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## RECRUITING NEW TEACHERS TO URBAN SCHOOL DISTRICTS: WHAT INCENTIVES WILL WORK?

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Many urban districts in the United States have difficulty attracting and retaining quality teachers, yet they are often the most in need of them. In response, U.S. states and districts are experimenting with financial incentives to attract and retain high-quality teachers in high-need, low-achieving, or hard-to-staff urban schools. However, relatively little is known about how effective financial incentives are for recruiting new teachers to high-need urban schools. This research explores factors that are important to the job choices of teachers in training. Focus groups were held with students at three universities, and a policy-capturing study was done using 64 job scenarios representing various levels of pay and working conditions. Focus group results suggested that: a) many pre-service teachers, even relatively late in their preparation, are not committed to a particular district and are willing to consider many possibilities, including high need schools; b) although pay and benefits were attractive to the students, loan forgiveness and subsidies for further education were also attractive; and c) small increments of additional salary did not appear as important or attractive as other job characteristics. The policy-capturing study showed that working conditions factors, especially principal support, had more influence on simulated job choice than pay level, implying that money might be better spent to attract, retain, or train better principals than to provide higher beginning salaries to teachers in schools with high-poverty or a high proportion of students of color.

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Many urban school districts in the United States have difficulty attracting and retaining quality teachers, yet they are often the most in need of them. In response, some U.S. states and districts are experimenting with financial incentives to attract and retain high-quality teachers in high-need, low-achieving, or hard-to-staff urban schools (Murphy and DeArmond 2003).

Incentives are a logical policy option because tradition, union contracts, and the structure of teacher labor markets prevent simply reassigning the best teachers to schools with the highest need. Incentives have included signing bonuses, pay supplements ("combat pay"), loan forgiveness, tuition subsidies, and housing assistance. Two prominent examples are Charlotte-Mecklenburg,



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North Carolina, and Miami-Dade, Florida. The U.S. federal government is now encouraging states and districts to provide incentives. The U.S. Department of Education, under a \$99 million congressional appropriation, has awarded Teacher Incentive Fund grants aimed at providing additional money for recruitment, retention, and performance incentives for teachers in high-need schools or schools with more than 30 percent poverty (2006). However, relatively little is known about how effective financial incentives are likely to be to attract and retain teachers in high-need urban schools. The purpose of this research is to add to our knowledge of how teachers are likely to respond to incentives. By focusing on teachers in training, our research aimed at finding out more about how they make job choices, what they perceive as important about districts and schools in the context of their future job choice, and how much of a financial incentive would be needed to motivate them to take a job in a high-need district or school.

The basic assumption behind the use of financial incentives to attract teachers to high-need districts and schools is that the incentives provide a compensating differential for potentially unattractive job characteristics associated with poverty, low student achievement, and racial or ethnic differences. Despite persistent arguments that teachers are not motivated by money, research supports the conclusion that higher pay improves teacher retention (Guarino, Santibañez, Daley, and Brewer 2004). There is also some evidence that higher salaries improve the quality of new teachers attracted to a district (e.g., Figlio 2002; Manski 1987).

However, there are features of the teacher labor market that may limit the effectiveness of incentives. First, many teachers seem to prefer to teach in a school close to their community of origin (Boyd, Lankford, Loeb, and Wyckoff 2003). Second, teacher labor markets may be segmented based on ethnicity, teacher training program completed, and qualifications. Burian-Fitzgerald and Anagnostopoulos (2005) found that new teachers' ethnicity and perceptions of their own qualifications influenced the jobs for which they considered applying. This suggests that districts may have to compete for a local supply of new teachers and that, in the short run, the supply is relatively fixed.

There may also be other job characteristics that are more important than compensation in attracting teachers. Research on teacher turnover has identified several influential factors important to teachers choosing schools. These include administrator support (Loeb, Darling-Hammond, and Luczak 2005; Johnson and

Birkeland 2003, Ingersoll 2001; Weiss 1999), the presence of induction programs (Smith and Ingersoll 2004), collegial support (Johnson and Birkeland 2003), class size (Ingersoll 2003; Kirby, Berends, and Naftel 1999), teacher autonomy or involvement in decision making (Weiss 1999; Ingersoll 2003), and school facilities (Buckley, Schnieder, and Shang 2004). Johnson, Berg, and Donaldson (2005) argued, based on Rosenholtz (1989), that parent and community involvement could also impact retention via improving teacher efficacy. Many of these factors are likely to be considered—along with pay, location, and student characteristics—when teachers judge whether a financial incentive would make teaching in a high-need school more attractive.

Although it seems reasonable to assume that teachers make trade-offs between pay and a variety of other job characteristics—including location, student characteristics, and working conditions—there is little research that addresses either how teachers make these trade-offs or how much of a financial incentive would be needed to make high-need schools more attractive. Econometric studies using pay variation among districts (e.g., Hanushek, Kain, and Rivkin 2005; Imazeki 2000) have suggested that financial incentives might have to be relatively large. However, these studies are limited by the range of variation in salaries typically found in local teacher labor markets and the confounding of districts' abilities to pay, community tastes for education, and teacher bargaining power with salaries and working conditions (Loeb and Page 1998). Few studies of specific incentive programs have been conducted. A small study by Bruno and Negrete (1983) found that extra pay was not effective in recruiting and retaining teachers in high-poverty schools within a district. On the other hand, a more recent study by Clotfelter, Glennie, Ladd, and Vigdor (2006) found that a moderately-sized addition to salary (\$1,800) was effective in encouraging mid-career and more senior math and science teachers to stay in high-needs districts in North Carolina. Clearly, far more research is needed on the potential effectiveness of financial incentives given the current interest in them as an intervention to attract new teachers to high-need schools.

In particular, more research is needed on whether financial incentives will attract new teachers (those just beginning their teaching career) to urban districts and low socio-economic status (SES) schools. Due to higher attrition rates in higher poverty schools of those with higher proportions of students of color in the U.S. (Guarino, Santibañez, Daley, and Brewer, 2004), as well

as seniority-based transfer provisions in U.S. teacher collective bargaining agreements, it is likely that most vacancies in urban schools are filled with teachers just completing pre-service preparation. This is consistent with the finding that schools in urban districts and with higher enrollments of students of color have higher proportions of inexperienced teachers (Loeb and Reininger, 2004). Only three studies were located that address the potential importance of financial incentives for new teacher job choice. Painter, Haladyna, and Hurwitz (2007) surveyed a sample of students graduating from teacher preparation programs. They found that respondents rated compensation (e.g., salary, benefits, and salary growth potential) and a professional environment (e.g., an instruction focused culture, opportunities for mentoring) as attractive job characteristics and a challenging instructional environment (e.g., low SES, higher percentage of English language learners) as less attractive. This study did not ask respondents to make tradeoffs between job characteristics, and it did not ask about the size of an effective financial incentive. Winter and Melloy (2005) found that a 10 percent signing bonus had little effect on job attractiveness and that a signing bonus only slightly increased reported willingness to accept a job in a struggling school for either experienced or inexperienced (pre-service) teachers in a job choice simulation study. This study did not, however, explicitly address urban schools and school SES. Bacolod (2007) found that teacher working conditions played a more important role than salaries in determining where new teachers chose to teach (e.g., urban, suburban, or rural schools), but her study does not directly address the question of the size of an incentive that might attract new teachers to high-poverty schools or schools with a high proportion of students of color. Taken together with the studies that included experienced teachers, it seems that questions about the size and relative importance of financial incentives remain unanswered.

This research provides more information about the relative effects of financial incentives and other job characteristics on new teachers' job choices and tries to estimate the size of an attractive financial incentive. Research focused on addressing three questions:

1. What incentives might be expected to attract new teachers to high-need schools?
2. What is the relative value new teachers place on financial incentives and working conditions?
3. How much of a salary incentive would be needed to attract new teachers to high-needs schools?

## Methods

This research used a combination of qualitative and quantitative methods. The first method began with focus groups at three teacher training institutions. The purpose of the groups was to familiarize ourselves with the what job characteristics pre-service teachers are likely to look for, to understand why pre-service teachers view schools and districts as attractive or unattractive choices, and to collect background information for the development of a survey and the interpretation of survey results.

The main component of the study was a survey about student job preferences. On the survey, students were asked to indicate preferences for jobs that varied on a set of job characteristics, including various levels of beginning salary. These responses would allow a quantitative estimate of the relative value new teachers place on these job characteristics.

## Focus Groups

Focus groups were conducted in the spring of 2006, and all the institutions were located in the southern part of Wisconsin. Three focus groups were held at one large urban public university, one at a small private urban university, and three at a large public university in a university town. Forty students participated. The participants were typically in their final year of training and would be seeking jobs soon. They were 78 percent female, 25 percent people of color, and the average age was 23.6 years. The focus group sessions were conducted by a trained facilitator, and recordings of the proceedings were transcribed. Transcripts were independently content analyzed by multiple researchers to identify themes related to job choice and attractive and unattractive job characteristics. The researchers were easily able to agree on key themes.

## Survey

Based on the results of the focus groups, and on job characteristics found important for teacher retention by prior research, a survey was designed to be administered to students at three teacher training institutions. The survey collected information on where the students intended to apply, what attracted them to different districts, and the tradeoffs they make in deciding to apply for jobs with different levels of pay, working conditions, and student population characteristics. The heart of the survey was a section asking respondents to rate the attractiveness of jobs characterized by different combinations of pay, working conditions, and ethnic composition.

Information about five job characteristics was provided for each hypothetical job:

- pay level (four levels, \$32,000, \$37,000, \$42,000 and \$47,000 for a 191-day contract),
- principal's reputation for understanding teaching and establishing supportive relationships with teachers,
- presence or absence of a new teacher induction program,
- curriculum flexibility (highly structured versus highly flexible), and
- ethnic composition of the school (either 75 percent Caucasian, 15 percent African American, and 10 percent Hispanic or 75 percent African American, 15 percent Hispanic, and 10 percent Caucasian).

The jobs were all described as being in an urban district with 160 schools; a student population that is 63 percent African American, 20 percent Caucasian, and 17 percent Hispanic; and 65 percent of the students qualifying for free or reduced price lunch. We used this frame because we wanted to see if within an urban district incentives for high-need schools would affect potential job choice. We used the percent African American and Hispanic to operationalize high-needs schools within the hypothetical urban district. We considered using poverty and student achievement, but chose ethnic composition because this is often strongly correlated with these other indicators and may be more salient to the predominantly Caucasian student sample we expected.

These job characteristics were varied across the 64 job descriptions needed to cover all combinations of the five factors ( $64 = 4 \times 2 \times 2 \times 2 \times 2$ ). However, to prevent respondent fatigue and maximize the chances of respondents completing the survey, only eight job descriptions were presented to each respondent, entailing the use of a balanced, incomplete block design (Graham and Cable 2001). Thus, there were eight versions of the survey, reflecting the eight blocks of the design. Within each block, the eight job descriptions were presented at random. The survey also asked the respondents' age, gender, ethnic heritage, grade point average, major, and perceived level of preparation as well as questions about the type of district in which they were educated (e.g., rural, urban, suburban) and the districts in which they had done student teaching. After responding to the demographic and background items, respondents were asked to read each of the eight job descriptions and answer two questions about each job: 1) "Would you apply for this job?" (Answer: yes or no); and 2) "How likely is it that

you would accept this job if it was offered to you?" (Answer: a response scale with 11 categories labeled "0 percent," "10 percent"... up to "100 percent" was provided).

The survey was pre-tested with eight students preparing to be teachers. After responding to the survey, they were interviewed about how they understood the questions, difficulties they had responding, survey length, and whether they would be willing to respond over the Internet or in a class without compensation. The pre-test suggested that the survey would take 15 to 20 minutes to complete. These eight pre-testers were compensated for their participation, but those participating in the main data collection were not. Based on this pre-test, a number of minor changes were made to the survey.

The surveys were administered primarily in paper and pencil form, in classes enrolling students completing their student teaching. Some surveys were administered over the Internet. Most of the respondents were students in their last semester of their teacher preparation program at one of the three universities. Surveys were administered in November and December of 2006, and January and February of 2007. All respondents were promised confidentiality, and those taking the paper and pencil version responded anonymously. Response rates were over 95 percent for the paper and pencil administrations, but only 13 percent for the web-based administration. When considering response rates, keep in mind that absent students were not counted on the day of the paper and pencil administration. We took a convenience sample of class sections, based on the willingness of the instructor to give time for survey administration. There were, on the average, 31.8 respondents for each of the eight blocks (versions) of the survey. Data were analyzed using various regression-based, policy-capturing analysis techniques (Cooksey 1996).

## Results

### Focus Groups

Analyses of the focus group data suggested that:

1. Many students, even relatively late in their preparation, are not committed to a particular district and are willing to consider many possibilities, including those with high-need schools. A substantial number had not yet given much thought to the question of which specific districts were of interest to them.
2. Students from the large urban area preferred

to stay in the metropolitan area; those from the university in the college town were more mobile.

3. Although pay and benefits were attractive to the students, loan forgiveness and subsidies for further education were also attractive.

4. Small increments of additional salary did not appear as important as other job characteristics in making jobs attractive. There were a wide variety of opinions expressed about what salary level would be attractive for teaching in an urban district. In most of the focus groups, at least one participant noted that salary level was not an important factor in job choice. A substantial minority of participants indicated that the salary level given as an example (\$32,000) was adequate. On the other hand, another substantial minority indicated that this was not an attractive salary. When pressed to name an attractive salary, most of these respondents mentioned salaries in the \$40,000–50,000 range.

5. Other school and district attributes mentioned as attractive included district/school mission and values and the “trajectory” of the district (is it moving forward?), the challenge of working with high need students, the support given to the school by families and the community, the resources available, principal-teacher relationships, teacher-teacher relationships, curricular flexibility, and teacher autonomy.

6. Students find out about many of these

attributes during field placements or student teaching (e.g., from teachers they talk to). Another important way students find out about jobs and districts in which they might be interested is word-of-mouth, via contacts with fellow students, relatives, former teachers, and friends. Many students did not appear to have done much searching for schools or districts that might be attractive. Many seemed to fall back on the districts they themselves attended, or schools and districts where they did field placements (typically those close to their teacher training program).

### Survey

Table 1 shows the characteristics of the sample of the 254 students who provided usable responses to the survey.

The first set of analyses estimated the average importance of the five job characteristics in respondent job choice decisions. First, logistic regression was used to model the probability of a respondent saying he or she would apply for each job as a function of the five job characteristics. Second, Ordinary Least Squares regression (OLS) was used to model the probability of respondents accepting the job if offered, as a function of the five job characteristics. We analyzed both these measures of job attractiveness to see if the way the attractiveness construct was operationalized affected the results. Table 2 shows the results of these analyses (See Table 2 on page 6).

There are three points to note about the results shown in Table 2. First, the logistic and OLS analyses show three of the working conditions factors have substantial impacts on job attractiveness. The principal’s reputation has the largest influence on hypothetical job choice. A principal with a reputation for understanding teaching and learning and establishing supportive relationships with teachers increases the odds of the average respondent saying they would apply by a factor of almost four and increases the reported probability of job acceptance by 16 percentage points. Provided induction program and ensured curricular flexibility increase the odds of applying for a hypothetical job by approximately a factor of two and increase the reported job acceptance probability by about 10 percentage points.

<b>Female</b>	<b>82%</b>
<b>White (Caucasian)</b>	<b>88%</b>
<b>Average Age</b>	<b>26 years</b>
<b>Median GPA category</b>	<b>3.6-4.0</b>
<b>Preparing for middle or elementary teaching</b>	<b>80%</b>
<b>Preparing for math/science/special education</b>	<b>6%</b>
<b>Attending large public urban university</b>	<b>54%</b>
<b>Attending small private urban university</b>	<b>20%</b>
<b>Attending large public nonurban university</b>	<b>26%</b>
<b>Previously attended high school in urban district</b>	<b>25%</b>
<b>Previously attended high school in suburban district</b>	<b>63%</b>
<b>Previously attended high school in rural district</b>	<b>12%</b>

Second, salary level seems to have comparatively less influence on job attractiveness in both analyses. A \$5,000 increase in starting salary improves the odds of the average respondent saying they would apply by a factor of about 0.20 and increases the reported probability

composition conditions, a higher salary and supportive principal did have stronger effects. In the logistic regressions, the coefficient for salary was 1.08 for the jobs in schools with a high proportion of students of color compared to a coefficient of 1.03 for the jobs in schools with

Job Characteristic	Odds Ratio	OLS Regression Coefficient	OLS Standard Error
Beginning Salary (\$1,000s)	1.04**	0.69**	0.07
Principal	3.94**	16.38**	1.12
Induction Program	2.13**	9.87**	0.73
Curricular Flexibility	2.07**	10.07**	0.99
75 percent white school	0.94	-0.00	0.98
OLS Intercept		49.99	1.65
$R^2$		0.21	
n=254 participants; standard errors adjusted for clustering of jobs within respondents			
** Significant at the 0.05 level or beyond.			
(a) Coefficients for block effects included in model not shown.			

of job acceptance by a bit more than three percentage points ( $5 \times 0.69$ ).

Third, in this sample of respondents, the ethnic composition of the school's student body (whether the hypothetical school was high or low in the percentage of African American and Hispanic students) had no effect on job attractiveness operationalized as willingness to apply or as probability of acceptance. This implies that these pre-service teachers do not appear to require any "compensating differential" to teach in school with the high proportion of students of color. This seems somewhat counter to the results of other research suggesting white teachers tend to leave schools with high proportions of nonwhite students (Guarino, Santibañez, Daley, & Brewer, 2004).

The unexpectedly weak effect of salary level and ethnic composition on job attractiveness prompted some exploratory analyses. We wondered if the effects of salary level and principal support would differ with school ethnic composition. That is, would a higher beginning salary and a supportive principal have a greater effect on job attractiveness when the job was described as in a school with a high proportion of students of color. When the analyses were done separately for the two ethnic

a high proportion of 'white' students. For principal support, the comparable coefficients were 5.11 versus 3.56. The corresponding regression coefficients for salary were .82 and .56, and for principal support, 17.06 and 15.68. The other two factors had similar coefficients. These results suggest that salary level does matter more in attracting new teachers to schools with a high proportion of students of color. The difference in the reported probability of job acceptance associated with a \$5,000 higher salary was 4 percentage points for such schools, compared to a difference of 2.8 percentage points for the schools with a low proportion of students of color. With respect to principal support, the difference in the reported probability of job acceptance associated with having a supportive principal was 17 percentage points for jobs in schools with a high proportion of students of color, compared to 16 points in schools with a low proportion. The differences in the effects of these factors between schools with high and low proportions of students of color were, however, rather small. When tested for statistical significance using models with interaction terms (salary level X ethnic composition; principal X ethnic composition) they were not significant at conventional levels.

The low r-squared value for the OLS regression suggests that there may be substantial differences among participants in their valuation of the job characteristics. To investigate this possibility, we estimated a series of two level random-effects models using the ratings of the probability of accepting the job as the response variable. We used the program HLM6 (Raudenbush, Bryk, Cheong, and Congdon 2004). We concentrated on modeling the probability of acceptance, rather than willingness to apply, because this approach was likely to be easier to estimate given the large number of random slopes we wanted to predict, and the results would be easier to interpret. At level one, the reported probability for each job within respondent was modeled as a function of the job characteristic levels, including the salary level X ethnic composition and principal X ethnic composition interactions. At level two, (the respondent level), we began by testing whether the job characteristics had different weights (slopes) across respondents. We did this by allowing the intercept and the slopes for the characteristics to vary, then assessing the statistical significance of the relevant variance components. We found that the variance component for the intercept was significant, and relatively large, showing that there were substantial differences in the probability of acceptance of the “average” job across respondents. (Note that all level one predictors were centered around their grand means). In addition, variance components for random slopes for all of the job characteristics were significant. This suggests that there is substantial variation in the importance of the job characteristics across respondents.

Our next step was to attempt to model some of this variation, using information about the respondents we had collected in the survey. We hypothesized that the importance of the job characteristics would vary with the teacher training institution attended (because each likely attracts a different type of student and may prepare students differently) and whether a respondent had attended an urban high school. We also hypothesized that several demographic characteristics might influence both the overall probability of accepting a job in an urban district (the intercept) and the influence of school ethnic composition. These included respondent age, ethnic heritage (African American and Hispanic), and whether the respondent had attended an urban high school. We also included an indicator for male gender as a predictor of the slope for beginning salary, reasoning that males might be more sensitive to salary differences. The results of this analysis are shown in Table 3 (See Table 3 on page 8).

Although the interpretation of coefficients for the five job characteristics is somewhat different in this model compared to the OLS model, the results have largely similar implications. Because level two model contains effects for respondent characteristics, the slope coefficients for the five job characteristics represent the change in the reported probability of job acceptance for the left-out category of respondent: usually a student at the large, urban private university who did not attend an urban high school. The respondent characteristics coefficients, shown in Table 3 below the job characteristic, represent the differences in the slope coefficient associated with the respondent characteristics in the model and indicate also the difference in the importance of the job characteristic to different types of respondents.

In general, the importance of the job characteristics does not vary much with the respondent characteristics we included in the model. Only the coefficients for the effect of attending the large, nonurban university on the importance of curricular flexibility and for the effect of attending the small, urban university on the importance of school ethnic composition are statistically significant, with the former so only at the .10 level. Students at the large, nonurban university find curricular flexibility slightly more attractive (raising the probability of job acceptance by just over four percentage points). Students at the small, urban university find jobs in schools with a high proportion of white students more attractive (increasing the probability of job acceptance by just over 7 percentage points), African American respondents, as expected, find schools with a high proportion of white students less attractive, but the coefficient is not significant, likely due to the small number of African American respondents in the sample.

The coefficients for induction program and curricular flexibility are similar to the corresponding coefficients in Table 2. Respondent characteristics influenced the size of the coefficients only for curricular flexibility, which is slightly more influential for students at the large, nonurban public university. Due to the inclusion of the two interaction terms, the Principal, 75% White School, and Beginning Salary coefficients have different meanings. The Principal coefficient represents the increment in reported probability of job acceptance associated with having a supportive principal in a school with the high proportion of students of color. Note that this coefficient is quite similar to the corresponding coefficient from the OLS regression. Adding to this, the Principal X 75 percent white school coefficient gives the increment in reported probability of a supportive principal in a 75

Table 3. Multi-level Regression Coefficients <sup>a</sup> Representing Importance of Job Characteristics and Level Two Predictors of Random Intercepts and Slopes		
Variable	Coefficient	Standard Error
Intercept	50.447**	2.60
Age (grand mean centered)	-0.34**	0.14
Male	-0.489	2.30
Small private urban university	-0.05	4.34
Large nonurban university	-9.09**	3.98
African American	3.35	8.59
Hispanic	0.58	5.03
Attended urban high school	5.77	3.85
Principal	17.61**	1.83
Small private urban university	-1.62	2.86
Large nonurban university	0.86	2.62
Attended urban high school	-1.11	2.55
Induction Program	9.42**	1.09
Small private urban university	-0.19	1.86
Large nonurban university	2.39	1.71
Attended urban high school	-1.12	1.66
Curricular Flexibility	9.88**	1.48
Small private urban university	-3.62	2.53
Large nonurban university	4.15*	2.32
Attended urban high school	-0.54	2.25
75 percent white school	0.60	1.63
Small private urban university	7.01**	2.32
Large nonurban university	-1.61	2.31
African American	-9.63	8.89
Hispanic	-5.83	5.17
Attended urban high school	-1.76	2.24
Beginning Salary (grand mean centered)	0.85**	0.15
Age (grand mean centered)	0.00	0.01
Male	0.21	0.18
Small private urban university	0.01	0.20
Large nonurban university	0.13	0.18
Attended urban high school	-0.15	0.17
Beginning Salary X 75 percent white school	-0.36**	0.18
Principal X 75 percent white school	-1.10	1.47
* Significant at .10 level.		
** Significant at the 0.05 level or beyond.		
<sup>(a)</sup> Block effect coefficients not shown.		

percent white school. Note that this sum is not very different from the Principal coefficient (and the interaction coefficient is not statistically significant), implying that the effect of a supportive principal is similar for schools with the different ethnic compositions. The coefficient for school ethnic composition (75 percent white school) is again rather small, implying that, at the average beginning salary level in the scenarios (due to the grand mean centering of the salary variable), a 75 percent white school is only more attractive by 0.6 percentage points to a white respondent at the large, urban public university who had not attended an urban high school.

As mentioned above, jobs at such schools are more attractive to students from the small, urban private university (by seven percentage points), and less attractive to African American and Hispanic students. The coefficient for Beginning Salary is slightly higher than the OLS coefficient, and here represents the effect of an additional \$1,000 beginning salary in schools with 75 percent students of color. The interaction coefficient for Beginning Salary X 75 percent white school is negative, implying that salary makes less difference to attractiveness of jobs in the 75 percent white schools. In a school with 75 percent students of color, a \$5,000 increase in beginning salary raises the reported probability of job acceptance by a little more

than 4 percentage points for a female pre-service teacher attending the large, urban public university who had not attended an urban high school (.85 x 5). For jobs in a school with 75 percent white students, the same salary difference increases the reported probability by only 2.45 percentage points ((.85-.36) times 5) for a comparable student. Since the coefficients for the respondent characteristic variables are small and not statistically significant, this difference can be generalized to the other types of respondents.

Finally, several respondent characteristics were included in the model as predictors of the intercept. In this model, the intercept estimates the reported probability of acceptance of a job in an urban district with a salary of \$39,000 (due to the grand mean centering of salary) no induction program, low curricular flexibility, and 75 percent students of color. As the Intercept coefficient in Table 3 shows, the predicted probability of job acceptance is approximately 50 percent for a white female respondent who attended the large urban public university and did not attend an urban high school. The coefficients for respondent characteristics immediately below show the difference in reported probability associated with the respondent characteristics in the model. The two statistically significant coefficients suggest that attractiveness is less for older respondents (about .3 percentage points less per year of age) and less for respondents attending the large nonurban public university (about 9 percentage points less). As might be expected, students who had attended an urban high school and African American students found the job slightly more attractive, on average, but these effects were not statistically significant.

## Results Summary

The overall story implied by these results is largely similar to what was learned from the OLS analysis: a supportive principal appears to have a large effect on job attractiveness, and an induction program and curricular flexibility have smaller, but substantial effects. The ethnic composition of the school population has remarkably little influence on average, except for respondents who attended the small, urban private university. We can again compare the effect of a \$5,000 higher entry salary with the effect of a supportive principal. For female students at the large, urban private university who had not attended an urban high school, the increase in reported probability of job acceptance for a job with a supportive principal in a 75 percent nonwhite school is 17 percentage points, while the difference associated with a \$5,000

salary increase is 4.25 percentage points. This comparison suggests that higher beginning salaries would have only a modest effect on attracting new teachers to this sort of high-need school. But the results also imply that school ethnic composition did not have a large influence of job attractiveness, except on students from the small urban private university. The implication is that, conditional on teacher training institution attended, there is no need to offer a compensating differential to attract new teachers to jobs in schools with a high proportion of students of color. In the case of respondents attending the small urban private university, we can estimate the compensating pay differential needed to equalize likelihood of acceptance between jobs in schools with low versus high proportions of students of color to a white female student who had not attended an urban high school. This would be approximately \$8,250 in beginning salary (.85 divided by 7.01, multiplied by \$1,000). For a male student, the estimate would be just over \$6,600 (.85 +.21 divided by 7.01 and then multiplied by \$1,000). (This ignores that the effect of being male on beginning salary was not statistically significant, but does illustrate how a larger value put on salary lowers the size of the compensating differential.)

## Discussion

With respect to our research questions, we found both some expected and some unexpected results that may be of use to those seeking ways to attract new teachers to urban districts and high-need schools. Focus group results suggest that students may be attracted by a clear mission, appeals to idealism, and incentives like loan forgiveness. They also suggested that working conditions are as important as financial incentives and that students desire curricular freedom. It was also of interest that much of what new teachers know about districts or schools comes via word of mouth. This suggests that if current teachers are satisfied with the district or school, they will help “sell” it to new teachers. Improving working conditions for all teachers is therefore likely to help attract new teachers.

As we expected after the focus groups, survey results suggest that working conditions factors, especially principal support, may be more important than higher beginning pay. The importance of the principal to teacher attraction is consistent with results of other studies, ranging from surveys that show dissatisfaction with the principal is a frequent reason for teachers transferring to other schools (Luekens, Lyter, Fox, and Chandler, 2004) to qualitative research on preferences of accomplished

teachers (Berry and King, 2005). The relatively small effect of salary differences on job attractiveness is consistent with the results of Hanushek, Kain, and Rivkin (2001), who found evidence that working conditions were more important than pay differences in mobility decisions of experienced teachers in Texas. The results are less consistent with Clotfelter, Glennie, Ladd, and Vigdor's (2006) conclusion that a relatively small bonus (\$1,800 per year) for math, science and special education teachers teaching in high-poverty or struggling schools reduced turnover by 12 percent. However, it should be noted that the latter study focused on teachers who were already working in such schools. This group may already have adjusted to teaching in schools others find less attractive. New teachers who may have had little or no experience in such schools, or who may feel unprepared for the challenges these schools can present, may find such small bonuses less attractive.

The survey results also remind us that individual differences play a strong role in the attractiveness of job characteristics. Although the respondent characteristics we included in our model did not always have statistically significant effects, the variance components for the random slopes representing individual differences in the multilevel model were still statistically significant even after we introduced slope predictors at level two. There is a lot of variance in simulated job choice left to explain. We interpret this to suggest that there are considerable individual differences in the importance of job characteristics across respondents; differences that are likely due to factors such as values, personality, family background, and personal history. Some of these are likely to be highly idiosyncratic. This suggests that there is probably no one package of incentives and working conditions that will appeal to all new teachers to the same extent.

One somewhat unexpected result is the relatively low effect of pay. As discussed below, some of this could be due to social desirability bias. But we also found in pre-testing the survey that students at the two public institutions perceived that the labor market was in surplus, and, as one put it, you take what you can to get your foot in the door. This is consistent with the anecdotal evidence that the state containing these institutions overproduces new teachers and that many suburban districts have long queues of job applicants. The state's biggest urban district has also reduced its hiring in the past two years due to budget cuts. Under these circumstances, it does seem likely that respondents would be less concerned with beginning salary.

The negligible effect of school ethnic composition, except on respondents from one teacher training institution, was also surprising. Again, part of this could be due to social desirability bias affecting the students at the large nonurban public university. An explanation that may apply to respondents from the large urban public university is that these students know that biggest employer of teachers in the area is an urban district with a high overall proportion of students of color and many schools with very high proportions. Given the job market, they may simply be realistic about where the jobs for new teachers are located, and expect to teach in schools with a high proportion of students of color.

### Policy Implications

Together with the results of the studies by Winter and Melloy (2005) and Bacolod (2007), this research tends to support the proposition that salary incentives may not be the most effective way to attract new teachers to urban districts and schools with high proportions of students of color. The low sensitivity to pay and the high sensitivity to principal support exhibited on average by the new teachers in our study imply that a district might be better off spending money to attract, retain, or train better principals than to provide higher-than average beginning salaries to teachers. The results also imply that induction programs and curricular flexibility are important to new teachers. The finding that induction programs are attractive, combined with evidence that such programs can be effective in reducing teacher turnover (e.g., Ingersoll and Kralick, 2004; Smith and Ingersoll, 2004), suggests that urban districts may want to implement high-quality induction and mentoring programs, especially for new teachers in schools with high proportions of poor students or students of color. Results also suggest that district policies that could be perceived to limit teachers' curricular flexibility can lower the attractiveness of teaching jobs. New teachers' desires for flexibility may be in conflict with some U.S. urban districts' movement to more structured curricula like Success for All or Direct Instruction. This may present urban districts with a dilemma, in that one potential response to the high level of student movement across schools has been to try to standardize curriculum. Districts may want to address this potential dilemma by explaining the need for a uniform curricula and showing how new teachers can exercise their creativity within it. Districts may also want to review their recruitment messages and consider carefully the variety of positive attributes they can offer new teachers. If, as our

study suggests, there is a wide range of individual differences in how new teachers value job attributes, districts would want to be sure they communicate all of the different aspects of the district, the school, and the job that are likely to be appealing, in order to attract the largest number of new teachers.

### Limitations

It should be noted that this study investigated the preferences of new teachers, and that many of the respondents were relatively young. The preferences of experienced teachers, or older adults moving into teaching as a second career might be different. Also, though we collected data from students at three different types of teacher training institutions, the generalizability of our results is limited because all of the institutions were located in a state within the United States that produces a net surplus of teachers. As discussed above, this likely made the respondents less sensitive to differences in jobs because when jobs are relatively more scarce, job seekers cannot be as selective. Yet some job characteristics were still found to be more heavily weighted than others. The loose condition of the labor market in the state at the time of our data collection certainly weakens the generalizability of our estimates of the beginning salary level needed to attract new teachers. This limitation points up the need to tailor incentives to local conditions and suggests that it is simplistic to say that financial incentives are or are not effective without considering the local teacher labor market.

There are two methodological limitations that affect our study. The first is the difficulty of disentangling potential social desirability effects that may have biased the coefficients for beginning salary and school ethnic composition downward from other effects. It may be that students preparing to be teachers are reluctant to indicate that beginning salaries are important in job choice decisions, even on an anonymous survey. It is also possible, as discussed above, that these students simply are not as concerned about beginning salaries because they may believe that they have to take any entry job and will have a chance to move to better paying districts after obtaining some job experience. It is also possible that, given the emphasis on social justice in many teacher preparation programs, Caucasian respondents would be reluctant to show too much preference for schools with lower proportions of students of color. Yet it is also possible that their training has made some believe they have an obligation to consider teaching in such schools. The second is the use of a balanced incomplete block design

to present the scenarios, in order to reduce respondent burden. The grouping of the hypothetical jobs into eight blocks and the nesting of participants within blocks prevented exploration of the higher order interactions among job characteristics. We could not have all respondents evaluate some of the most interesting combinations, such as those that required trading-off ethnic composition and entry salary, with all other characteristics equal. This prevented us from getting a simpler estimate of the effect of beginning salary. It also introduces block effects, which while substantively negligible in this study, were occasionally statistically significant. The limitation on the number of jobs that respondents would consider also forced us to choose one factor, ethnic composition, to represent the high-need school construct. Although ethnic composition, poverty, and student test scores are highly correlated in the test state, it would have been interesting to include a poverty or test score factor. This would have at least doubled the number of scenarios to be considered, so that respondents would have had to rate twice as many jobs, or required more blocks and thus fewer respondents per scenario.

One of the reviewers raised the issue of pooling responses from two forms of survey administration, web-based and paper. We investigated this by comparing the web-based and paper-based respondent groups on the independent variables used in the analyses, and by removing the relatively small number of web respondents and re-running the statistical analyses. We found no significant differences in means or proportions of the independent variables between the two groups. We also found that almost all of the regression coefficients were similar in size and statistical significance. The one important exception was that the interaction between salary level and school ethnic composition, which was slightly smaller and no longer statistically significant. Although we do not believe this changes the substance of our conclusions, it does show that sample size and composition can affect results and that our study should be replicated, hopefully with a larger sample.

### Future Research Directions

Though we were not able to provide a completely satisfactory answer to the question of how much of a financial incentive would be needed to attract new teachers to high-needs schools, we believe that the idea of asking teachers about incentives is still a sound one, and one that should be an important part of designing incentive programs. To make this type of research more relevant to program designers, it should be done in other states or

regions, with different teacher labor market conditions, and at more types of teacher training institutions. We also recommend that researchers experiment with different descriptions of high-need schools and with different designs for capturing teacher job decision trade-offs. For example, instead of a full set of scenarios, teachers could be asked to indicate the attractiveness of fewer, but more detailed, scenarios varying on fewer dimensions. This would allow a more complete representation of the construct of a high-need school. If our finding that new teachers value supportive principals, induction programs, and curricular flexibility generalizes, it might be useful to use scenarios that focus more on financial incentives, student achievement, and poverty.

## References

- Bacolod, M. (2007). Who teaches and where they choose to teach: College graduates of the 1990s. *Educational Evaluation and Policy Analysis*, 29(3): 155–168.
- Berry, B., and King, T. (2005). Recruiting and retaining National Board certified teachers for hard-to-staff, low-performing schools: Silver bullets or smart solutions. Southeast Center for Teaching Quality. <http://www.teachingquality.org/pdfs/RecruitRetainHTSS.pdf>
- Boyd, D., H. Lankford, S. Loeb, and J. Wyckoff. 2003. The draw of home: How teachers' preferences for proximity disadvantage urban schools. NBER Working Paper No. 9953. Cambridge, MA: National Bureau of Economic Research. Retrieved September 23, 2004, from [http://www.teacherpolicyresearch.org/portals/1/pdfs/The\\_Draw\\_of\\_Home\\_\(JPAM\).pdf](http://www.teacherpolicyresearch.org/portals/1/pdfs/The_Draw_of_Home_(JPAM).pdf)
- Buckley, J., M. Schneider, and Y. Shang. 2004. Effects of school facility quality on teacher retention in urban school districts. National Clearinghouse for Educational Facilities. [www.edfacilities.org](http://www.edfacilities.org).
- Burian-Fitzgerald, M., and D. Anagnostopoulos. (2005, April 15). Where to teach? Career decisions of first year teachers. Paper presented at the 2005 Annual Meeting of the American Educational Research Association, Montreal, Quebec.
- Bruno, J. E., and E. Negrete. (1983). Analysis of teacher wage incentive programs for promoting staff stability in a large urban school district. *Urban Review*, 15(3): 139–149.
- Cooksey, R. 1996. *Judgment Analysis: Theory, Methods, and Applications*. San Diego, CA: Academic Press.
- Figlio, D. N. 2002. Can public schools buy better-qualified teachers? *Industrial and Labor Relations Review*, 55(4): 686–699.
- Graham, M.E., and D.M. Cable. 2001. Consideration of the incomplete block design for policy capturing research. *Organizational Research Methods*, 14(1): 26–45.
- Guarino, C., L. Santibañez, G. Daley, and D. Brewer. 2004. A review of research literature on teacher recruitment and retention. TR-164-EDU. Santa Monica, CA: RAND. Retrieved September 1, 2004, from [www.rand.org/publications/TR/TR164/](http://www.rand.org/publications/TR/TR164/).
- Hanushek, E.A., J.F. Kain, D.M. O'Brien, and S.G. Rivkin. 2005. The market for teacher quality. NBER Working Paper 11154. Cambridge, MA: National Bureau of Economic Research. <http://www.nber.org/papers/w11154>.
- Hanushek, E.A., Kain, J.F., and Rivkin, S.G. (2001). Why public schools lose teachers. NBER Working Paper 8599. Cambridge, MA: National Bureau of Economic Research.
- Imazeki, J. Y. 2000. School finance reform and the market for teachers. Unpublished doctoral dissertation. University of Wisconsin-Madison, Madison, WI.
- Ingersoll, R. M. 2003. Is there really a teacher shortage? Document R-03-4. Seattle: University of Washington, Center for the Study of Teaching and Policy. Retrieved September 23, 2004, from <http://depts.washington.edu/ctpmail/PDFs/Shortage-RI-09-2003.pdf>.
- Ingersoll, R. M. 2001. Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, 38(3): 499–534.
- Ingersoll, R. and J.M. Kralick. 2004. The impact of mentoring on teacher retention: What the research says. Denver: Education Commission of the States.
- Johnson, S. M., J. Berg, and M.L. Donaldson. 2005. Who stays in teaching and why. Washington, DC: National Retired Teachers Association.
- Johnson, S. M., and S. Birkeland. 2003. The schools that teachers choose. *Educational Leadership*, 60(8): 20–24.
- Kirby, S., M. Berends, and S. Naftel. 1999. Supply and demand of minority teachers in Texas: Problems and prospects. *Educational Evaluation and Policy Analysis*, 21(1): 47–66.

- Clotfelter, C., E. Glennie, H. Ladd, and J. Vigdor. 2006. Would higher salaries keep teachers in high poverty schools? A policy intervention in North Carolina. NBER Working Paper 12285. Cambridge, MA: National Bureau of Economic Research.
- Loeb, S.L. and M. Reininger, 2004. Public policy and teacher labor markets; What we know and why it matters. Lansing, MI: The Educational Policy Center at Michigan State University.
- Loeb, S., L. Darling-Hammond, and J. Luczak. 2005. How teaching conditions predict teacher turnover in California schools. *Peabody Journal of Education*, 80(3): 44–70.
- Loeb, S., and M.E. Page. 1998. Examining the link between wages and quality in the teacher workforce: The role of alternative labor market opportunities and non-pecuniary variation. Unpublished Manuscript.
- Luekens, M.T., Lyter, D.M., Fox, E.E., and Chandler, K. (2004) Teacher attrition and mobility: Results from the teacher follow-up survey, 2000–01. Washington, DC: National Center for Education Statistics.
- Manski, C. F. 1987. Academic ability, earnings, and the decision to become a teacher: Evidence from the national longitudinal study of the high school class of 1972. In D. A. Wise (Ed.), *Public Sector Payrolls* (pp. 291–312). Chicago: University of Chicago Press.
- Murphy, P., and M. M. DeArmond. 2003. *The teacher shortage and its implications for recruitment policy*. Seattle: University of Washington, Center on Reinventing Public Education.
- Painter, S., T. Haladyna, and S. Hurwitz. 2007. Attracting beginning teachers: The incentives and organizational characteristics that matter. *Planning and Changing*, 37(1&2): 108–127.
- Raudenbush, S., A. Bryk, Y.F. Cheong, and R. Congdon. 2004. *HLM6: Hierarchical linear and nonlinear modeling*. Lincolnwood, IL: Scientific Software International.
- Rosenholtz, S.J. 1989. *Teachers' workplace: The social organization of schools*. New York: Longman.
- Smith, T. M., and R.M. Ingersoll. 2004. Reducing teacher turnover: What are the components of effective induction? *American Educational Research Journal*, 41(3): 681–714.
- U.S. Department of Education, Office of Elementary and Secondary Education. 2006. Application for the teacher incentive fund. CFDA Number 84.374A. Posted May 1, 2006 on <http://www.ed.gov/programs/teacherincentive/2006-374a.pdf>. See also <http://www.ed.gov/programs/teacherincentive/faq.html>.
- Weiss, E. M. 1999. Perceived workplace conditions and first-year teachers' morale, career choice commitment, and planned retention. *Teaching and Teacher Education* 15 (8): 861–879.
- Winter, P. A. and S.H. Melloy. 2005. Teacher recruitment in a school reform state: Factors that influence applicant attraction to teaching vacancies. *Educational Administration Quarterly*, 41(2): 349–372.

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