

# School Finance Redesign Project

center on reinventing public education

## RECRUITING NEW TEACHERS TO URBAN SCHOOL DISTRICTS: What Incentives Will Work

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## **The School Finance Redesign Project**

The School Finance Redesign Project (SFRP) encompasses research, policy analysis, and public engagement activities that examine how K-12 finance can be redesigned to better support student performance. The project addresses the basic question, “How can resources help schools achieve the higher levels of student performance that state and national education standards now demand?”

Check in with us periodically to see what we’re learning and how that information may reshape education finance to make money matter for America's schools. You can find us at [www.schoolfinanceredesign.org](http://www.schoolfinanceredesign.org).

Jacob Adams, Principal Investigator

## **The SFRP Working Paper Series**

The Working Paper Series presents analyses that are complete but have not undergone peer review. The papers are subject to change and should be cited as working papers. Their purpose is to promote discussion and to solicit reactions.

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## Foreword

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From the early 1990s through today, controversies about public spending on elementary and secondary education have grown as states have adopted performance standards pledging that every child will learn enough to become an independent productive citizen and as *No Child Left Behind* has put teeth in these expectations. Some educators say that meeting higher standards requires more money. Others claim that existing resources are sufficient to pay for higher performance, if only funds were used more productively. While plaintiffs have asked courts to determine what amount of spending is adequate to get students to standards, analysts of various stripes have argued that greater expenditures alone will not lead to better results. Moreover, critics of demands for more money point to cases in states and cities where major spending increases were misspent, with little or no impact on student learning. Though no one seriously argues that more spending could never lead to school improvement, there is compelling evidence that without changes in the way resources are distributed, used, and accounted for Americans could end up with a more expensive, but not necessarily more effective, public education system.

In this environment, governors and state legislators particularly have asked two questions: How much money will it take for all students to meet standards? And how should the money be spent to ensure that result? The Bill & Melinda Gates Foundation asked the Center on Reinventing Public Education (CRPE) to create a School Finance Redesign Project (SFRP) to help elected officials, practitioners, and the public better understand how education finance systems now work and to identify new options for deploying K-12 resources to support state and national educational goals. Initiated in 2003, the project has grown to include more than 30 separate analyses.

SFRP was designed to address five questions:

- Are public education funds now focused on student learning? If not, what stands in the way?
- Are there good ideas about potentially more focused and effective uses of funds to promote student learning?
- Are there good ideas about better ways to spend money to attract and reward quality educators?
- Do we know enough now to say exactly how much money is needed to bring all children up to standards and to say how money should be spent?
- What can policymakers do to ensure that the “right amount” of money is distributed equitably, used productively, and accounted for meaningfully?

This study by Anthony Milanowski, Hope Longwell-Grice, Janice Jones, Allan Odden, and Kristen Schomisch addresses the third question by exploring how incentives help recruit new teachers to urban school districts. The topic is important because of the difficulty these districts face in attracting and retaining quality teachers. Analysts laud incentives as a way to counteract this difficulty, but before decision makers can craft incentives that work, they need better information about the types and levels of inducements that influence teachers' job choices. Milanowski and colleagues examine this issue in depth, investigating the job preferences of teachers-in-training. Their combination of up-close and survey work allowed them to better understand how new teachers assess potential jobs, thus how incentives might motivate them to accept placements in high-needs schools.

Specifically, Milanowski and colleagues were able to estimate the average importance that new teachers assign to starting pay, student characteristics, and working conditions, such as a principal's reputation, curriculum flexibility, and support for new teachers. As a result, their analysis reveals the types of incentives new teachers favor, how they value monetary rewards versus working conditions, and how they make tradeoffs among job characteristics. These results also indicate how teachers-in-training find out about job openings and job characteristics, and the degree to which new teacher mobility plays into these considerations. While these findings, in part, reinforce policy assumptions about the effect of incentives on job selection, they also offer some surprising insights regarding the role of salary and student characteristics in new teachers' work considerations. This information helps decision makers better understand how incentives can influence teachers' job choices, the relative cost effectiveness of different incentives, and the need to tailor incentives to local labor markets, all of which moves the field toward the greater likelihood of supplying urban schools with the teachers they need.

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## Introduction

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Many urban districts have difficulty attracting and retaining quality teachers, yet they are often the most in need of them. Across the country, 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, North Carolina, and Miami-Dade, Florida. The U.S. federal government is now encouraging states and districts to provide incentives. Under a \$99 million Congressional appropriation, the Department of Education has awarded Teacher Incentive Fund grants aimed at providing additional money for recruitment, retention, and performance incentives for teachers in high-need schools (defined as more than 30 percent poverty) (U.S. Dept of Education 2006).

Relatively little is known, however, 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. Focusing on teachers in training, our research was 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.

## Incentives and Teacher Attraction

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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 that 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 decisionmaking (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.

While 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, Cain, 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 district ability to pay, community tastes for education, and teacher bargaining power with teacher 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 improve teacher quality in high-need schools.

To provide more information about the potential effect of financial incentives and other job characteristics on new teachers' job choices, this research addresses 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?

## Method

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This research used a combination of qualitative and quantitative methods. It began with focus groups at three teacher training institutions. The purpose of the groups was to collect information on the job characteristics new teachers are likely to look for, to understand why they view schools and districts as attractive or unattractive choices, and to provide background information for the development of a survey. The survey was intended to collect information about student preferences for a smaller set of job characteristics, including various levels of beginning salary, allowing a quantitative estimate of the relative value new teachers place on these job

characteristics, and the beginning salary level that would be needed to attract new teachers to high-needs schools.

## Focus Groups

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. The groups were conducted in the spring of 2006. All the institutions were located in the southern part of Wisconsin. 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 attracts them to different districts, and the tradeoffs they make in deciding to apply for jobs with different levels of pay, working conditions, and student 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 school student demographic composition. Information about five job characteristics was provided for each hypothetical job: starting pay level (four levels, \$32,000, \$37,000, \$42,000 and \$47,000 for a 191 day contract), the reputation of the principal for understanding teaching and establishing supportive relationships with teachers, the presence or absence of a new teacher induction program, curriculum flexibility (highly structured versus highly flexible), and the 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 status since this is often highly 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 5 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 for structuring the set of characteristics presented (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 contained items asking about the age, gender, ethnic heritage, grade point average, major, and perceived level of preparation of each

respondent, as well as questions about the type of district in which they were educated (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: “Would you apply for this job?” (yes or no) and “How likely is it that you would accept this job if it was offered to you?” (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 students 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/December of 2006, and January/February of 2007. All respondents were promised confidentiality, and those responding to the paper and pencil version did so anonymously. Response rates were over 95 percent for the paper and pencil administrations but only 13 percent for the Internet administration. When considering response rates, it should be born in mind that for the paper and pencil administrations, students absent from class the day of the administration are not counted and we took a convenience sample of class sections, based on the willingness of the instructor to give time for survey administration. Data were analyzed using various regression-based, policy-capturing analysis techniques (Cooksey 1996).

## Results

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### 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. While 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?
  - Challenge
  - Family/community support
  - Resources
  - 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 218 students who provided usable responses to the survey.

**Table 1. Respondent Characteristics**

Percent Female	84%
Percent White	86%
Average Age	26 years
Median GPA category	3.6-4.0
Percent preparing for middle or elementary teaching	85%
Percent math/science/special education	7%
Percent attending large public urban university	56%
Percent attending small private urban university	22%
Percent attending large public non-urban university	22%
Percent last attending school in urban district	26%*
Percent last attending school in suburban district	57%*
Percent last attending school in rural district	12%*

\*Percentages do not add to 100 due to item non-response

There were, on the average, 27.3 respondents for each of the eight blocks (versions) of the survey.

The first set of analyses simply 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, OLS was used to model the probability of accepting the job if offered given by the respondents, as a function of the five job characteristics. Table 2 shows the results of these analyses.

**Table 2. Logistic and OLS Regression Coefficients Representing Importance of Job Characteristics in Job Choice**

Job Characteristic	Odds Ratio	OLS Regression Coefficient	Standard Error
Beginning Salary (\$1,000s)	1.05**	0.74**	0.08
Principal	4.37**	17.32**	1.22
Induction Program	2.15**	9.40**	0.75
Curricular Flexibility	2.03**	10.03**	1.10
Low % African American + Hispanic	1.01	0.27	1.03
OLS Intercept		43.39	1.98
R <sup>2</sup>		0.21	

n=218 participants; standard errors adjusted for clustering of jobs within respondents

\*\* Significant at the 0.05 level or beyond.

There are three points to note about the results shown in Table 1. First, both the logistic and OLS analyses show that the principal's reputation has a large 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 more than 4 and increases the reported probability of job acceptance by 17 percentage points. In comparison, a \$5,000 increase in starting salary improves the odds of the average respondent saying they would apply by a factor of about 0.25, and increases the reported probability of job acceptance by a bit less than 4 percentage points (5 times 0.74).

The second point of interest is that, in this sample of respondents, whether the school's student body was high or low in the percentage of African American and Hispanic students seemed to have little effect on hypothetical job choice.

The third notable result is that, because of the relatively small size of the coefficient for percent African American and Hispanic, these students do not appear to require much of a "compensating differential" to teach in school with the high proportion of students of color. Given that the difference in likelihood of job acceptance between a high African American and Hispanic school and the low one increases by only 0.27 percentage points, while increasing base pay by \$1,000 increases the likelihood of job acceptance by 0.74 percentage points, the

compensating differential needed to equalize the likelihood between the latter and the former schools is estimated at only \$365 (0.27 divided by 0.74 times \$1,000).

The low  $R^2$  value for the OLS regression suggests that there may be substantial differences among participant in their valuation of the job characteristics. To investigate this possibility, we conducted additional analyses. First, we did the logistic and OLS analyses separately for students from each of the teacher training institutions. We did this because it is likely that each attracts a different type of student, and each may prepare the students differently.<sup>1</sup> The large public urban university also has a close relationship with its local urban district. The results are shown in Table 3.

**Table 3. Logistic and OLS Regression Coefficients Representing Importance of Job Characteristics in Job Choice, by Teacher Training Institution**

Job Characteristic	Large Public Urban		Small Private Urban		Large Public Non-urban	
	Odds Ratio	OLS B	Odds Ratio	OLS B	Odds Ratio	OLS B
Beginning Salary (\$1,000s)	1.04**	0.72**	1.07**	0.70**	1.08*	0.81**
Principal	3.86**	17.61**	5.04**	14.87**	8.19**	19.16**
Induction Program	2.43**	9.14**	1.49**	8.80**	3.30**	10.63**
Curricular Flexibility	2.15**	10.63**	1.30	5.43**	2.96**	13.91**
Low % African American + Hispanic	0.94	-1.22	1.66	6.47**	0.85	-1.67
OLS Intercept		45.36		44.59		35.88
N		122		49		47
$R^2$		0.23		0.19		0.35

Standard errors adjusted for clustering of jobs within respondents

\*\* Significant at the 0.05 level or beyond.

These results suggest that there are some differences in the value placed on the job characteristics by students from the different institutions, but they also suggest that principal reputation for understanding teaching and learning and establishing supportive relationships is the most important factor influencing hypothetical job choice across institutions. Odds ratios and OLS regression coefficients for beginning salary level are similar across institutions. The OLS intercepts also show that students at the large public non-urban institution are less likely to say they would accept the “base level” job, one with a beginning salary of \$32,000, at a school with a principal who did not have a reputation as supportive, no induction program, a structured curriculum, and a high percentage of African American and Hispanic students. These students

<sup>1</sup> Students from the large urban university were more likely to have attended an urban high school (37% versus 20-23%) and those from the small private university were older (average age 32 versus 26 at the large urban and 23 at the large non-urban).

appear to be more influenced by principal support, an induction program, and curricular flexibility, especially compared to those attending the small private urban institution. Students at both public institutions do not appear, on the average, to be much influenced by school ethnic composition, while those at the small private university are more likely to accept a job at a school with a lower percent of students of color.

Second, we estimated a series of two level random-effects models using the ratings of the probability of accepting the job as the response variable. The program HLM6 (Raudenbush, Bryk, Cheong, and Congdon 2004) was used. At level one, the reported probability for each job within respondent was modeled as a function of the job characteristic levels. At level 2 (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 1 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. Based on the OLS results, we included indicators for the institution attended as predictors of the random intercepts and slopes. 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 4.

These results show that, as expected, age was a factor influencing the likelihood of accepting any of the jobs in the hypothetical urban district (reducing the reported likelihood) and being male was associated with a greater sensitivity to pay differences. These effects are relatively small, however. Though the small number of African American respondents in the sample limited the potential statistical significance, the results are consistent with the idea that these respondents would be more likely to accept a job in a school with a high proportion of African American students. Consistent with the interpretation we made of the results shown in Table 2, the fixed effects coefficients suggest that principal support, the presence of an induction program, and curriculum flexibility seem more important than either beginning salary level or school ethnic composition, even for respondents who are not African American or Hispanic, and for both males and females. Interestingly, the reported likelihood of job acceptance of non-Hispanic or non-African American respondents attending the public institutions was not related to school ethnic composition, while such respondents at the small urban private institution were more likely to accept a job at a more “white” school. These results imply that there would be a need for a higher beginning salary to offset school ethnic composition only for the latter respondents. Given the relatively low estimated effect of beginning salary for this group (0.69-0.02), a higher beginning salary of about \$9,716 would be the estimate of the additional pay needed to equalize likelihood of acceptance between low and high African American plus

Hispanic schools (6.51 divided by (0.69-0.02) times \$1,000). To improve the likelihood of acceptance of a job in the urban district at a school with average characteristics<sup>2</sup> for the female students at the large public non-urban university to the level of the large public urban university, the additional beginning salary is predicted to be \$9,194 (6.62/(0.69+0.03) times \$1,000). For males, the estimate would be \$5,807 (6.62/(0.69+0.03+0.42) times \$1,000).

**Table 4. Multi-level Regression Coefficients Representing Importance of Job Characteristics and Level 2 Predictors of Random Intercepts and Slopes**

	Coefficient	Standard Error
Intercept	67.73**	1.60
Age (grand mean centered)	-0.43*	0.15
Small Private Urban University	1.92	2.74
Large Non-urban University	-6.62*	2.80
African American	0.74	8.30
Hispanic	1.88	5.14
Attended urban HS	2.50	2.23
Principal	16.85**	1.59
Small Private Urban University	-1.70	2.91
Large Non-urban University	2.43	3.00
Induction Program	9.06**	0.99
Small Private Urban University	-0.02	1.82
Large Non-urban University	1.54	1.87
Curricular Flexibility	10.59**	1.46
Small Private Urban University	-4.06	2.67
Large Non-urban University	3.12	2.75
Low % African American + Hispanic	0.09	1.58
Small Private Urban University	6.51**	2.55
Large Non-urban university	-0.45	2.70
African American	-12.24	9.05
Hispanic	2.57	5.51
Attended urban HS	-2.88	2.43
Beginning salary	0.69**	0.13
Age (grand mean centered)	-0.00	0.01
Male	0.42**	0.21
Small Private Urban University	-0.02	0.21
Large Non-urban university	0.03	0.21
Attended urban HS	-0.09	0.18

\*\* Significant at the 0.05 level or beyond.

<sup>2</sup> Recall that the indicators for the five job characteristics were centered in the analysis producing Table 4.

## Discussion

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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 a district might be able to attract mobile students by presenting a clear mission, appealing to idealism, and adding incentives like loan forgiveness. Second, working conditions seem as important as financial incentives. Third, students' desire for curricular freedom may be in conflict with urban districts' movement to more structured curricula like Success for All or Direct Instruction. Fourth, since much of what new teachers know about districts or schools comes via word of mouth, 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 cost effective than higher beginning pay. The low sensitivity to pay and the high sensitivity to principal support observed for these respondents implies that a district might be better off spending to attract, retain, or train better principals than to provide higher beginning salaries to teachers. If, for example, a district wanted to attract new teachers from an institution like our large non-urban public university to a high-need school, a principal with a reputation for being supportive increases the likelihood of job acceptance by over 19 percent ( $16.85+2.43$ ). To get this effect with a higher base salary would require an increase of over \$25,000 ( $(16.85+2.43)$  divided by  $(0.69+0.03)$  times \$1,000).

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, Cain, 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%. 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 that others find less attractive. It may take substantially more money to attract 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.

The survey results also remind us that individual differences play a strong role in the attractiveness of job characteristics. As expected, the attractiveness of schools with different ethnic composition varies with teacher ethnic characteristics, and males are more sensitive to pay. These results were expected but do reinforce the point that the level of financial incentive likely to be needed to attract new teachers to high-need schools varies with teacher characteristics. Some of these characteristics may be highly idiosyncratic, as indicated by the statistically significant variance component for the random slope for beginning salary remaining even after we introduced slope predictors at level 2.

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 impression that the state containing these institutions overproduces new teachers and anecdotes that suggest 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 limited effect of school ethnic composition was also surprising. Again, part of this could be due to social desirability bias. On the other hand, it is also the case that students from the large urban public university know that the 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.

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.

## 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 a second career, might be different. Also, although we collected data from students at three quite different types of teacher training institutions, the generalizability of our results is limited because all of the institutions were located in a state 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.

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 since they may believe that they have to take any entry job and then 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. Though in this state ethnic composition, poverty, and student test scores are highly correlated, 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.

### **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.

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