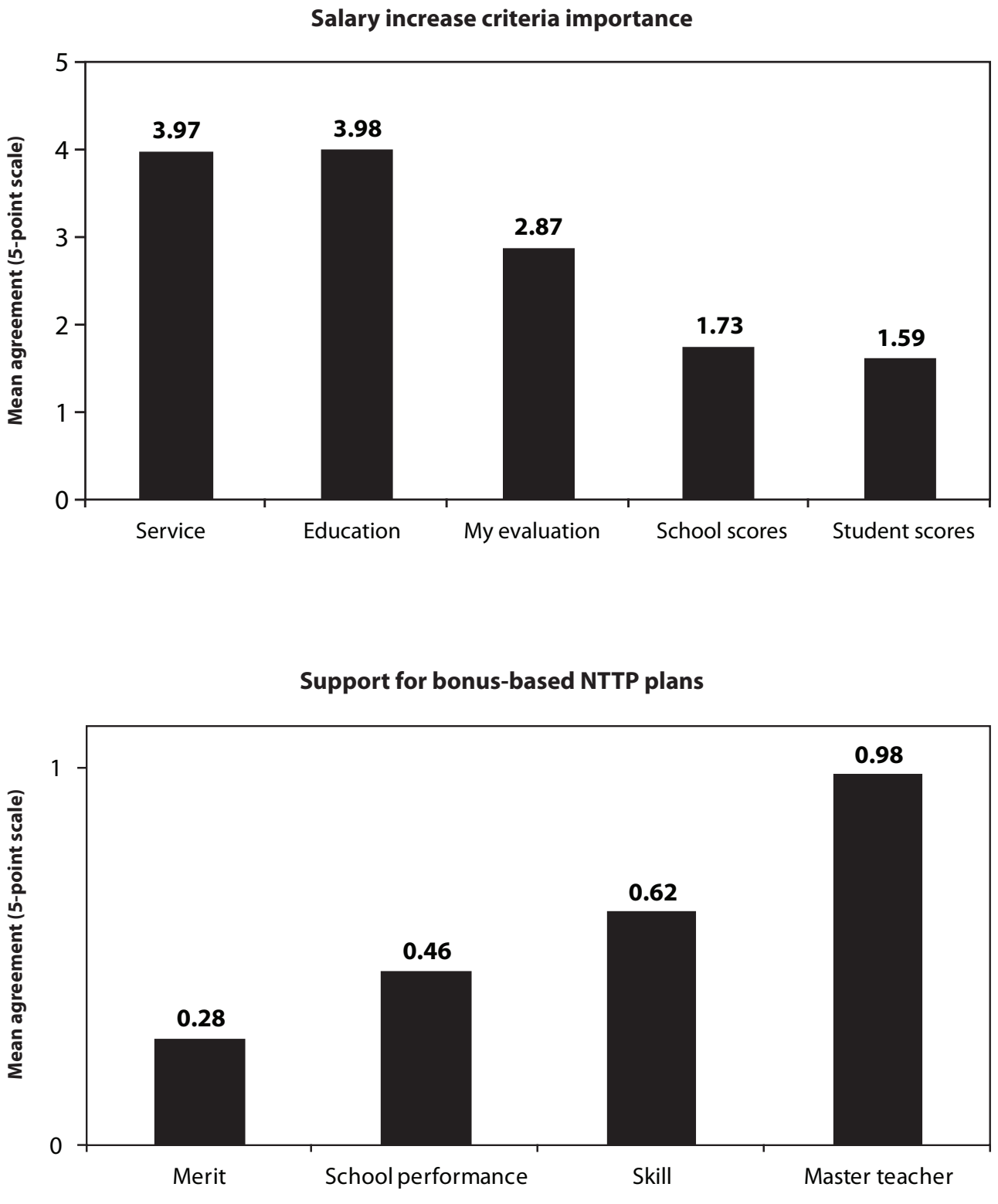
Correlations between study variables

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	*Merit-based bonus*	--																								
2	*Skill-based pay*	.29	--																							
3	*School-based bonus*	.43	.31	--																						
4	*Master pay*	.08	.10	.07	--																					
5	*Education*	.00	.09	-.03	.04	--																				
6	*Service*	-.12	-.08	-.08	.01	.26	--																			
7	*School scores*	.26	.23	.33	.01	-.05	-.07	--																		
8	*Student scores*	.29	.22	.28	.00	-.02	-.10	.76	--																	
9	*Evaluation*	.39	.31	.33	.05	.01	-.09	.36	.37	--																
10	*Evaluation percentage*	.36	.26	.27	.05	-.03	-.18	.25	.30	.54	--															
11	*Local tax effort (district)*	.03	-.01	.04	-.01	.03	.03	-.03	-.06	.05	.04	--														
12	*Market value (district)*	-.04	-.02	-.10	.05	.05	.01	-.05	-.07	-.02	-.03	-.11	--													
13	*Career rate (district)*	-.04	-.04	-.07	.04	.04	-.02	-.06	-.10	-.03	-.03	.22	.62	--												
14	*Starting salary (district)*	-.05	-.05	-.10	.05	.08	.00	-.04	-.07	-.01	-.02	.01	.51	.53	--											
15	*Test scores (district)*	-.04	.04	-.04	.01	.05	-.02	.00	-.02	-.02	-.00	-.40	.40	.40	.33	**.96**										
16	*Salary*	-.27	-.13	-.20	-.04	.09	.19	-.07	-.08	-.18	-.18	.03	.27	.35	.30	.18	--									
17	*Topped out*	-.20	-.10	-.13	-.08	.07	.20	-.02	-.01	-.13	-.12	.00	.03	.02	.10	.03	.68	--								
18	*Teacher education*	-.20	-.05	-.13	-.04	.28	.08	-.07	-.08	-.11	-.12	.00	.13	.13	.17	.11	.52	.29	--							
19	*Teacher service*	-.29	-.14	-.17	-.08	.02	.22	-.04	-.03	-.17	-.18	-.05	-.02	-.05	.02	.01	.72	.72	.39	--						
20	*Age*	-.28	-.13	-.15	-.07	.00	.15	.03	.02	-.14	-.15	-.03	.00	-.04	.03	-.01	.61	.58	.36	.81	--					
21	*Female*	-.06	-.04	-.04	.04	.05	.02	-.07	-.08	.04	-.01	.03	.00	.01	.01	.00	-.08	-.09	-.05	-.07	-.02	--				
22	*Pay equity*	-.08	-.03	-.12	-.01	.08	.09	-.04	-.02	-.07	-.07	-.09	.06	.06	.13	.06	.14	.07	-.05	.00	-.05	.03	**.87**			
23	*Job satisfaction*	-.03	.02	-.04	.04	.09	.03	.01	.04	.05	.02	-.04	.08	.13	.11	.09	.08	.00	-.01	-.03	-.02	.04	.55	**.79**		
24	*Union instrumentality*	-.13	-.05	-.11	-.01	.12	.15	-.10	-.10	-.10	-.10	-.05	.03	.06	.05	.09	.13	.07	.07	.08	.06	.04	.33	.32	**.91**	
25	*Procedural justice*	.07	.06	.04	.04	.06	.01	.08	.09	.10	.10	-.06	.05	.06	.00	.09	-.14	-.12	-.11	-.18	-.17	.00	.28	.39	.23	**.87**

NOTE: N = 2,482-2,544; scale reliabilities are in bold on the diagonal; correlations whose absolute values are greater than .05 are significant at $p < .05$.

SOURCE: Author's analysis of state education association data.

FIGURE A



SOURCE: Author's analysis of state education association data.

Hypothesis 3: Factors associated with preferences for salary increase criteria and NTTP bonus plans

Hypothesis 3 stipulated that when a teacher's demographic and attitudinal characteristics suggest a clearer line-of-sight between a pay plan, or plan criterion, and one's pay outcomes (i.e., greater instrumentality), preferences will emerge for that plan or criterion (and, at times, away from competing preferences). The results generally support this position.

Tables 3 and 4 present regression results relating teacher preferences for salary increase criteria (Table 3) and NTTP bonus plans (Table 4) to individual teacher and school district characteristics. Table 3 represents a series of linear regression models with random effects, while Table 4 includes a set of logistic regressions where the dependent variable is the dichotomous favor/oppose response.[5] In the latter, odds ratios are presented, derived by exponentiating the raw coefficients. These offer interpretational advantages over the coefficients themselves. Subtracting one from the odds ratio and multiplying by 100 yields the percent change in the odds of the dependent variable occurring.

Beginning with teacher education effects, column 1 of Table 3 indicates that greater education (i.e., having a master's degree) is associated with a .56 increase (on the 5-point scale) in agreement that education should play an important role in salary increases.[6] In Table 4, holding a master's degree predicts a 21% reduction in the likelihood of favoring a merit-based bonus plan (confirming the suggested relationship in **Figure B**). Additionally, having a master's degree predicts a 28% increase for skill-based plan favorability, although this relationship did not emerge in **Table 5**'s fixed effects model.

With respect to teacher service effects, **Figure C** suggests that increased levels of service correspond with greater preference for service as a salary increase criterion and reduced preference for certain other criteria (although such reduced preference is not evident for the education criterion in Figure C, the positive correlation between teacher service and teacher education may be masking any such reduction). Table 3's multivariate regressions support these impressions, with column 2 indicating that having more service leads to greater agreement that service should play an important role in pay increases. Moreover, possessing more service predicts lower support for *all* alternative criteria (education, school test scores, own students' test scores, teacher evaluation), as well as for the preferred percentage of salary increase tied to performance evaluation. The significant quadratic term indicates that the negative service effects are strongest for newer teachers. For example, column 1 in Table 3 reveals that, for a new teacher, a one standard deviation increase in service (10.8 years) predicts a .37 reduction in agreement that education should be important to salary increases.[7] As is evident in Figure B (bottom), years of service also appears to have a considerable negative impact on NTTP plan acceptability. Statistically significant linear and squared coefficients in Table 4 indicate that the marginal effect of service on support for NTTP bonus plans is dependent upon the level of service.[8] At years zero, one, and two, an additional year of service predicts reductions in merit-based bonus acceptability of 10.21%, 9.90%, and 9.58%, respectively, but at year 25 the additional service year yields only a 2.06% reduction. Because these effects are cumulative, the early career service effects are rather large, as, for a new teacher, the first five years of service result in a 39.6% decrement in likelihood of supporting merit-based bonuses, in contrast to just a 5.1% reduction over five years at year 25. Service similarly breeds opposition to skill-based pay and school-based bonuses, as Table 4's columns 2 and 3 reveal that the first five years of service for a new teacher predict 36.3% and 27.5% decrements in the likelihood of favoring skill-based and school-based bonus plans, respectively.

While education level predicts a preference for a greater role for education in pay allocation (but less support for merit bonuses), and service predicts a preference for a greater role for service (but less support for everything else), this study also examined a perceptual characteristic that might influence instrumentality and subsequently enhance preferences for NTTP. As expected, the perception that the school administration was procedurally just in dealings with teachers enhanced the likelihood of accepting school-based bonus plans (Table 4's column 3 reveals that one additional scale point predicted 12% increases in acceptability likelihood). With regard to merit-based bonus plan favorability, Table 4's column 1 surprisingly revealed no justice effect (though Table 5's fixed-effects model did produce a positive association). Consistent with Hypothesis 3, procedural justice was associated with greater agreement that test scores and performance evaluation should be important salary increase criteria (Table 3, columns 3-6).[9]

TABLE 3

Random effects regressions of salary increase criterion importance on teacher attitudes and characteristics

	Salary Increase Criteria Importance							
Predictors	*Education*	*Service*	*School test scores*	*Student test scores*	*Evaluation*	*Evaluation %*	*Evaluation % (with 1999)*	*Evaluation % (with 1999; new teachers only)*
Intercept	3.362***	3.636***	1.954***	2.184***	2.972***	3.559***	4.099***	2.626
Local tax effort	.004	.007	-.004	-.007	.009	.018	.005	.030
Market value	.013	.026*	-.022	-.013	.000	-.004	-.020	-.040
Career rate	-.005	-.003	-.003	-.006	-.009*	-.010	-.011	.002
Starting salary	.003	-.007	.004	.000	.012	.008	.018	.047
Test scores	.000	-.001	.000	-.002	-.001	.004	.048	-.017
Salary	.014	.016	.003	-.004	.000	.008	.053	-.093
Topped out	.125*	.068	-.091	-.013	-.088	.082	-.055	-.979
Teacher education	.557***	-.047	-.055	-.081	-.076	-.193	-.024	.353
Teachers service	-.043***	.026***	-.031***	-.029***	-.036***	-.092***	-.109***	.041
Service squared	.0009***	-.0001	.0006***	.0006***	.0006**	.0013*	.0016***	-.0267
Age	-.002	-.011***	.013***	.011***	.005	.014*	.016*	.024*
Female	.110***	.063	-.127**	-.138**	.063	-.232*	-.146	.290
Pay equity	.043	.054*	-.032	-.030	-.166***	-.286***	-.366***	-.331*
Job satisfaction	.020	-.053	.057	.090*	.244***	.306**	.369***	.014
Union instrumentality	.088***	.138***	-.154***	-.138***	-.183***	-.330***	-.288***	-.283
Procedural justice	.017	.004	.098***	.083***	.133***	.226***	.197***	.080
2005 Sample							-.536***	-.713***
R2	.122	.089	.046	.058	.071	.062	.069	.048
N	2548	2546	2543	2181	2544	2485	4280	902

NOTE: N = Hausman (1978) tests indicated that random effects models were appropriate. Fixed effects models yielded a highly similar pattern of effects across the individual-level predictors of interest (see Table 5). All coefficients are unstandardized.
*p < .05, **p < .01, ***p < .001.

SOURCE: Author's analysis of state education association data.

TABLE 4

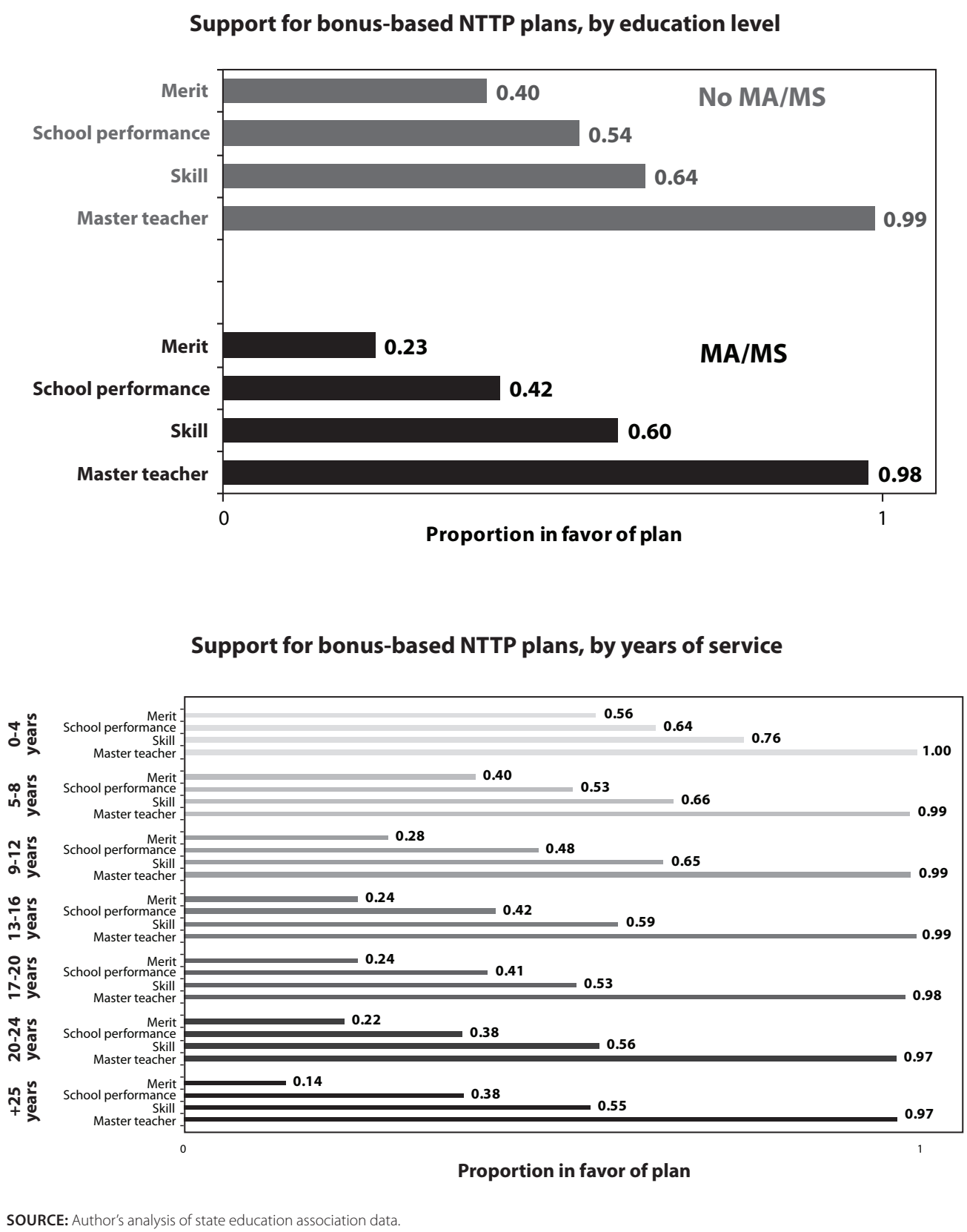
Random effects logistic regressions of favor/oppose NTTP plans on teacher attitudes and characteristics

	Favor NTTP Plan			Favor NTTP Plan (with 1999)			Favor NTTP Plan (with 1999; new teachers only)		
Predictors	*Merit Bonus*	*Skill Bonus*	*School Bonus*	*Merit Bonus*	*Skill Bonus*	*School Bonus*	*Merit Bonus*	*Skill Bonus*	*School Bonus*
Local tax effort	1.01	1.00	.99	1.01	1.00	1.00	1.02	1.02	1.05
Market value	.95	1.03	.90**	.96	1.03	.91**	.92	1.00	.93
Career rate	.99	.98*	1.01	1.00	.98*	1.00	.99	.96*	.99
Starting salary	1.01	.99	.98	1.00	1.00	.99	1.04	1.04	1.00
Test scores	1.00	1.00	.99	1.01	1.02	.99	.94	.92	1.06
Salary	.99	1.02	.97	.99	1.04	.97	.89	1.63*	.87
Topped out	.92	1.00	.97	.92	.98	1.04	.97	.61	.44
Teacher education	.79*	1.28*	.87	.84*	1.25**	.89	.91	1.00	.97
Teacher service	.90***	.91***	.93***	.91***	.90***	.92***	.70	.68	.95
Service squared	1.002***	1.002***	1.001**	1.001***	1.002***	1.001***	1.036	1.031	.985
Age	.99	1.00	1.00	.99*	1.01	1.00	.97**	.99	.99
Female	.68***	.83*	.79**	.70***	.88	.80**	.82	1.27	.80
Pay equity	.80**	.91	.72***	.75***	.92	.75***	.81	.73*	.71**
Job satisfaction	1.13	1.13	1.13	1.18*	1.15*	1.13	.82	1.23	1.01
Union instrumentality	.72***	.88	.80***	.77***	.90*	.85***	.81	.85	.89
Procedural justice	1.12	1.11*	1.12*	1.13**	1.17**	1.12**	1.08	1.16	1.01
2005 sample				.89	.78**	.75***	.82	.73	.55**
Chi-square	251.44***	87.47***	87.47***	449.01***	168.55***	305.66***	44.09***	38.47**	58.97***
N	2541	2532	2532	4394	4376	4392	923	921	923

NOTE: Hausman (1978) tests indicated that random effects models were appropriate. Fixed effects models yielded a highly similar pattern of effects across the individual-level predictors of interest (see Table 5). All coefficients are exponentiated; thus, values under 1.00 indicate negative effects and values over 1.00 indicate positive effects.
*p < .05, **p < .01, ***p < .001.

SOURCE: Author's analysis of state education association data.

FIGURE B



SOURCE: Author's analysis of state education association data.

TABLE 5

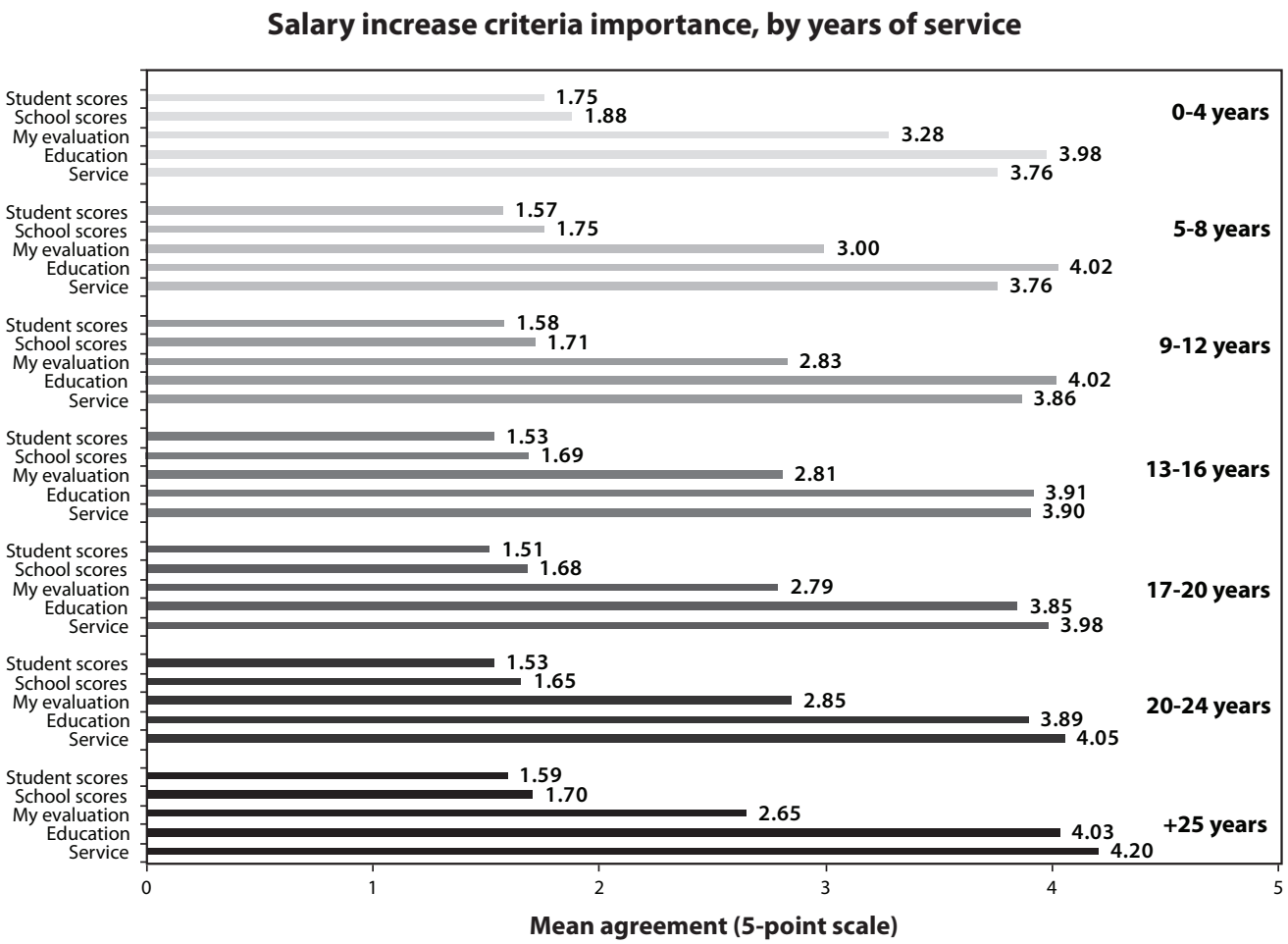
Fixed effects regressions of NTTP preferences on teacher attitudes and characteristics

	Favor/Oppose NTTP Plan			Salary Increase Criteria Importance					
Predictors	*Merit Bonus*	*Skill Bonus*	*School Bonus*	*Education*	*Service*	*School test scores*	*Student test scores*	*Evaluation*	*Evaluation %*
Intercept				3.433***	3.408***	1.718***	1.535***	2.915***	3.793***
Salary	.95	1.14	1.00	-.004	.002	-.007	-.028	.013	.012
Topped out	.95	.93	.97	.153*	.043	-.106	-.024	-.086	-.008
Teacher education	.68**	1.16	.82	.529***	-.019	-.008	-.018	-.046	-.234
Teacher service	.89***	.89***	.92***	-.042***	.025**	-.029**	-.024*	-.038***	-.090***
Service squared	1.002**	1.002***	1.002**	.0009***	-.0001	.0005**	.0004*	.0006*	.0013
Age	.98*	1.00	.99	-.004	-.010***	.013***	.012***	.004	.011
Female	.65***	.81	.79*	.134***	.070	-.116*	-.134*	.103	-.146
Pay equity	.75**	.89	.65***	.039	.057	-.014	.002	-.163***	-.274**
Job satisfaction	1.18	1.09	1.19	.016	-.052	.056	.053	.231***	.201
Union instrumentality	.64***	.81*	.76***	.089**	.133***	-.164***	-.120***	-.185***	-.275**
Procedural justice	1.19*	1.19**	1.17*	.013	.014	.113***	.092***	.154***	.232**
Psuedo R^2 or R^2	.21	.11	.14	.152	.091	.075	.080	.076	.063
N	2353	2439	2518	2836	2834	2830	2415	2832	2764

NOTE: Models 1-3 are fixed effects logistic regressions with exponentiated coefficients (thus, values under 1.00 indicate negative effects and values over 1.00 indicate positive effects); Models 4-9 are fixed effects regressions with raw coefficients. Prior to the Table 5 analyses, all observations were weighted to correct for non-response bias.
*p < .05, **p < .01, ***p < .001.

SOURCE: Author's analysis of state education association data.

FIGURE C



SOURCE: Author's analysis of state education association data.

Hypothesis 4: Do evolving NTTP preferences reflect changing teachers or changing times?

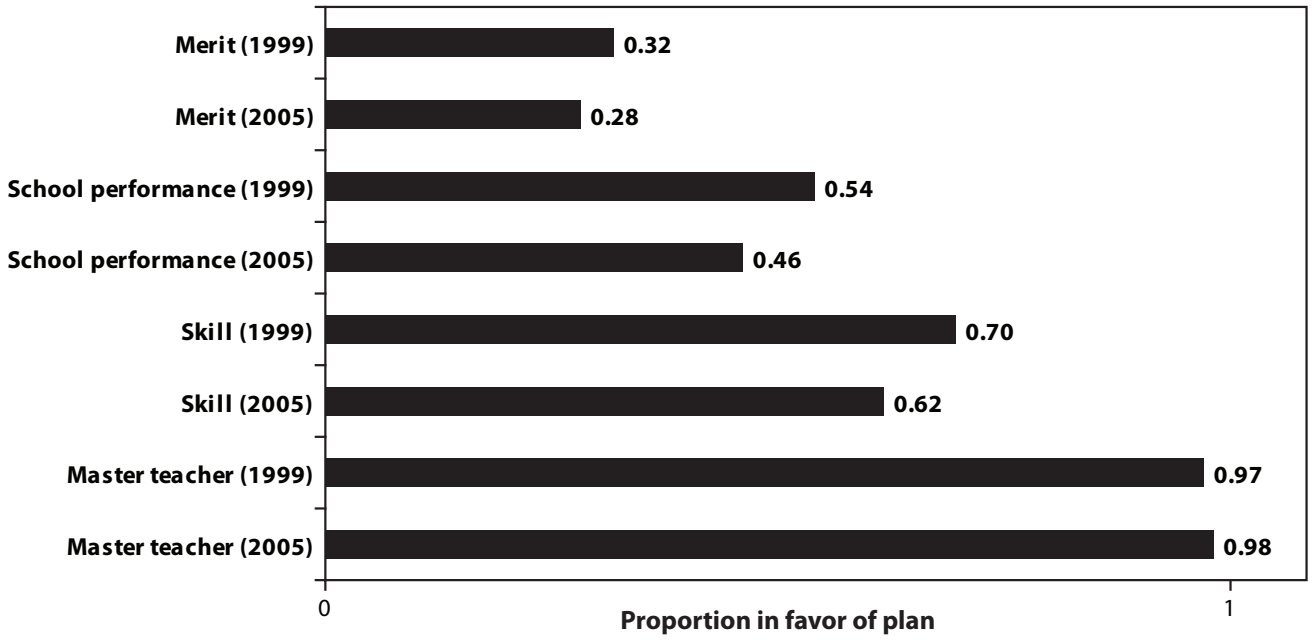
Hypothesis 4 stipulated that negative service effects on NTTP favorability potentially reflect within-teacher service effects, rather than cohort or year-of-entry effects (where more recent cohorts are more amenable to NTTP). The two effects, however, cannot be adequately differentiated with the cross-sectional data typically used in pay preference research. Fortunately, six years before the 2005 survey used here was conducted, a similar sample of teachers in the same state was asked whether they favored or opposed the four bonus-based NTTP plans discussed above, as well as what percentage of salary increase should be based on performance evaluation (evaluation percentage). These earlier data provide the opportunity for new insights into service and cohort effects on NTTP preferences.

An analysis of NTTP plan acceptability in the 1999 survey echoes the 2005 findings. Teachers again favored master teacher pay the most (97%), followed by skill-based pay (70%) and school-performance-based bonus (54%), with merit-based bonus the least favored of the NTTP plan options (32%). **Figure D** presents the overall favorability of each bonus plan in each of the two years, illustrating that the pattern of relative teacher preferences remained essentially the same between 1999 and 2005 among those who responded (though respondents were perhaps slightly *less* NTTP-friendly in 2005). Similar to the case with bonus-based NTTP plan acceptability, teachers in the more recent survey

FIGURE D

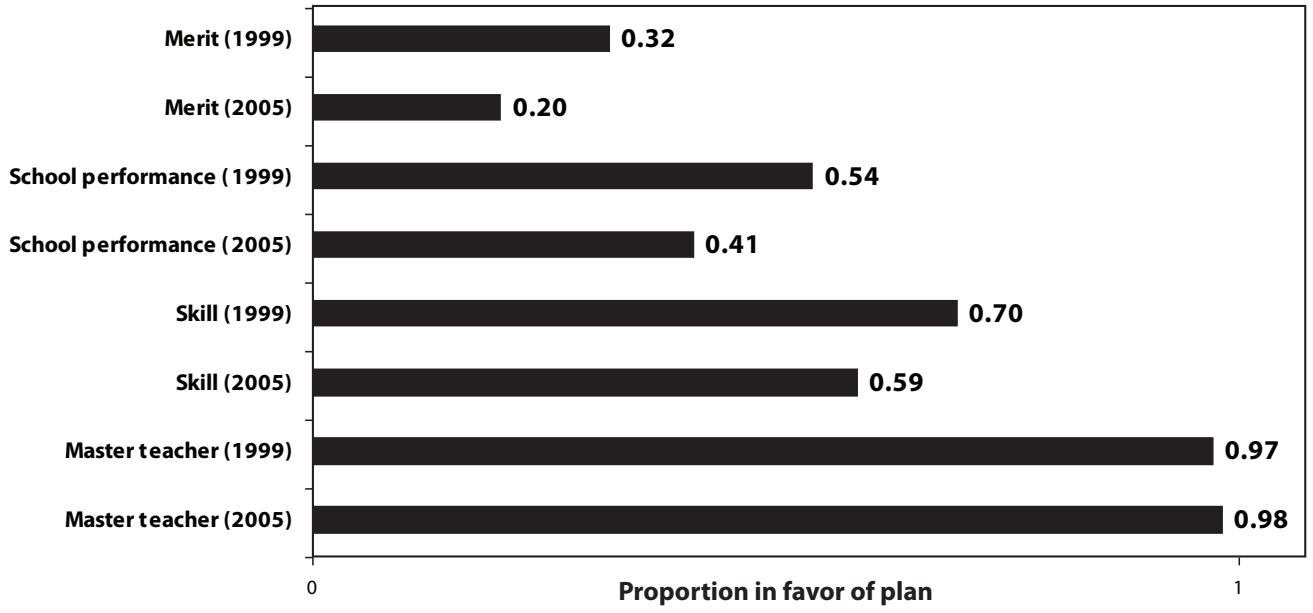
Support for bonus-based NTTP plans in 2005 and 1999, by sample year

All 2005 respondents and all 1999 respondents



Same teacher support for bonus-based NTTP plans in 2005 and 1999, by sample year

Only teachers that responded to both the 1999 and 2005 surveys



NOTE: 2005 values are lower than for the entire 2005 sample because all respondents here have at least six years of service, which is associated with reduced support for all but the master teacher NTTP plan.

SOURCE: Author's analysis of state education association data.

were less inclined to prefer that significant amounts of salary increases be tied to performance evaluation. As is evident in **Figure E**, the proportion of teachers preferring that performance evaluation play *no* role in salary increases increased from 39% to 52% over the six-year period between surveys, as mean scores on this 11-point response scale fell from 3.10 in 1999 to 2.55 in 2005. Both the mean differences and proportion differences are statistically significant. Because the two samples are roughly comparable on relevant dimensions (e.g., teacher service, teacher education, gender), the lower NTTP plan favorability in 2005 may actually reflect a small cohort effect. However, this cohort effect would be in the *opposite* direction of what would be needed to refute a true negative service effect interpretation of the negative teacher service coefficients reported above (i.e., less NTTP-friendly cohorts in more recent years would, all else equal, contribute toward having *positive* service coefficients). This lack of a cohort explanation for the negative service coefficients is important because it suggests that the negative service effects in the 2005 cross-sectional data are attributable to changes *within* teachers over time (i.e., the average teacher becomes less NTTP-friendly over time), rather than to more NTTP-friendly cohorts recently entering the teaching profession. Because this is a crucial issue in terms of NTTP viability now and in the future, this study undertook three additional analyses to confirm this inference.

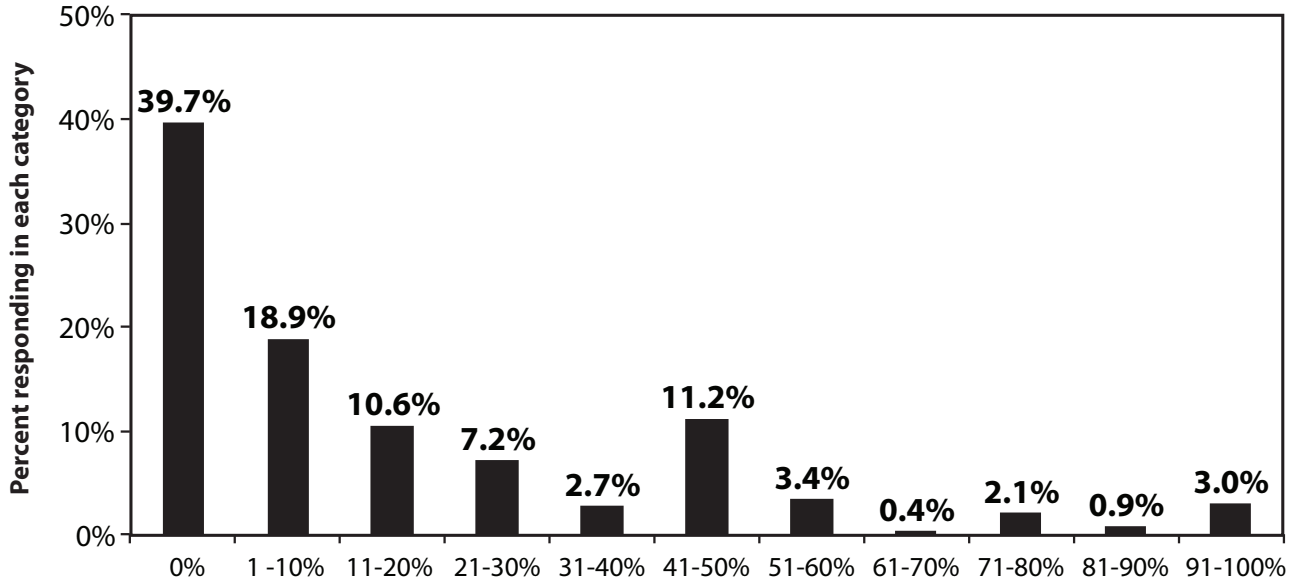
First, data from the two survey years were combined and the models in columns 1-3 in Table 4 and column 7 in Table 3 were re-estimated, but with the inclusion of a dummy variable representing the 2005 sample year. This approach has the advantage of revealing whether sample year matters to NTTP plan adoption preferences, once the effects of all other predictors have been controlled for. The dummy variable was not statistically different from zero when predicting merit-based bonus plan favorability (column 4 of Table 4), indicating that there was no evidence of a cohort effect that would explain the negative service effects for the merit plan in 2005 (column 1). The dummy variable was statistically significant in columns 5 and 6, however, revealing that the 2005 sample was 22% and 25% *less* likely than the 1999 sample of teachers to favor adoption of school-performance-based and skill-based bonus plans, respectively. Similarly, column 7 of Table 3 shows that 2005 sample membership predicts a .54 *reduction* in the scale of the preferred salary increase to be based on performance evaluation. Again, the lower NTTP favorability in 2005 is in the opposite direction of what would be needed to position a cohort effect as a competing explanation for the consistent negative service effects on NTTP.

Second, the pooled model was re-estimated using only relatively new teachers in the two surveys to examine whether there might be a cohort effect that emerges among newer teachers only. Because the surveys were conducted six years apart, isolating the teachers with only five years or less of service from both the 1999 and 2005 samples allows clean assessments of differences between mutually exclusive groups. Once again, the 2005 sample dummy variables were either not statistically different from zero (Table 4, columns 7-8), revealing no support for a cohort effect, or were negative (column 9), indicating that the 2005 sample was 45% *less* likely to favor the adoption of a school-performance-based bonus plan. In the final column of Table 3, where only teachers from each sample with five years or less service are included, 2005 sample membership yields a .71 reduction in evaluation percentage. The negative effects of the more recent sample again yield no support for the contention that negative service coefficients when predicting NTTP favorability in cross-sectional data reflect new cohorts more amenable to NTTP.

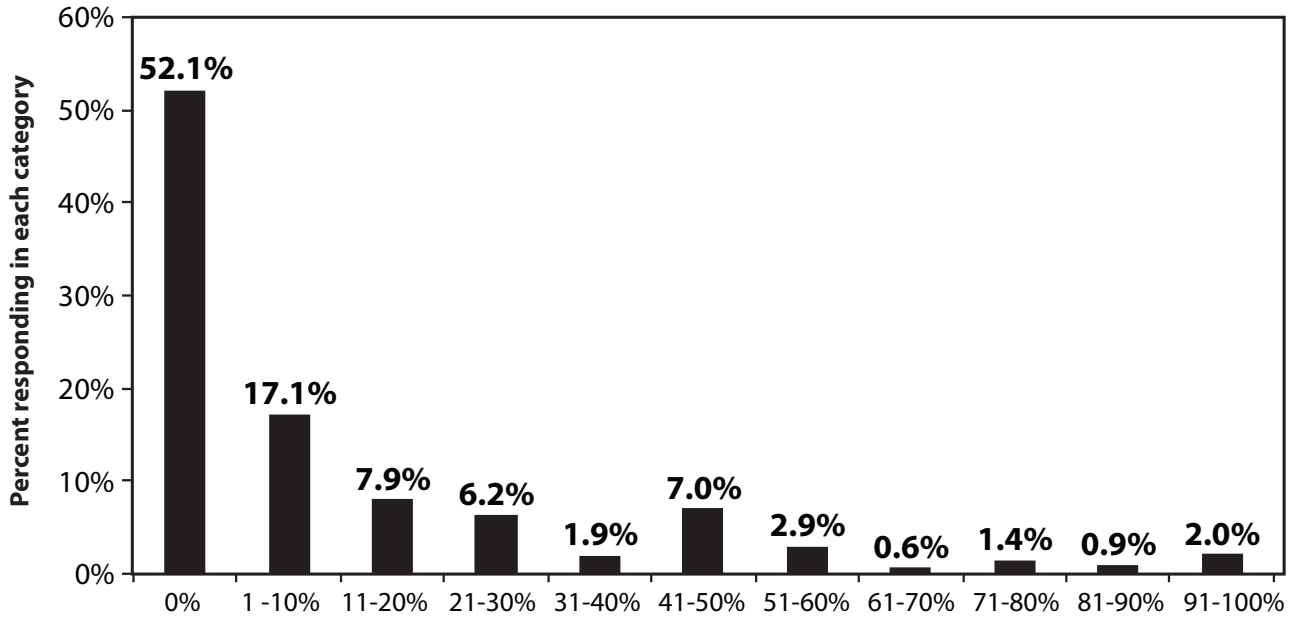
Third, the within-teacher service effect interpretation was more directly tested by using the subset of approximately 1,108 teachers that responded to both the 1999 and 2005 surveys. Figure D (bottom) reveals that within-teacher reductions in bonus-based NTTP plan acceptability emerge over time, as the *same teachers* that produced mean support levels of .32, .54, and .70 for merit-based, school-performance-based, and skill-based bonus plans in 1999 produced statistically significantly lower values of .20, .41, and .59 in 2005. That is, significantly more teachers shifted from "favor" NTTP in 1999 to "oppose" in 2005 than shifted from "oppose" to "favor." Similarly, within-teacher reductions in recommended salary increase percentages tied to performance evaluation emerge over time, as the *same teachers* that produced mean responses of 3.07 in 1999 (on the 11-point evaluation percentage scale) produced a statistically significantly lower value of 2.38 in 2005. Also, 44.6% of teachers that preferred some salary increase link with performance

FIGURE E

Salary increase portion to be tied to performance evaluation, 1999
(all respondents from each sample)



Salary increase portion to be tied to performance evaluation, 2005
(all respondents from each sample)



SOURCE: Author's analysis of state education association data.

evaluation in 1999 shifted to preferring no link in 2005, while only 19.7% shifted in the other direction (these differences were statistically significant). In sum, robust evidence indicates that the negative service effect coefficients on NTTP favorability represent teachers becoming less enchanted with NTTP plan prospects as they acquire more service (i.e., within-teacher changes), rather than more NTTP-friendly cohorts in more recent samples (i.e., between-teacher changes).

Discussion

Hypotheses 1-4

Consistent with the hypotheses and conceptual rationale, surveyed teachers preferred pay options in ways consistent with VIE theory. In particular, there was ample evidence that preferences were a function of instrumentality, the perceived likelihood that one outcome, such as a particular pay plan or criterion, will lead to valued pay consequences for the individual. Additionally, while teachers clearly were hesitant to embrace—and at times were strongly opposed to—NTTP options in this study, there are also hopeful signs for NTTP embedded in the results. **Table 6** summarizes many of the results found here and includes some of the implications and alternative explanations explored below.

One aspect of the NTTP plans studied here makes the opposition to merit-based bonus plans and, though to a lesser extent, skill-based pay and school-based bonuses, rather surprising. The payouts associated with these three NTTP plans were all described in a "bonus framework," meaning that no pay was at risk in any of these scenarios. That is, it appears that teachers are likely to oppose the potential to increase earnings via some NTTP plans, even when there is no readily apparent downside risk associated with the potential add-on pay. Several explanations are possible. First, there may in fact be downside risk, or at least the perception thereof, which reduces instrumentality. Teachers understand that financial resources available for total compensation are finite and often inadequate. Thus, the teachers in this sample may have presumed that money spent on a bonus would be money unavailable for the well-accepted salary schedule. Similarly, agreeing to the adoption of a bonus plan could lead the unionized teachers here to be concerned that future negotiations would find the district attempting to increasingly allocate money toward the bonus plan rather than the salary schedule. Second, concerns for equity, rather than instrumentality, may explain these results. Schools often have strong egalitarian cultures in which all teachers are deemed to be equal and thus merit equal treatment (Lortie 1975). NTTP plans will, by definition, violate these norms of equity, with the largest violations likely to manifest in the greatest teacher resistance. Third, the objectivity of the traditional salary schedule may be so cherished that even add-on bonuses are looked at with enough suspicion as to be prohibitive. That is, it could be that the opposition to NTTP bonus plans is a result of trepidation at the thought of paying for anything that is potentially subjectively assessed (in contrast to the objective nature of additional responsibilities of a master/mentor teacher), thereby perhaps opening the door for favoritism. This would not bode well for those who advocate NTTP, as such a "fear of a slippery slope" explanation would generalize across reactions to most NTTP options.

Perhaps the strongest result in this study was the negative effect of service on every aspect of NTTP and even on the preferred importance of education as a pay increase determinant. This finding is consistent with service effects reported on preferences for individual-based incentive pay (Jacob & Springer 2008), merit-based bonuses (Ballou & Podgursky 1993), and four different NTTP measures (Goldhaber et al. 2007). As in Goldhaber et al., the service effects here were strikingly pervasive. What is new here is the strong evidence that the service effect was exactly what it has been thought (but not previously demonstrated) to be: a decline in support for NTTP associated with the accumulation of service. There was no evidence that newer cohorts were more amenable to NTTP. The pure (within-teacher) service effect and the (between-teacher) cohort effect have vastly different implications for NTTP favorability, as the service effect paints a bleak picture while a cohort effect (not supported here) would have bode well for NTTP in the future. Of course, what

TABLE 6

Key findings on teacher preferences for NTTP approaches

Bonus-based NTTP plan preferences

Teachers are likely to oppose the potential to increase earnings via some bonus-based NTTP pay plans, even when there is no downside risk associated with the potential add-on pay. Possible explanations include teachers (more seasoned teachers in particular) suspecting that money for the bonus pool will ultimately mean less money for the salary schedule increments, the violation of teachers' strongly held norms of equity, and an aversion to any perceived subjectivity in pay allocations that might make favoritism more likely.

Merit-based bonus plans were the least favored of the plans presented. Concerns about the measurement of teacher performance may be driving this, as the criteria for school performance-based, skill-based, and master/mentor teacher plans are likely to be deemed to be less subjective.

Females were less likely to favor the adoption of merit-based, school performance-based, and skill-based bonus plans.

Between 1999 and 2005, support for adopting merit-based, school performance-based, and skill-based bonus plans dropped.

As service accumulates, teachers' support for adopting merit-based, school performance-based, and skill-based bonus plans diminished. Analyses incorporating data from 1999 indicate that this reduction is not the result of a cohort or generational effect in which new teachers in 2005 are more in favor of NTTP than were new teachers in 1999. Rather, by following the same teachers over the six years, it is clear that individual teachers grow less likely over time to favor the adoption of the bonus-based NTTP plans.

Pay equity (the perception that one's pay level is fair) predicted reductions in the likelihoods of favoring the adoption of merit-based and school performance-based bonus plans. Similarly, union instrumentality, which is the belief that the union is influential in furthering teacher goals, reduced the acceptability of the merit-based and school-based bonus plans. It may be that the perception of a union that can and will successfully exert efforts on the teachers' behalf emboldens teachers to resist pay innovations that are not recommended or co-sponsored by the union. The sense may be that if merit-based or school performance-based bonuses were a sound idea, the local association, which has the ability to further teachers' best interests, would be pushing it (which was not the case in these data).

In contrast to attitudes that facilitated the rejection of bonus-based NTTP plans, the perception that the school administration was procedurally fair in dealings with teachers enhanced the likelihood of accepting skill-based pay and school performance-based bonus plans.

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we do not know is what the makeup of those cohorts would be if NTTP were actually in place, which might enhance the attraction of prospective teachers that preferred NTTP. Hence, a closely related question to the present study is "What do prospective teachers prefer in a teacher pay system?" Milanowski (2007) addressed this issue, finding preferences for pay tied to individual performance, as well as to knowledge and skill development, relative to traditional pay and pay tied to school performance. This potentially sets the stage for a showdown of sorts, as the implementation of NTTP will likely attract new teachers that lean toward such a pay system; what remains to be seen is how these new teachers will respond to, or resist, whatever forces are present that drive the ubiquitous negative service effects on NTTP (e.g., equity norm violations; suspicion that the district will increasingly allocate money toward the bonus plan rather than the salary schedule; fear of favoritism that could emerge with the incorporation of a subjective pay criterion; and vested interest in a traditional plan based largely on rewarding service).

While the education effects reported above were not as striking as the service effects, teachers with master's degrees were consistently associated with opposition to a merit-based bonus (and also, of course, with the preferred importance of education in salary increases). Education effects are inconsistent across the pay preference research, although Ballou and Podgursky (1993) found the same negative relation to merit bonuses that emerged here. Given the general tendencies for experienced, educated, and female teachers (discussed below) to both support the status quo and dominate teacher demographics, it seems likely that winning teacher acceptance of NTTP will remain difficult.

TABLE 6 (CONT.)

Key findings on teacher preferences for NTTP approaches

Salary increase criteria preferences

Eighty-three percent of teachers either "agreed" or "strongly agreed" that education and service should play important roles in salary increases. Only 6% of teachers indicated that they disagreed or strongly disagreed with each of these two bases playing an important role.

In stark contrast, teachers were clearly opposed to the use of student test scores as bases for salary increases. While 83% of teachers either disagreed or strongly disagreed that the *school's* student test scores should be an important factor in their pay increases, only 4% agreed or strongly agreed that these scores should be used in this manner. Similarly, 87% of teachers either disagreed or strongly disagreed that *their own students'* test scores should be an important factor in their pay increases, while only 3% agreed or strongly agreed that these scores should play such a role. Although it could be argued that the education and service means (about 4 on a 5-point agreement scale) leave open the possibility that teachers do not see these current criteria as the only viable salary increase bases, it could also be argued that the strong opposition to test scores suggests that extending current salary increase criteria to include them would be problematic.

Although there are instrumentality-, expectancy-, and equity-based explanations for the strong opposition to the use of test scores for salary increases, an alternative explanation grounded in teacher concerns for education quality is important as well. Teachers rated the linking of pay to standardized test scores as the most *ineffective* of several potential methods for improving academic performance. To the extent that this sample's teachers have reasonably good insights into improving academic performance, the advisability of tying salary increases to test scores in this environment is questionable.

Given that 38% of teachers either disagree or strongly disagree with a focus on performance evaluation as an important determinant of salary increases, and that 35% either agree or strongly agree with such use of performance evaluation, there appears to be considerable disagreement among teachers as to whether performance evaluation should play a role in salary increases. Even this 35%, however, tempered their enthusiasm for merit pay increases when required to state exactly how large a role performance evaluation should play. Exactly half of this group of merit increase "supporters" also report that one-fifth or less of their pay increases should be linked to performance evaluation (16% even said that none of the pay increase should be so determined, despite agreeing that performance evaluation should be important). Assuming a 5% merit increase pool, this means that half of the teachers that support the use of merit-based salary increases advocate having only 1% or less of their pay dispersed via a merit increase format. Thus, although some of the teachers here appear to agree in principle that performance should play an important role in salary increases, when asked for specifics they do not appear in practice to embrace a significant role for actual performance-based pay decisions.

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In contrast to factors that facilitated the rejection of NTTP plans, the perception that the school administration was procedurally fair in dealings with teachers was consistently associated with support for NTTP. Although such procedural justice effects were originally framed as operating via enhanced instrumentality, a related explanation involves trust, which procedural justice has been shown to predict (e.g., Konovsky & Pugh 1994). Indeed, the results here echo Goldhaber et al.'s (2007) finding that trust in the principal was positively related to support for merit pay and national certification incentive pay. Thus, procedural justice perceptions and trust that NTTP will be fairly and competently designed and implemented likely reduces the uncertainty and threat that can plague attempts to instill change in an organization. Hence, school systems bent on changing the pay landscape would do well to attempt to enhance teacher perceptions of procedural justice. Formally established procedures that invite teacher participation in and influence on decisions, as well as open lines of communication and a general atmosphere of respect in interactions with teachers, should all contribute to the procedural justice perceptions that will lead teachers to more readily favor NTTP. Interestingly, because such contextual factors will make schools more compelling places to work, as well as grease the rails for NTTP, their presence alone may well at least partially yield the attraction, retention, and motivation benefits behind the arguments for NTTP.

TABLE 6 (CONT.)

Key findings on teacher preferences for NTTP approaches

Agreement with whether a teacher's performance evaluation should be an important factor in salary increases fell about midway between the embracing of service and education as criteria and the denouncing of test scores.
Teacher assessments of whether certain criteria should play an important role in salary increases depend on how teachers fare on these factors. Having more service and education predicts greater support for service and education, respectively, as salary increase criteria. Moreover, possessing more service also appears to cast doubt on the suitability of all alternative salary increase criteria, as it predicts less support for education, performance evaluation, and test scores.
Analyses incorporating data from 1999 indicate that the negative service effects on agreement that salary increases should be tied to performance evaluation are *not* the result of a cohort effect in which new teachers in 2005 are more in favor of this criterion than were new teachers in 1999. Instead, it is clear that individual teachers change as service accumulates, growing more opposed to using performance evaluation as a basis for salary increases. For example, 44.6% of teachers that preferred some salary increase link with performance evaluation in 1999 shifted to preferring no link in 2005, while only 19.7% shifted in the other direction. Thus, merit salary increase plans will continue to be a tough sell, as even those teachers that prefer a modest portion of their pay increases to be based on performance become increasingly disenchanted with the idea as they spend time in the teaching role.
Females are more likely to support the status quo with regard to what should matter most in salary increases. Females reported greater agreement that education should be an important factor, were more opposed to important roles for the two test score bases, and recommended less impact of performance evaluations on salary increases.
Perceptions of pay equity and union instrumentality appeared to lead teachers to prefer the traditional salary increase determinants and reject the notion of basing pay increases on NTTP criteria. These results are consistent with how the two attitudes predicted bonus-based NTTP plan adoption and support speculation that general opposition to pay plans increases (and VIE theory's instrumentality decreases) as the subjectivity and perceived uncertainty associated with the plan criteria grows.
Although high procedural justice perceptions and high job satisfaction may serve to lessen the degree to which teachers oppose test scores as an important basis for salary increases, the opposition remains unambiguous and robust.

Additional teacher predictors of NTTP preferences

Three additional teacher characteristics warrant attention. Female teachers appear to be more likely to support traditional approaches to salary increases. Women, relative to men, reported greater agreement that education should be an important pay criterion. Females also were less inclined to see the two test score bases and the performance evaluation percentage variable as suitable for important roles in salary increases, and were more likely to oppose merit-based, skill-based, and school-performance-based bonuses. This finding is consistent with Ballou and Podgursky (1993), who reported that women were less supportive of merit-based bonuses, and Goldhaber (2007), who found women to be less in favor of both merit increases and incentives tied to national certification. Moreover, these findings are consistent with studies showing that women are more financially risk averse (e.g., Powell & Ansic 1997). This suggests, given that women tend to outnumber men in public education, that teaching populations will often be resistant to NTTP plan types that move pay increase determination from the predictable salary schedule to the unpredictability of student test scores and performance evaluations. Risk aversion, in effect, magnifies the reduced instrumentality attached to uncertain outcomes.

Similar to the female effect, two of the teacher attitudes studied here largely reinforce the salary increase criteria status quo. Union instrumentality, which is the belief that the union is influential in furthering teacher goals, has positive associations with whether education and service should be emphasized, but is negatively related to whether test scores or teacher performance evaluations should be important. Additionally, a one scale point increase in union instrumentality predicted 28% and 20% reductions in the likelihoods of favoring merit-based and school-based bonuses, respectively. It may be that

the perception of a union that can and will successfully exert efforts on the teachers' behalf emboldens teachers to resist pay innovations that are not recommended or co-sponsored by the union. The sense may be that if NTTP were a sound idea, my local association—which has the ability to further my best interests—would be pushing for it (which was not the case in this state). It would be interesting to study whether this union instrumentality effect dissipates if the bonus-based NTTP plan in question were in fact being co-sponsored by the administration and the union.

Finally, pay equity perceptions correspond to advocating a more important role for service, a less important role for performance evaluation, and opposition to merit-based and school-performance-based bonus plans. This supports speculation that general opposition to these plans appears to increase as the potential unfairness of the criteria grows. Perceiving pay level as fair would quite understandably result in support for the criteria that brought about the current pay situation; and, as cognitive dissonance would predict, perceived pay fairness would make support for NTTP criteria that are often cited as potentially unfair all the more untenable. Interestingly, these pay equity results also suggest that support for Hypotheses 1 and 2 reflect equity, as well as instrumentality explanations. That is, preferring the single salary schedule to NTTP may be as much about teachers preferring equity as it is about furthering self-interest. Future research aimed at teasing apart equity and instrumentality effects on NTTP preferences would be of value.

VIE, weak merit preferences, and test scores

The expectancy component of VIE theory suggests yet another interpretation of the general aversion to NTTP and the apparent preference for the status quo in teacher pay. Instead of making the instrumentality-based or equity-based inferences that teacher preferences reflect concerns about criteria uncertainty, fairness, subjectivity, and validity, an alternative perspective based on the expectancy component is that it is those teachers that see themselves as likely to fare poorly in a performance evaluation or test score-based assessment that are driving skepticism about NTTP. That is, it may be that at least some teachers consider poor evaluations or weak test scores to be likely because they do not consider themselves to be, or to be capable of, performing well (low expectancy), rather than because they are dubious about the validity (low instrumentality) or fairness (low equity) of such criteria. The corollary, then, is that teachers that do support NTTP may tend to be high performers. To the extent that this is true, their pay preferences may be worth carefully considering, as high performer attraction and retention is an important, though at times overlooked, consideration in teacher pay design (Milanowski 2007).

And there certainly were teachers that did support NTTP. As described earlier, while service and education were the most favored pay criteria, and test scores the least, performance evaluation as a criterion was somewhere in the middle, as teachers' opinions were split (38% either disagree or strongly disagree with it playing an important role, while 35% either agree or strongly agree). Some light can be shed on this disagreement by investigating the evaluation percentage variable, in which teachers reported the percentage of salary increase that they thought should be based on performance evaluation (see the 2005 sample breakout in Figure E). As an 11-level variable, evaluation percentage provided an option for a 0% response and then 10 options that represent 10% increments (i.e., 1-10% is the 2nd level, while 91-100% is the 11th). The 2.59 mean indicates that the average teacher recommends that performance evaluation should drive somewhere between 1-10% and 11-20% of salary increase. The median teacher, however, is less accepting of merit pay, as 52% of teachers indicated that none of the salary increase should be based on performance evaluation. Another 25% reported either the 1-10% or the 11-20% option. Even with a generous overall salary increase pool of 5%, this group will have an increase of 1% or less determined by performance evaluation. In other words, despite approximately half of the teachers being amenable to *some* role for performance evaluation in salary increases, the vast majority of teachers (77%) prefer either no role or an extremely small one. Indeed, only 15% of teachers indicated that half or more of their salary increase should be based on their performance evaluation.

Returning now to those 35% of teachers that agreed (or strongly agreed) that performance evaluation should be an important factor in salary increases. One might expect that their story would be altogether different from the general results, which merit increase advocates might describe as disappointing. Notably, however, even this group often tempered their enthusiasm for merit pay increases when required to state exactly how large a role performance evaluation should play. Of this group of merit increase "supporters," 14% checked the option indicating 11-20% of salary increase should be based on performance evaluation, 20% checked the 1-10% option, and, startlingly, 16% checked the 0% option. Thus, fully 50% of those agreeing that performance evaluation should be an important factor in salary increases also report that one-fifth or less of their pay increases should be linked to that criterion. Assuming a 5% merit increase pool, this means that half of the teachers that support the use of merit-based salary increases advocate having only 1% or less of their pay dispersed via a merit increase format. Certainly, given the miniscule valence component (attractiveness) from VIE theory, a merit increase program designed to fit such preferences would have little if any attraction, retention, and motivation advantages (indeed, the costs, financial and otherwise, associated with determining who receives a 1.2% raise and who receives a .8% increase would certainly exceed the benefits). Overall, although many of the teachers here appear to agree in principle that performance should play a role in salary differences, they also hesitate to embrace in practice a significant role for actual performance-based pay decisions.

The evaluation percentage variable is also useful for putting the pro-NTTP attitude effects in perspective. Higher levels of job satisfaction and perceptions of the administration's procedural justice were associated with greater agreement that test scores and performance evaluation should be important salary increase criteria. Because the mean reaction to the performance evaluation criteria was relatively neutral, sizable increases to job satisfaction or procedural justice perceptions, all else equal, could possibly tip the balance in favor of teacher readiness for such an approach. Once again, however, inferences about support for merit pay increases are mitigated by the evaluation percentage distribution. With 77% of teachers reporting that only 0%, 1-10%, or 11-20% of salary increase should be based on performance evaluation, any leaning toward performance evaluation as a salary increase criterion would be accompanied by a clear preference for a rather weak link between performance and pay. Thus, there may be rather limited practical implications of job satisfaction and perceptions of the administration's procedural justice being positively associated with support for merit pay increases.

Attitudinal associations with test scores as criteria are also noteworthy. Specifically, any suggestion that satisfied teachers or teachers working with procedurally just administrations are relatively amenable to test score-based NTTP plans would be quite misleading. For example, a hefty two standard deviation increase in procedural justice perceptions for a teacher at the school scores mean of 1.73 results in a new school scores value of 1.91 (i.e., 1.73 plus the product of the procedural justice coefficient in column 3 of Table 3, the procedural justice standard deviation, and two). This is still less favorable than the "disagree" anchor at two on the 5-point scale. Moreover, even a concurrent two standard deviation increase in *both* procedural justice and job satisfaction for a teacher at the student scores mean of 1.59 results in a new student scores value of 1.85, also below the disagree threshold. Thus, it is important to recognize that although high procedural justice perceptions and high job satisfaction may serve to lessen the degree to which teachers oppose test scores as an important basis for salary increases, the opposition remains unambiguous and robust.[10]

Limitations and future research

Certain limitations must be considered when assessing the conclusions drawn here. First, one major concern involves the potential for improper attribution of causality. For example, I have suggested that pay equity perceptions and union instrumentality lead to preferences for education and service as pay increase criteria and to resistance to merit-based plans and school performance-based bonus plans. It is possible, however, that the reverse is actually the case. The 1999 sample provides an opportunity to at least partially mitigate the causality concerns. Because a subset of the 2005 teacher sample also responded to the 1999 survey, this study was able to test, for this group, whether pay equity perceptions

and union instrumentality measured in 1999 predicted preferences for education and service as pay increase criteria and the favorability of merit-based plans and school-performance-based bonus plans measured in 2005. Despite the six year interval, about half of the relevant Table 3 and Table 4 findings were replicated, in terms of coefficient direction and statistical significance. While such lagging of independent variables does not guarantee that simultaneity is not present, the results of this analysis are consistent with the causal suggestions made here. Importantly, reverse causality is not a concern with regard to the demographic effects on teacher pay preferences.

A second limitation here of note is generalizability. Our sample, though large, is comprised entirely of union members, who may have an overall aversion to NTTP that is not representative of non-unionized teaching populations. Similarly, the general attractiveness of traditional salary schedule pay criteria may be overstated here, relative to non-union teachers. Another generalizability concern is that this study sampled teachers that had little working experience under the NTTP plans discussed. As such, the findings may not tell us much about what teachers want once they have had a taste of such plans. The case could be made that initial preferences would be strengthened, just as it could be made that the preferences would change, or that whether they would be confirmed or changed would depend on the teaching population subset and how the pay plan was implemented. What is needed to begin to address the question are studies that compare NTTP plan adopters with non-adopters or that measure preferences both before and after NTTP plan implementation (e.g., Nadler and Wiswall, forthcoming). Such research also will allow better inferences on how well NTTP plans ultimately work for teachers and school districts. Even with such a powerful design, however, state-specific factors (e.g., union strength, the relationship between the state government and the union teachers) may constrain generalizability to the state's borders.

A third concern is that because the survey at times was designed to tap into general preferences, item wording probably led to two apparent inconsistencies in the data presented here. While a merit-based bonus plan was opposed by most teachers (72%), only 39% disagreed or strongly disagreed with making a teacher's performance evaluation an important basis for pay increases, with a mean score of 2.87 (roughly neutral) on a 5-point agreement scale. The difference may be attributable to the fact that the merit-based bonus item leaves the door open as to the criteria; hence, responding teachers may have assumed that, or merely wondered if, determining the "most outstanding teachers of a given year" meant test scores would be a factor. This is a plausible explanation for why teachers would strongly oppose a no-risk add-on bonus that could only help their pay (see the earlier discussion, however, for possible alternative explanations), but would be relatively neutral about using performance evaluation as a merit increase criterion. It would be interesting to compare the merit bonus and merit increase on more equal footing, with both specified as a function of either test scores or performance evaluation, or some combination thereof. A second inconsistency also may be attributable to resistance to test score-based systems of evaluation. Although the school-performance-based bonus was opposed by about half of the teachers (54%), 83% disagreed or strongly disagreed with making school performance, as measured by student improvement on standardized test scores, an important basis for pay increases, with a mean score of 1.73 on the 5-point agreement scale. In this case, the difference may be because while the school-performance-based bonus item does not explicitly state the criteria, thereby only allowing the possibility of a test score criterion, the school-based pay increase item explicitly ties the increase to test scores. Hence, the certainty of using test scores likely created more resistance than the possibility of their use, since the add-on bonus would otherwise seem to be a more acceptable NTTP option, all else equal. As in the merit pay inconsistency above, comparing teacher amenabilities to school-performance-based bonuses and school-performance-based pay increases, with an identical criterion for both, would be helpful in separating the effects of pay type (bonus or increase) from the effects of criterion type and criterion uncertainty.

Finally, this paper has tried to begin to address not only what teachers prefer with respect to NTTP but also the factors associated with these preferences. Specifically, it has looked at how NTTP plan favorability is associated with demographic and attitudinal predictors, and speculated on such factors as VIE components, equity norms (Lortie 1975), pay criterion measurability and fairness, cognitive dissonance, and teacher self-interest as related explanations. An

additional element that warrants study as a determinant of the acceptability of NTTP plans is teacher concern for what is best for students. Teachers, like all employees, care about their own pay, but they also care deeply about the teaching mission. Hence, it is likely that a concern for teaching effectiveness is important to NTTP preferences. The survey used in this study also asked teachers to indicate, on a 4-point scale anchored by "not effective" ("1") and "very effective" ("4"), how effective various programs would be in improving academic performance. "Tie salary increases for each teacher to improvement in his/her students' standardized test scores" had a mean rating of 1.28, indicating that teachers resist test scores as a pay criterion because they simply do not see this as a viable mechanism for making schools better. This perception may be traceable to pedagogical concerns about "teaching to the test," or to concerns that any such pay-for-performance approach constrains instrumentality or violates teachers' strongly held equity norms, both of which may subsequently disrupt teacher motivation and collaboration. Regardless, to the extent that we believe teachers have reasonably good insights into improving academic performance, this single item mean calls into question the advisability of tying salary increases to standardized test scores.[11]

Conclusion

One of the lightning rods in the discourse over teacher pay has been the question of "how much" teachers should be paid. What the "how much" debate does not directly address, however, is the question of "how" teachers should be paid. This paper attempts to help lay groundwork for a better understanding of what exactly teachers want in terms of how they should be paid. Ultimately, answers to the "how much" and the "how" questions must be reconciled, as the two questions are interdependent. For example, the effectiveness of any pay delivery method will depend on pay amount, as any attraction, retention, and motivation benefits of either traditional pay or NTTP plans will dissipate when the valence (i.e., satisfaction, attractiveness) associated with the pay in question is small. The crucial nature of the interdependence between how much to pay and how to pay is evident in this study, as the apparent support for merit pay among a considerable number of teachers is put into a considerably different light upon learning that the amount of merit pay preferred is, if not trivial, then certainly well below levels generally deemed to yield attraction, retention, and motivation benefits.

Such interdependence suggests that teacher pay preferences are nuanced and complex. But they are also worthy of study. Teacher preferences matter because they can ultimately help us to understand which NTTP plans and plan characteristics will be most welcomed or resisted. In turn, these reactions tell us about the risk and wisdom associated with NTTP plan decision-making, as to the extent that reactions to pay have implications for plan adoption and for teacher attraction, retention, and motivation, they also have implications for teacher and education quality.

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Endnotes

1. While the focus in this study is on the pay preferences of current teachers, the preferences of prospective teachers, which I refer to in the Discussion section, are of considerable importance as well (see Milanowski 2007).
2. The VIE framework is grounded in a self-interest explanation for pay preferences. Importantly, reasonable alternative interpretations exist for many of the relationships found here. In particular, teachers' preferences for equity and concerns for education quality offer meaningful competing explanations; such alternatives are addressed in the discussion of the empirical results.
3. Note that the focus here is on the pay preferences of teachers, not the preferences for teaching as such. It is certainly the case that many people choose teaching due to the service-oriented and motivational/inspirational nature of the profession, and this may affect their preferences about the form of pay. An analysis of these factors, however, is beyond the scope of this paper.
4. The merit-based bonus was favored by 32% of teachers when using the sampling weights to correct for non-response bias. This was the largest change in any of the descriptive statistics and statistical significance never depended on whether the sampling weights were used.
5. Because almost all teachers favored additional pay for master teachers, there was little to be gained through an analysis of what predicts favoring or opposing master teacher pay.
6. The first five of these random effects models predict agreement (on the 5-point scale)that the pay criterion in question should be an important factor in salary increases, while the sixth model predicts the recommended percentage of salary increase that should be based on the teacher's performance evaluation.
7. This is computed by adding the effects at each year, since the squared term means that the service effects depend on service level. At each year, the squared term necessitates computing the effect by multiplying the squared term coefficient by two times the level of the predictor at which the interpretation is to be made, and then adding the linear term coefficient to that product.
8. To interpret these changing effects, the (unreported) raw squared term coefficient is multiplied by two times the level of the predictor at which the interpretation is to be made; the linear term coefficient is then added in and the entire sum is exponentiated, subtracted from one, and multiplied by 100. Thus, the raw -.1077 linear service coefficient and the raw .00174 service squared coefficient indicate that, when service is zero (a brand new teacher) and when service is one, an additional year of service reduces the likelihood of favoring a merit bonus plan by 10.21% and 9.90%, respectively.
9. Because about half of the respondents reported the first level in the 11-level evaluation percentage variable, the distribution of the dependent variable in Table 3's columns 6-8 does not approach normality. Hence, I ran logistic and ordered logit regressions after converting evaluation percentage to 2-level and 3-level versions of the variable. All analyses mirrored the original findings in terms of meaningful inferences.
10. While I have offered instrumentality-, expectancy-, and equity-based explanations for such opposition to the use of test scores in NTTP, the next section describes an alternative explanation grounded in teacher concerns for education quality.
11. At 1.28 on the 4-point scale, linking pay to standardized test scores was the lowest scoring potential method for improving academic performance. Next lowest was "Hold schools accountable through the No Child Left Behind Act," with a mean of 1.74. The methods receiving the most favorable assessment were "Increase teacher input in decisions affecting their classrooms" and "Decrease class size," both at 3.60.