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Public School Teacher Salaries; Compensating Wage Differentials for Student Racial Characteristics

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Abstract

This paper examines the relationship between public school teacher salaries and the racial concentration and segregation of students in the school and district. A particularly rich set of teacher, school and district controls is used to isolate the effect of racial characteristics. Additional analysis uses only within-MSA variation in order to better identify the markets within which teachers are sorting. The results indicate that there is a compensating wage differential for working in schools and districts with a higher concentration of minority students. This is the first paper to consider whether or not racial segregation within school districts plays a role in determining teacher salaries. I find that more segregated districts tend to pay lower salaries. One interpretation of this result is that in highly segregated districts, families from predominantly white schools exert greater political power. Because the white schools do not need to pay a compensating wage differential to teachers, families from these schools act to keep salaries lower than more integrated districts. This suggests that predominantly minority schools in highly segregated districts might particularly suffer from a lack of resources to recruit qualified teachers.

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1. Introduction

The last decade has seen the end to desegregation plans for school districts across the U.S. and recently the media has reported that our school districts are becoming increasingly segregated.¹ These changes in the racial composition our public education system could have implications for the quality of teachers who sort to segregated school districts and the quality of educational product in the future. Some previous research on teacher labor markets indicates that student race is an important characteristic, which affects the sorting decisions of teachers among jobs. However, there has not been a detailed investigation of the effects of student race, and specifically segregation, on the market for teachers.

The objective of this paper is to estimate a model that describes the relationship between public school teacher salaries and the racial concentration and segregation of students in the school and the district. A hedonic model is used with a particularly rich set of teacher, school and district controls to isolate the effect of racial characteristics. The data are from the National Center for Education Statistics, the Census, and the Bureau of Justice Statistics. The effects of student racial concentration and segregation are examined, with additional analysis that uses only within-MSA variation in order to better identify the markets within which teachers are sorting. Also, the impacts on teacher and district level salaries of changes in student racial composition over time are examined.

¹ The Harvard Gazette on April 10, 1997 published findings from the Harvard Desegregation Project, that the rate of segregation was increasing in the 1990s for both Black and Hispanic students. The Educational Testing Service published an article in their Spring 2001 policy notes which shows increasing segregation, especially of Hispanic students, over the past decade. The *New York Times*, April 2, 2000, reported that Black to White school segregation is worse today than in 1954 when the *Brown v. Board of Education* verdict was decided which mandated the end of school segregation.

This paper shows that the percent of minority students and district racial segregation are important determinants of both teacher salaries and district level salary schedules. The results are consistent with a positive compensating differential for higher percentages of minority students. This is the first paper to consider whether or not racial segregation within school districts plays a role in determining teacher salaries. The results show that more segregated districts tend to pay lower salaries. This has direct implications for educational quality. This suggests that predominantly minority schools in highly segregated districts might particularly suffer from a lack of resources to recruit qualified teachers.

2. Related Literature

There are only a few studies of school teacher salaries in the United States. The earlier studies in this literature focus on differentials by teacher gender and teacher race. Chambers (1985) found that males earn more than females, and whites earn more than minorities. The most comprehensive study on this topic, a 1996 National Center for Education Statistics (NCES) Analysis Report, found a significant male-female teacher earnings gap and a smaller but significant racial gap. This report also found that teacher salaries rise with the percent of minority students in the school.

Several papers study teacher location as well as entry and exit decisions. These studies suggest that teachers respond to wages. They conclude that teachers will enter and stay longer in the market if teacher wages are high relative to other labor market options.² Mont and Reece (1996), and Gritz and Theobald (1996), find that teachers are

² Dolton (1990) focuses on entry decisions; Dolton (1995), and Stinebrickner (1999) investigate teacher attrition and find that teachers exit sooner if they work with more low income students.

more likely to exit in districts with higher percentages of minority students. Hanushek, Kain, and Rivkin, (1999) found that teachers move to schools where students are higher achieving, and there are fewer minority students. Hanushek, et al. (2001) found that teachers tend to locate in schools with students of their same race. The most recent additions to this literature are two papers from Boyd, Lankford, Loeb and Wyckoff, 2003. Boyd et al. find that teachers are most likely to locate in schools near where they grew up. They find that all teachers prefer lower percentages of minority students, with no difference in this preference by the race of the teacher. Additionally, Boyd et al. claim the hedonic model is invalid for public employees because they do not fit a national market. This paper includes analysis of variation in teacher salaries within major metropolitan areas in response to this criticism.

This study improves upon previous work in several ways. First, this paper uses a much more comprehensive set of controls than previous studies, both by exploiting the richness of the Schools and Staffing Survey (SASS) data set and by incorporating additional school district level controls for income, poverty and crime obtained from Census data and the Bureau of Justice Statistics Crime Reports. Second, this paper uses detailed racial/ethnic categories when studying the effect of student characteristics on teacher salary. Teacher preferences over Black students are likely very different from their preferences over Asian students, so investigating these race categories separately is imperative. Third, this is the first paper to consider the effects of racial segregation within school districts on district-level salary structure. This paper finds that more segregated districts pay lower salaries, which suggests that predominantly minority schools in districts which also contain predominantly white schools might particularly

suffer from inadequate resources and low quality teachers. Fourth, this study improves upon previous studies by using state and metropolitan area fixed effects to control for the market in which the teacher resides. Fifth, I use multiple waves of the SASS data to conduct the first panel data analysis of district level salaries, studying the effect of changes in student characteristics over time on the district salary schedules.

3. Theoretical Considerations

A primary consideration in a study of teacher compensation is the source of variation in salaries. Over 97% of school districts have a district salary schedule which sets salaries for teachers in all schools across the district. These district-level schedules set salary based on education and experience.

Teacher salaries can further vary within a district due to special certifications, such as limited English proficiency, or teaching in special programs. Twenty-three percent of districts in the sample offer incentives to teachers in some form, either for a willingness to work in certain locations, for knowledge in a shortage field or for merit, which adds flexibility in both starting salary and tenure salary increases.

The vast majority of salary variation, however, is between-district. Teacher salaries vary across districts because districts are financed largely by local property taxes, so local voters set the district budget and often the funding priorities as well. This paper examines how teacher salaries and district salary schedules vary with the racial characteristics of the school and the district.

A brief exercise in equilibrium compensating wage differentials will help to highlight some hypotheses of the effects of student race on teacher salary. First, assume

there are two districts, each with only one school. One has a high percentage of minority students and the other district has only white students. Also suppose that teachers are of uniform quality but differ in their preferences. All teachers receive disutility from teaching minority students, but white teachers have a higher disutility for teaching minority students than do minority teachers.

Teachers in the high minority district would require a positive compensating wage differential, with the white teachers requiring a larger differential than the minority teachers. Thus the minority district will pay a higher salary than the white district, and would not hire white teachers unless there are insufficient supply of minority teachers. Notice, however, this same outcome could occur if teachers have no preference over student race, but the minority district prefers to hire minority teachers. If the relative supply of minority teachers is low, the minority district may pay a higher salary to attract enough minority teachers.

A more complex scenario is one that further allows teachers to be heterogeneous in quality. In this situation, districts must offer premiums to attract high quality teachers. This is presumably the intention behind salary schedules that reward education and experience. If the two districts have similar budget constraints, then the white district, not having to pay a base premium to compensate for teaching minority students, will have more resources to provide larger premiums for education and experience. We would therefore expect the minority district to have a higher base salary, but smaller salary steps for education and experience. Thus, we would expect the minority district to contain more teachers on the 'lower rungs' of the salary schedule. This implies that if teachers receive disutility from teaching minority students, districts with minority

students will have lower quality teachers unless they have more resources than predominantly white districts.³

Of course, in reality, districts contain more than one school. Therefore, it may not just matter how many minority students are in the district, but how they are distributed across the district. Consider now two districts, each with many schools and each with a student population that is fifty percent white and fifty percent minority. One district is entirely integrated so that all schools contain fifty percent minority students. The other district is entirely segregated, so that schools are either all white or all minority. If salary schedules are set at the district level, then there are both supply side and demand side reasons why salaries might differ between the two districts.

On the supply side, it is much easier and less costly for teachers to move within a district than to move between districts. Therefore, teachers should care about the characteristics of other schools in their district. If the schools in the district are all of similar racial make-up, then there is little risk of moving to a school which has a racial make-up that is substantially different than the teacher's current school. Therefore, we might expect the more segregated district to pay a higher salary to compensate teachers for the risk of ending up in a very different school.

On the demand side, school districts are largely funded by local taxes, so let's assume that residents wish to pay as little taxes as possible, while providing enough funding for a certain quality of education. Also, still assume that teachers receive disutility from minority students, and differ by level of quality. White schools do not have to pay as large a premium to attract teachers of a given level of quality. In the

³ A 2000 report from the National Center for Education Statistics reported that in 1998, schools with the highest percentages of minority students have double the number of inexperienced teachers than schools with the lowest percentages of minority students.

segregated district, if the white schools have more political power than the minority schools, then the district taxes and therefore, teacher salaries, will be kept lower than for the integrated district.⁴ A direct implication of this is that the lower salary in the segregated district will deprive the minority schools in that district of the funds necessary to attract high quality teachers.

4. Data

Data for this study come from the Schools and Staffing Survey (SASS) restricted-use data. This data set is collected from a survey administered by the National Center for Education Statistics, and this study combines information from the Public Teacher, Public School and District Administrator Surveys. There are four available waves of the SASS, 1987-88, 1990-91, 1993-94, and 1999-2000. The SASS has a large number of useful variables, and works well for this analysis because it was designed specifically for issues related to K-12 education. It includes detailed salary and benefit data for school teachers and a rich set of student, school and district variables. Additionally, the 1990-91 and 1999-2000 SASS data are combined with Census data aggregated to the school district level from the 1990 School District Data Book and the 2000 Census Special School District Tabulation. Inclusion of this data adds useful district income, poverty, and unemployment information. Finally, county crime rates are added from the 1990 and 2000 Uniform Crime Reports published by the Bureau of Justice Statistics.⁵

A new race variable incorporated in this study is the segregation of minority students within the district. Measurement of student segregation closely mirrors the

⁴ Ballou and Podgursky, (1997), found that when schools vary in the political power they exert, differences in teacher qualifications across schools in a district may emerge.

⁵ A complete list of the included variables is in Table 1.

measurement of residential segregation.⁶ The dissimilarity index is a commonly used segregation index, and it measures the distribution by race across the district by incorporating racial characteristics of all schools. The Dissimilarity Index is calculated in the following equation; D represents district dissimilarity.

$$D = \frac{1}{2} \sum_i |x_i / X - y_i / Y|$$

In this equation, the constants X and Y are the total student population of race X and Y in the district, and the x and y represent the number of students of that race in the ith school. The Dissimilarity Index assumes that there would be complete integration in the district if each school contained exact proportions of every racial group as is found in the larger community as a whole, or in this case, in the district student population. The Dissimilarity index is always non-negative, it would be zero under complete integration and one in a district that was completely segregated with all the minority students in different schools than the white students in the district. The dissimilarity index is calculated several times, first with to gauge minority versus white student segregation and then separately for each minority race of students relative to all other students.⁷

Tables 2, 3 and 4 display some descriptive statistics on teacher characteristics and teacher salary. Table 2 shows that minority teachers are more concentrated in urban districts and low income districts. As one might expect, Hispanic and Asian teachers work in school districts where a higher percentage of households do not speak English

⁶ Measurement of residential segregation began in the 1940s and was re-popularized by Duncan and Duncan (1955) and Oaxaca (1973). The segregation that I am most concerned with is the aspect of racial concentration; therefore, I will incorporate Massey and Denton's recommendation for measuring concentration which is the Dissimilarity Index. (Massey and Denton, 1988)

⁷ The dissimilarity indices in the residential segregation literature are typically calculated as minority relative to white or for individual minority races as Black to white; however, this assumes that whites are most preferred, or are associated with no disutility which may no longer be the case, especially for students.

and are not U.S. citizens. Black teachers work in higher crime areas. Table 3 shows that teachers work in districts with high percentages of students of their own race. This phenomenon is likely caused by residential sorting of teachers to areas with many people of their own race. Also, minority teachers work in districts where the students are more segregated by race.

Table 4 reports mean teacher salaries. Asian teachers make the most on average, and both white and Asian teachers' salaries generally increase with the percent of minority students in the district. This is not the case for Black and Hispanic teachers, for whom there is no clear pattern between teacher salary and the percent of minority students in the district. Without additional controls it is not clear what the relationship between teacher salary and student race should be. On one hand, districts with more minority students tend to be poorer and therefore have fewer resources for teacher salaries. On the other hand, districts with more minority students may have to pay higher salaries to attract teachers.

The fact that white and Asian teachers are observed receiving larger premiums to work in high minority districts than Black and Hispanic teachers is consistent with a story in which white and Asian teachers receive higher disutility from working with minority students than Black and Hispanic teachers. If this were true, then we would tend to only observe white and Asian teachers working in minority districts if the compensating wage differential were particularly high. In the absence of additional controls, however, this relationship could merely reflect unobserved differences between teachers of different races. In the regression analysis that follows, rich controls for teacher characteristics will be incorporated into the empirical analysis.

Table 5 examines teacher experience characteristics, a measure of teacher quality, by the level of racial segregation in the district. Segregated districts are those districts with dissimilarity indices above the median, meaning closest to one, while integrated districts are those below the median, with a dissimilarity index closest to zero. Section 1 in Table 5 implies that teachers in more segregated districts have less experience overall.

I have theorized that if lower teacher salaries are offered in segregated school districts, then minority schools in those districts will hire lower quality teachers than the more white schools. Sections 2 and 3 in Table 5 contain some general evidence to support this theory. These sections investigate teacher experience across schools, first by level of school concentration of white versus minority students, and then by percent of minority students in the school.⁸ The table shows that teacher experience in the segregated district is lower in schools which are more concentrated with minority students than the district as a whole. This trend holds for teacher experience across schools by their percent of minority students. In segregated districts, the schools with higher percentages of minority students have teachers with less experience. Section 2 contains segregated districts, so the school with very few minority students and the school with over 50% minority students could conceivably be in the same district. Section 3 contains teachers in integrated school districts, and the mean experience level in schools with few minority students is higher than in schools with high percentages of minority students. Since these districts are integrated, the different percentages of

⁸ School concentration is the number of minority students in the school relative to the district compared with white students. This is calculated as $S = 1/2 * (x_i / X - y_i / Y)$. Notice that the district dissimilarity measure is the sum of the individual school concentrations. If S is positive, then the school is more concentrated with minority students than the district and it is defined as a minority concentrated school. If S is negative, then the school is less concentrated with minority students than the district, and it is defined as a white concentrated school.

minority students in the schools may be thought to represent different districts, thus this may indicate that teachers in high minority districts have less experience than teachers in low minority districts. If teacher years of experience does not capture all aspects of teacher quality and there is unobserved quality variation among teachers, then the differences observed in Table 5 could be much larger.

5. Methodology

A hedonic wage model is used to examine the effects of student racial characteristics on public school teachers' salaries. The dependent variable is the log of teacher annual base salary. The primary empirical analysis in the paper is to estimate a hedonic wage model, and the baseline analysis is conducted with the most recent wave of the SASS, academic year 1999-2000. The preferred baseline specification is:

$$\begin{aligned} \text{Log(annual base teacher salary)}_i = & \beta_0 + \text{Teacher Race}_i * \beta_1 + \text{Teacher Controls}_i * \beta_2 \\ & + \text{School \%Minority Students by Race}_i * \beta_3 + \text{School Controls}_i * \beta_4 \\ & + \text{District \%Minority Students by Race}_i * \beta_5 + \text{District SASS Controls}_i * \beta_6 \\ & + \text{District Census Controls}_i * \beta_7 + \text{Dissimilarity at the District level}_i * \beta_8 + \varepsilon \end{aligned}$$

The teacher characteristics include teacher general and school specific experience, state and other certifications held, highest degree, fields of specialization, the number of classes taught, the number of hours worked per week, whether the teacher is a union member, the teacher's attitude toward teaching, the teacher's age, gender, marital status and number of children. School characteristics include number of students in the school, the student-teacher ratio, and the percent of students eligible for free or reduced price lunches, the availability of gifted and talented, remedial learning, bilingual or English as

a second language, magnet learning classes and disability programs, the percent of limited English proficiency students, and the percent of students who graduate and attend college. The district characteristics from the SASS include state fixed effects, whether the district is urban, dummy variables for district choice, magnet programs, teacher salary incentives, and the provision of chapter 1 services. The Census Special School District Tabulation in 2000 aggregated information to the school district level, and Census controls in this study include per capita income, the percent of households in poverty, median rent paid, the unemployment rate, the education level of district residents, the percent of non-citizen residents and the percent of households who speak English in the home. Also included in this category of control variables is the crime index in the county as reported by the FBI Uniform Crime Reports. For a complete list and description of these variables refer to Table 1.

The resulting coefficient on school percent minority is the required compensating wage differential for an increase in the percent of minority students in the school while holding all other school and district characteristics constant. The coefficient on the dissimilarity index represents the marginal price to teachers for working in school districts that have schools which are more segregated by student race.

Three additional models beyond the baseline specification are considered. In the first, the sample is restricted to teachers working in metropolitan statistical areas (MSAs) and MSA fixed effects are included in the model. This specification assumes that a teacher's MSA is his or her market. The MSA fixed-effects model therefore only uses within-market variation for identification and is arguably a more appropriate specification for a hedonic regression.

The second additional specification regresses steps of the district-level salary schedule on district characteristics.

$$\begin{aligned} \text{Log}(\text{District Salary Schedule})_i &= \beta_0 + \text{District \%Minority Students by Race}_i * \beta_1 \\ &+ \text{Dissimilarity at the District level}_i * \beta_2 \\ &+ \text{District SASS Controls}_i * \beta_3 + \text{District Census Controls}_i * \beta_4 + \varepsilon \end{aligned}$$

MSA fixed-effects are also used in some specifications of the district salary regressions.

The final additional form of analysis uses the 1990-91 wave of the SASS together with the 1999-2000 wave to perform panel data analysis. This panel data is first used to analyze changes in teacher salary, using the initial baseline specification with district fixed effects.⁹

$$\begin{aligned} \text{Log}(\text{annual base teacher salary})_i &= \beta_0 + \text{Teacher Race}_i * \beta_1 + \text{Teacher Controls}_i * \beta_2 \\ &+ \text{School \%Minority Students by Race}_i * \beta_3 + \text{School Controls}_i * \beta_4 \\ &+ \text{District \%Minority Students by Race}_i * \beta_5 + \text{District SASS Controls}_i * \beta_6 \\ &+ \text{District Census Controls}_i * \beta_7 + \text{Dissimilarity at the District level}_i * \beta_8 + \text{District} * \beta_9 + \varepsilon \end{aligned}$$

These panel data regressions estimate the effect of changes in the racial make-up of a district on teacher salaries. The district salary schedule is also analyzed using the panel data.

$$\begin{aligned} \text{Log}(\Delta \text{District Salary Schedule})_i &= \beta_0 \\ &+ \Delta \text{District \%Minority Students}_i * \beta_1 + \Delta \text{District Dissimilarity}_i * \beta_2 \\ &+ \Delta \text{District SASS Controls}_i * \beta_3 + \Delta \text{District Census Controls}_i * \beta_4 + \varepsilon \end{aligned}$$

⁹ A few of the school and district control variables from the SASS previously mentioned are not available in 1990, and thus are dropped from the panel data analysis. These variables are marked in Table 1 by a star (*).

where $\Delta X = X_{1999} - X_{1990}$. The results from these panel data regressions estimate the effects on the district salary schedule from changes in the district racial make up from 1990 to 1999.

6. Results:

A. Baseline Regression Results

Table 6 contains results for the baseline specification grouping all minority races together for the student race measures.¹⁰ These results show teachers receive higher salary when working with higher percentages of minority students. This is consistent with a compensating wage differential, which would indicate that they receive disutility from higher percentages of minority students.¹¹ Since the percent of minority students in the school withstands the inclusion of race correlates from the Census, this student race characteristic is important to teachers and schools, and is not simply picking up variation in poverty, income and crime. The estimates for school percent minority students are consistent across specifications. They indicate that if the percent minority students in the school increases by 10%, then teacher salary will increase by 0.6%, or on average, by about \$225.00 per year.

For the specification in column 3, teacher salaries are higher when the district percent of minority students is high. However, when the district population control

¹⁰ Since national data is used, there are several controls added for the market the teacher is in. First, state fixed effects are included because of the lack of mobility due to the teacher certification process. Also, dummy variables for groupings of the fifty largest MSAs are also included to differentiate between large metropolitan areas and the rest of the country.

¹¹ Percent minority in this discussion refers to all Black, Hispanic, Asian and Native American students. Since Asian students typically have higher achievement than Black and Hispanic students, the analysis in Table 4 was also conducted using only Black and Hispanic students to represent the percent minority students. In this analysis, the signs of all coefficients on the race variables were identical to the inclusive definition of minority, and the magnitudes of the coefficients and significance levels were similar.

variables from the Census and the FBI uniform crime reports that contain several income and education correlates to race are included, higher percentages of minority students in the district do not significantly affect teacher salaries. Teacher salaries are not significantly affected by segregation of minority to white students in school districts.

The first column of table 7 contains results from the preferred baseline specification which breaks out student characteristics by race. Teachers earn less in districts with higher percentages of Asian students, suggesting that teachers prefer Asian students which may be attributable to the fact that Asian students typically have higher academic achievement. Teacher salary is higher in districts with higher percentages of Black students. This is consistent with a compensating wage differential to teachers to compensate for disutility associated with these minority students. The estimates for the percent of Black, Hispanic, Asian and Native American students in the school are insignificant. If there is quality variation among teachers which is not included in this analysis which districts can observe, and if teacher salaries respond to these quality differences, then these estimates will be biased downward.

Teacher salaries are lower in districts which are more segregated with any race of minority students.¹² This is consistent with the claim that differences among schools in political power may depress salaries in these districts. The white schools are still able to hire high quality teachers, and those white neighborhoods exert political pressure to keep

¹² The dissimilarity measure is used in residential segregation literature and is usually calculated as the concentration of the listed minority residents relative to the white residents. The results reported in the tables calculate the dissimilarity measure as the concentration of the listed minority students to all other students. Analysis was conducted which used a measure of the concentration of the listed minority students to the white students in the school and district, and the results are very similar. The signs on the coefficients of all of the race variables are identical to those in the table, and the significance levels on the coefficients are very similar.

the tax burden low. The minority schools may not be able to attract high quality teachers in this situation.

The sample is made up of many different markets, and teachers are likely restricted in their sorting across markets. Therefore, analysis of teacher salary within a market is conducted, using metropolitan statistical areas (MSAs) to define each market. It is reasonable to define a market in this way because typically within MSAs, there are many school districts in a small geographical area. Therefore, it is much more likely that teachers would sort among these districts, than rural districts within a state which are very large geographically. The proximity and number of these districts creates a market.

The second column of table 7 contains results of the teacher salary analysis with MSA fixed-effects. Within an MSA, teachers receive significantly lower salaries when working with a higher percentage of Asian students.¹³ This suggests that teachers prefer to work with these students. Within a teaching market, salaries are lower in districts that have schools where the Black, Hispanic or Asian students are segregated. This result is robust to a narrow market definition. These results indicate that student race characteristics are important determinants of salary even as teachers sort within a metropolitan area.¹⁴

¹³ Twenty percent of districts offer incentives outside of the salary schedule to their teachers, and it seems likely that teachers in these districts could have more variation in their salaries with regards to the student race variables of interest. However, separate analysis was conducted on the districts that offer incentives, and the signs on the race variables are similar, and there is very little change in the significance levels. One notable exception is that analysis with district fixed effects, the within district analysis, yields a significant positive coefficient on the percent of Black students in the school. Thus teachers are not using these district salary incentives to compensate for student percent minority, except perhaps in the case of higher percentages of Black students.

¹⁴ Analysis of teacher salary was also conducted using district level fixed effects, which investigates teacher salary variation within a school district. These results found that all school level student race variables were insignificant, thus student racial characteristics cause very little variation in teacher salaries within a district which implies that most of the salary variation is between districts.

The last two columns of table 7 contain results for the baseline analysis when the sample is separated by teacher race. The results for white teachers are very similar to those discussed in the previous analysis, indicating that white teacher preferences are driving the results for the whole sample. The results indicate that white teachers require a compensating wage differential to work in districts which have higher percentages of black students, but that they prefer Asian students. The estimates for segregation suggest that if school district segregation of black students relative to all other students increased one standard deviation, then white teacher salary would fall about 0.3 percent and if the segregation of Hispanic students increased one standard deviation, then white teacher salary would fall a little more than 0.7 percent.

Minority teachers have slightly different results, suggesting that they have different preferences over minority students. Minority teacher salaries are unaffected by the percent of minority students in the school, and they appear to view the district percent minority students similarly to white teachers.¹⁵ Minority teacher salaries are significantly higher in segregated Black districts. This is consistent with a positive compensating wage differential to minority teachers in these segregated districts in order to compensate them for the risk of moving to a school with vastly different student characteristics than their current school. Also, minority teachers earn higher salaries in districts which have segregated Asian or Hispanic students, though these estimates are not statistically significant. This may indicate that minority teachers are less sensitive to district segregation, or the fact that most of these estimates are insignificant may be caused by

¹⁵ This racial grouping of all minority teachers versus white teachers, has similar results to other groupings, such as Black and Hispanic teachers versus white, Asian and Native American teachers, and to Hispanic, Asian and Native American teachers versus White and Black teachers. In all of these cases the signs for the minority groupings and white groupings are similar to those in Table 6.

the small sample size. Although, this rough racial grouping of minority versus white teachers does not entirely capture the diversity of preferences across the teacher races, it does illustrate that white teachers view segregation differently than minority teachers.

B. District Salary Analysis

Table 8 displays results from the district salary schedule analyses which measures the variation in teacher salaries between districts. Most of the district level student race variables are significant determinants of district salary across the various steps on the salary schedule. Teacher salaries are lower in districts which are more segregated by any minority race of students. This outcome would put minority schools in the segregated district at a disadvantage compared to minority schools in an integrated district. The integrated district, especially if it has a high percentage of minority students, would pay higher salaries to compensate teachers for the student composition. Salaries are depressed in the segregated district and thus, the minority schools in these districts would not be able to attract high quality teachers.

District salaries are higher when the percent of Black and Hispanic students in the district is high. Table 8 shows that districts pay more to attract teachers when the district has high percentages of Hispanic students. The results for district salary are consistent with a compensating wage differential paid for higher percentages of Hispanic students in these districts. The size of this differential depends slightly on the salary step the teacher is qualified for. If the percent of Hispanic students in the district increases from the median to the 75th percentile of districts, an increase of over 10 percentage points, then district salaries will increase 1.15 percent at the lowest salary step, and 0.53 percent at the highest salary step. Thus, in order to move a teacher from a district with 3% Hispanic

students to a district with 13.4% Hispanic students, it would cost between \$290 and \$330 depending on the schedule step the teacher is on. It would cost much less to move a teacher from the 25th to the 50th percentile district on the distribution of district percent Hispanic students, between \$65 and \$80.

The teacher salary analysis in Table 7, indicated that teacher salaries fall when there are higher percentages of Hispanic students in the district. This difference in results between the teacher salary analysis and the district salary analysis may be caused by the types of teachers who sort to districts with a high percentage of Hispanic students. The descriptive results showed that Hispanic teachers have less experience and education, and they tend to sort to districts with high percentages of Hispanic students, thus the type of teacher population in highly Hispanic districts could underlie the lower teacher salary results in Hispanic districts.

Table 9 displays results from the district salary analysis when fixed effects for the market, the metropolitan statistical area, are included. The signs on the district race variables are similar to the analysis without fixed effects; however, most of these race characteristics are now insignificant.

C. Longitudinal Analysis

The first column in Table 10 contains results from the panel data analysis of teacher salaries, using data from academic years 1990-1991 and 1999-2000. Changes in district racial composition had no effect on teacher salaries over this period, but teacher salaries did increase over the 1990s when the percent of Hispanic students in the school increased. This is consistent with a compensating wage differential for Hispanic students, suggesting that teachers receive disutility from these students. This result is

possibly related to the school finance equalization efforts which took place during the 1990s. These measures moved districts away from property tax financing, and the goal was often to equalize financing across poor and rich districts. This may explain why teacher salaries grew faster for teachers in heavily Hispanic schools relative to other schools.

Table 10 displays results from the panel data analysis of district salaries, using differences in all district variables from 1990 to 1999. Changes in the district racial composition of Hispanic and Asian students significantly affected the district salary schedule over this period. The district salary fell when the percent of Asian students in the district increased. This is consistent with a story that districts and teachers prefer these types of students. Also, over the 1990s when districts became more segregated with Hispanic students, district salaries fell. The estimates suggest that if segregation of Hispanic students increased one standard deviation, then salaries fell by about 1%. This result could indicate that quality differences between schools in segregated Hispanic districts and integrated highly Hispanic districts increased over this period, with the more Hispanic schools in the segregated district becoming increasingly unable to attract high quality teachers.

7. Conclusion

This study examines the effects of student racial composition including district segregation, on public school teacher salary and district level salaries. Results show that teachers do have significant preferences over both the percent of minority students, as well as the distribution of students by race across the school district. The estimates

support the hypothesis that teachers, especially white teachers, receive disutility from working in districts with higher percentages of Black students. The results also suggest that teachers prefer to work in districts with higher percentages of Asian students. Additionally, districts with higher percentages of Black and Hispanic students are found to pay higher salaries.

Segregated school districts set lower salaries on the salary schedule steps than do integrated school districts. This outcome is likely the result of different levels of political power within segregated school districts, such that the constituents associated with white schools vote to keep the tax burden, and thus district level teacher salaries, low. Since minority teachers are found to require positive compensating wage differentials in segregated districts, it is unlikely that these segregated school districts will be able to attract many high quality minority teachers.

The results indicate that white teacher salaries are lower in segregated school districts than integrated districts. This observation together with the result that teachers require a positive compensating wage differential to teach in schools with higher percentages of minority students indicates that the high minority schools in segregated black districts would not be able to attract high quality teachers. Thus a direct implication is that educational quality may vary across schools in more segregated districts, such that minority students are taught by lower quality teachers. Also, since higher minority districts pay higher salaries, and more integrated districts pay higher salaries, it seems likely that there will be a quality differential across districts. The high minority schools in integrated school districts appear to offer higher salaries, and thus

would be able to recruit higher quality teachers than the high minority schools in segregated districts.

In future work, I would like to investigate the hypothesis that minority districts will have a higher base salary to compensate for minority students, but smaller salary steps for education and experience, which would imply that more teachers in these districts are on the lower rungs of the schedule. The results indicate that there are teacher quality differences across segregated districts and between minority schools in integrated versus segregated districts. It would be interesting to further investigate this result using additional teacher quality indicators. If a quality differential exists, then school district salary schedules are partly the cause, because they are rigid across the school district. A further extension will be to analyze the effects of alternate salary structures on teacher quality both within and across districts.

This paper puts new perspective on the types of characteristics that teachers consider when deciding where to work, and schools consider when deciding who to hire. Student race is an important factor in these decisions, independent of other variables such as family income and crime. School district segregation has become much less of a national political issue since the 1950s and 1960s, but there is growing concern in the media that increasing school segregation will have detrimental effects on the quality of public education. The results in this paper indicate that segregation remains an important characteristic in the preferences of teachers and districts, and that increasing segregation could lead to educational quality differences both within and across school districts. The effects of school district racial segregation must be considered in any analysis of teacher salaries or teacher behavior.

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TABLE 1**Variable List****Variable Name****Description****Dependent Variables**

Source: Schools and Staffing Survey

Log teacher salary

Base annual teacher salary as self-reported

Log Highest salary

The highest salary step on the district schedule is for a teacher with a PhD plus 20 years experience

Log M.A. plus 30 credits

Salary for a teacher with a master's degree plus 30 graduate credits

Log M.A. plus experience

Salary for a teacher with a master's degree plus 20 years experience

Log lowest salary

The lowest salary step on the district schedule is for a teacher with a bachelor's degree and no experience

Teacher

Source: Schools and Staffing Survey

Characteristics:

Total Experience

Years experience teaching public and private

Years at this school

School specific years teaching experience

Years teaching private

Years teaching in private schools

Certification

Dummy for Teacher is certified in main field in state

Certified other

Teacher is certified in a field other than main teaching field

Masters

Teacher has a master's degree

Graduate

Teacher has above a master's degree – either a PhD, or a Master's plus 30 credits of additional graduate work

Female

Dummy for female teacher

Widowed/div/sep

Teacher is widowed, divorced or separated

Teach Science

Dummy for if the teacher teaches any science

Teacher Subject

Main field teacher subject dummies, including Elementary, Special Education, English, Social Studies, Vocational Tech, Math and Science.

Additional hours

Number of self-reported additional hours spent on school work per week

Number of Classes

Number of classes the teacher teaches per week

LEP training*

The teacher has received Limited English Proficiency training

Union

Teacher is in the teachers Union

Number of Children

The number of children under 18 the teacher has

Age

Teacher Age

Teach Yes

Teacher would choose to teach if s/he could go back and start over

Teacher Safety*

The number of times the teacher has been attacked in school in the last 12 months

Experience Squared

The square of the total years of teaching experience

Specific Exper Squared

School specific years teaching experience squared

Exper-M.A.

Total years of teaching experience times the dummy for the teacher's education of holding a Master's degree

Exper-Grad

Total years of teaching experience times the dummy for the

	teacher's education of holding above a Master's degree
School Characteristics:	
School # Students	The number of students in the school where the teacher teaches
Level Secondary	Dummy variable indicating that the school is a high school/secondary school
High Student Problems	Teacher reports dealing with a large amount of student problems that can disrupt the learning environment
Unsafe School	The teacher has been physically threatened or attacked in the school in the last year
Student/Teacher Ratio	The student to teacher ratio in the district
School % Free Lunch*	The percentage of students in the school eligible for free/reduced lunch from the National School Lunch program
Remedial Reading	School offers remedial reading
Remedial Math	School offers a remedial math program
Bilingual Ed*	School offers a bilingual education program
Gifted/talented	School offers a gifted and talented program
Magnet*	School offers a magnet program
Disability programs*	School has programs for disabled students, either physical or learning disabilities
Percent LEP*	Percent of limited English proficiency students in the school
ESL Program	School offers an English as a Second Language Program
District SASS	Source: Schools and Staffing Survey
Characteristics:	
District # Students	Number of students enrolled in the school district
Urban	The school district is in an urban area
Suburb	The school district is in a suburban area
State dummies	Dummy variables for the state of residence
District % Free Lunch	The percentage of students in the district eligible for free/reduced lunch from the National School Lunch program
Chapter 1*	Percent of students in the district who are eligible for chapter one services.
District choice	The district offers school choice to its students, meaning open enrollment in any school in the district
Charter schools*	The district has charter schools that it directly competes with
Magnet Program*	The district runs a magnet program
Incentives for any reason	The district offers some type of teacher salary incentives either cash, increasing a salary step or benefits
Incentives for Location	The district offers teacher salary incentives to recruit teachers to less desirable schools
Incentives for Shortage	The district offers teacher salary incentives to teachers in fields of shortage for the district
Incentives for Merit	The district offers teacher salary incentives to teachers for exceptional work
Free Training	The district offers free training to teachers in fields of shortage

Number of classes	The number of classes teachers teach in the district each week
Salary Mean	The mean of the district salary step for a master's degree plus experience in the surrounding districts in the county
Top MSA groups	Dummy variable equals 1 for largest 15 MSAs, Dummy variable equals 1 for largest 25 MSAs, Dummy variable equals 1 for largest 35 MSAs, Dummy variable equals 1 for largest 50 MSAs
District Population Characteristics:	Source: 2000 Census Special School District Tabulation
Per Capita Income	Per capita Income, or Median Household Income
%HH Poverty	The percent of households with income below the poverty level
Poverty Ratio	The percent of households with income below 1.5x the poverty level
Rent	Median Gross Rent in the district
Unemployment	Unemployment rate in the district
Education	Percent of district residents at each education level: H.S. dropout, H.S. graduate, Some College or Associate Degree, Bachelor's degree, Master's degree, Professional or Doctorate degree
% HH speak English	Percent of district households that speak English in the home
Not Citizen	Percent of district residents who are not U.S. citizens
Public Assist	Percent of households with some public assistance income
Crime Index	A crime index of all reported crimes per 100,000 persons in the county. Or insert two crime indices separated into Violent crimes and non-Violent/Property Crimes per 100,000 persons. Source: 2000 Uniform Crime Reports from the FBI and Bureau of Justice Statistics.

*This variable is available in 1999, but not in 1990; therefore, it is dropped from the panel data analysis.

Teachers:	All races	White	Black	Hispanic	Asian	Native Am
Location: percent of teachers in each location.						
Northeast	17.3	18.8	9.2	8.3	10.7	4.6
South	25.1	22.5	60.0	34.1	9.7	43.0
West	28.6	27.3	10.7	46.8	65.0	37.3
Midwest	29.0	31.3	20.2	10.7	14.6	15.0
Urban	25.8	22.7	55.8	49.3	42.5	12.9
Suburban/Urban Fringe	42.6	44.1	26.6	38.7	52.7	24.3
Rural	31.6	33.2	17.6	12.0	4.9	62.9
Dist incentives Any Reason	25.4	22.4	40.4	55.0	37.8	29.1
Dist incentives for Location	6.9	5.1	16.4	21.3	18.3	11.1
District incentives for merit	9.7	8.8	17.5	15.5	18.3	7.1
Teacher Experience and Education	All races	White	Black	Hispanic	Asian	Native Am
Mean Teacher Experience	14.9	15.2	15.2	11.4	11.9	12.3
	10.0	10.1	10.7	9.0	9.9	8.8
Mean School Specific Exper.	9.8	10.1	9.4	7.2	7.7	8.5
	8.8	8.9	8.9	7.1	7.7	7.6
%Certified in state main field	95.5	95.9	93.2	91.5	91.4	96.6
% Have LEP training	10.3	7.5	11.6	40.3	34.3	16.3
High Degree: Bachelor's	56.4	55.5	55.2	69.0	52.7	65.4
High Degree: Master's	41.3	42.3	41.4	29.3	41.5	32.3
High Degree: Master's Plus	2.5	2.4	3.9	2.1	6.0	2.5
Secondary teacher	64.0	65.9	62.9	53.1	43.9	46.9
Gender: Female	66.1	65.2	72.8	68.0	70.1	72.1
District Population information	All races	White	Black	Hispanic	Asian	Native Am
District % Students eligible for free Lunch	39.8	37.1	55.9	55.7	43.8	57.9
% Residents below Poverty level	12.3	11.3	18.2	16.9	12.4	21.4
District Per Capita Income	19882	20251	18380	17530	21490	14467
Std. Dev of PC Income	6791	6743	6318	6337	7773	5150
% Residents speak English	82.5	85.0	82.0	56.1	65.3	71.8
% Residents not U.S. citizens	4.7	3.9	6.6	12.3	13.4	2.4
Mean Crime Index for County	4.6	4.1	10.2	6.3	6.4	5.3
Std. Dev for Crime Index	5.0	4.7	6.9	4.8	4.8	5.6

Notes: The first column contains means for all 18,928 teachers in the sample. The other five columns contain means by teacher race. There are 15940 white teachers, 1046 Black teachers, 958 Hispanic teachers, 426 Asian teachers, and 558 Native American teachers. Standard deviations are in parentheses.

Table 3
Student Race Variables, 1999-2000

Mean % Enrollment in District	All teachers	White	Black	Hispanic	Asian	Native Am
% Minority Students	30.7	25.0	68.2	66.0	55.7	54.7
% Black Students	10.8	8.7	48.9	11.6	13.1	5.9
% Hispanic Students	12.4	9.7	16.0	48.6	30.1	6.8
% Asian Students	2.7	2.5	2.4	3.2	11.3	1.0
% Native American	4.9	4.1	0.9	2.7	1.2	41.0

Means of District Dissimilarity	All teachers	White	Black	Hispanic	Asian	Native Am
Minority to White	0.148 (0.189)	0.132 (0.174)	0.289 (0.245)	0.225 (0.234)	0.226 (0.253)	0.155 (0.211)
Blacks to Whites	0.208 (0.220)	0.194 (0.209)	0.322 (0.275)	0.278 (0.260)	0.255 (0.276)	0.222 (0.217)
Hispanic to Whites	0.195 (0.210)	0.185 (0.203)	0.293 (0.241)	0.238 (0.239)	0.239 (0.258)	0.189 (0.200)
Asians to Whites	0.250 (0.226)	0.240 (0.223)	0.342 (0.243)	0.275 (0.235)	0.224 (0.229)	0.333 (0.204)
Native Am to Whites	0.301 (0.234)	0.297 (0.231)	0.400 (0.239)	0.325 (0.234)	0.293 (0.234)	0.211 (0.240)

Notes: The first column contains means for all 18,928 teachers in the sample. The other five columns contain means by teacher race. There are 15940 white teachers, 1046 Black teachers, 958 Hispanic teachers, 426 Asian teachers, and 558 Native American teachers. District Dissimilarity is a measure of student racial segregation across the school district. Dissimilarity varies between zero and one, zero is a perfectly integrated district, and one is a perfectly segregated school district. Standard deviations are in parentheses.

Table 4
Teacher and District Salary Information, 1999-2000

Teachers:	All Races	White	Black	Hispanic	Asian	Native American
Mean Annual Base Teacher Salary	37651	37674	38898	37550	41677	32112

Teacher Mean Base Salary by District Type

District % Minority Students	All races	White	Black	Hispanic	Asian	Native American
0-4%	35151	35162	38018	32265	38049	33093
5-19%	38082	38139	42587	36662	38183	33141
20-49%	37958	38290	37572	35406	40038	31244
50+%	39156	39737	39012	38283	43546	32213

Means of District Salary Schedule Steps By Teacher Race

	All Races	White	Black	Hispanic	Asian	Native American
High District Salary	51113	50818	53133	53778	58697	44586
M.A. plus Experience	45106	44920	45774	47304	51436	39411
M.A. + 30 credits	30597	30384	31986	32194	34118	28454
Low District Salary	26366	26076	28117	28554	29674	25042

Mean District Salary Schedule Lowest Step by District Type

District % Minority Students	All Races	White	Black	Hispanic	Asian	Native Am.
0-4%	24513	24488	25745	24964	27536	24315
5-19%	25725	25696	28362	25995	27052	24793
20-49%	26749	26731	26948	27472	28464	24747
50+%	28371	28164	28459	29278	31023	25358

Mean District Salary Schedule Highest Step by District Type

District % Minority Students	All Races	White	Black	Hispanic	Asian	Native Am.
0-4%	46888	46786	50952	51119	53695	47087
5-19%	51682	51637	54694	53269	56692	47177
20-49%	51465	51553	51484	54714	57913	40939
50+%	53864	54167	53505	53770	59906	45670

Notes: The first column contains means for all 18,928 teachers in the sample. The other five columns contain means by teacher race. There are 15940 white teachers, 1046 Black teachers, 958 Hispanic teachers, 426 Asian teachers, and 558 Native American teachers. All salaries are in 1999 dollars.

Table 5: Teacher Characteristics by District segregation						
(1)	Integrated	Segregated				
Total Experience	15.02	14.70				
School Specific experience	10.22	8.74				
Segregated District						
(2)	White concent.d schools	Minority concent.d schools	School % Minority: 0-5%	School % Minority: 5-20%%	School % Minority: 20-49%	School % Minority: 50%+
Total Experience	15.09	14.35	15.11	15.34	14.88	14.25
School Specific experience	9.12	8.41	9.99	9.14	8.72	8.22
Integrated District						
(3)	White concent.d schools	Minority concent.d schools	School % Minority: 0-5%	School % Minority: 5-20%%	School % Minority: 20-49%	School % Minority: 50%+
Total Experience	14.60	15.07	16.05	15.22	14.50	13.74
School Specific experience	9.06	10.36	12.09	10.13	9.29	8.71

Notes: Teacher experience characteristics by district dissimilarity. The integrated districts are those whose dissimilarity index is below the median, and the segregated districts are those above the median, which have an index closest to one. There are 10,574 teachers in the integrated districts and 8354 teachers in the segregated districts. The first column in sections 2 and 3 list means for teachers in White schools, which are more concentrated with white students than the district. The second column in sections 2 and 3 lists means for teachers in Minority schools, which are more concentrated with minority students than the district, thus the school concentration measure is positive.

Table 6: 1999-2000, Baseline Regression Analysis of Teacher Salary

Dependent Variable: Log Salary	(1)	(2)	(3)	(4)	(5)
Black Teacher	0.0286** 37.25	0.0077 1.16	0.0203** 3.81	0.0178** 3.37	0.0179** 3.38
Hispanic Teacher	0.0328** 42.35	-0.0069 -1.06	-0.0052 -1.01	-0.0066 -1.29	-0.0066 -1.29
Asian Teacher	0.0790** 51.9	0.0320* 2.61	0.0029 0.3	0.0010 0.1	0.0010 0.11
Native Amer. Teach	-0.0991** -50.11	-0.0825** -5.39	-0.0127 -1.05	0.0021 0.17	0.0020 0.17
School % Minority		0.0015** 19.85	0.0005** 4.47	0.0002* 1.72	0.0001* 1.70
District % Minority			0.0005** 4.15	0.0000 -0.37	0.0000 -0.34
Dissimilarity: Minorities					-0.0028 -0.31
Adjusted R-squared	0.4886	0.5363	0.7161	0.7362	0.7362

Controls:

Teacher Characteristics	X	X	X	X	X
School Characteristics		X	X	X	X
District Char.s: SASS			X	X	X
Census District Char.s				X	X

Note: The dependent variable is log of annual base teacher salary. The sample size is 18,760. T-statistics are reported below each coefficient. The specifications in columns 1 to 5 are identical, except for the subsequent inclusion of additional student race variables and sets of control variables. School % Minority and District % Minority refers to all Black, Asian, Hispanic and Native American Students in the school and district respectively. Dissimilarity is a measure of segregation in the district that equals one in the case of perfect segregation and zero if the district is perfectly integrated. The dissimilarity index used here is the index of minority to white students. State fixed-effects are included in the district SASS characteristics group of control variables. Teacher Characteristics, School Characteristics, and District Characteristics are described in Table 1.

**Significant at the 1 percent level.

*Significant at the 10 percent level.

Table 7: 1999-2000, Teacher Salary Regressions, Detailed Student Race Variables

Dependent Variable: Log Teacher Salary	(1) Baseline	(2) MSA Fixed Effects	(3) White Teachers	(4) Minority Teachers
School % Black	0.0001 0.83	-0.0001 -0.48	0.0000 0.15	-0.0003 -1.06
School % Hispanic	-0.0001 -0.78	0.0000 0.25	-0.0001 -0.62	-0.0003 -0.89
School % Asian	-0.0002 -0.67	-0.0013** -3.43	-0.0001 -0.21	-0.0008 -1.29
School % Nat. Am	-0.0002 -0.46	-0.0007 -1.36	-0.0002 -0.3	-0.0008 -0.75
Dist % Black	0.0005** 3.22	-0.0003 -1.18	0.0004* 2.55	0.0007* 2.14
Dist % Hispanic	-0.0007** -3.88	-0.0007* -2.17	-0.0008** -3.53	-0.0011* -2.26
Dist % Asian	-0.0019** -4.43	0.0005 0.81	-0.0020** -4.27	-0.0013 -1.26
Dist % Native Am	0.0009 1.59	0.0022** 3.58	0.0009 1.43	0.0006 0.49
Dissimilarity: Blacks	-0.0227 -0.94	-0.0684* -1.9	-0.0338 -1.34	0.1953* 2.16
Dissimilarity: Hispanics	-0.0721** -3.08	-0.0693* -1.87	-0.0837** -3.36	0.0422 0.58
Dissimilarity: Asians	-0.0391 -1.75	-0.0697* -2.11	-0.0447* -1.92	0.0469 0.54
Dissimilarity: Native Am.s	-0.0946** -4.97	-0.0333 -1.1	-0.0839** -4.27	-0.1027 -1.26
N	17960	11356	15217	2742
Adjusted R-squared	0.7385	0.5067	0.7451	0.7121

Note: The dependent variable is log of annual base teacher salary. The sample size is reported at the bottom of each column. Column 2 contains MSA fixed-effects. Column 3 contains results for only white teachers. Column 4 contains results for only minority teachers, which are all Black, Hispanic, Asian and Native American teachers. All models include the full set of teacher, school and district controls used in column 5 of Table 6. T-statistics are reported below each coefficient. Dissimilarity is a measure of segregation in the district that equals one in the case of perfect segregation and zero if the district is perfectly integrated.

**Significant at the 1 percent level.

*Significant at the 10 percent level.

TABLE 8: 1999-2000, District Salary Schedule Regressions

Dependent Variable: District Salary Schedule	(1) Highest Salary	(2) M.A. plus Experience	(3) M.A. plus 30 credits	(4) Lowest Salary
District % Black Students	0.0003** 3.85	-0.0000 -0.27	0.0004** 3.42	0.0001 1.2
District % Hispanic	0.0005** 4.68	0.0001 1.31	-0.0004* -2.47	0.0011** 9.91
District % Asian Students	-0.0001 -0.4	-0.0012** -4.47	-0.0000 -0.12	0.0009** 3.47
District % Native Am	0.0005** 5.15	0.0006** 5.75	0.0008** 5.12	0.0009** 7.87
Dissimilarity: Blacks	-0.0205** -4.24	-0.0195** -3.85	-0.0006 -0.09	-0.0370** -7.37
Dissimilarity: Hispanics	-0.0256** -5.1	-0.0106* -2.01	-0.0319** -4.45	-0.0259** -4.97
Dissimilarity: Asians	0.0073* 1.64	-0.0012 -0.21	-0.0231** -3.64	-0.0023 -0.49
Dissimilarity: Native Am.s	-0.0158** -3.72	-0.0177** -3.98	-0.0243** -4.02	-0.019** -4.3
Adjusted R-squared	0.9066	0.8851	0.6382	0.7748

Note: The dependent variable in column 1 is the log of highest step on the district salary schedule, (generally this step is for a teacher with a PhD and 20 years of experience). The dependent variable in column 2 is the log of district salary for a teacher with a master's degree and 20 years of experience, The dependent variable in column 3 is the log of district salary for a teacher with a master's degree and 30 additional educational credits toward an additional degree, the dependent variable in column 4 is the log of the lowest step on the district salary schedule, (this is generally for a teacher with a bachelor's degree and no experience). The sample size is 2503 districts. T-statistics are reported below each coefficient. All district level controls as described in Table 1 are included. Dissimilarity is a measure of segregation in the district that equals one in the case of perfect segregation and zero if the district is perfectly integrated.

**Significant at the 1 percent level.

*Significant at the 10 percent level.

TABLE 9: 1999-2000, District Salary Schedule Regressions with MSA Fixed Effects				
Dependent Variable: District Salary Schedule	(1) Highest Salary	(2) M.A. plus Experience	(3) M.A. plus 30 credits	(4) Lowest Salary
Dist % Black	-0.0002 -0.9	-0.0003 -1.14	-0.0000 -0.05	0.0001 0.63
Dist % Hispanic	0.0003 0.79	-0.0002 -0.49	-0.0004 -1	-0.0002 -0.59
Dist % Asian	0.0009 1.51	0.0001 0.12	-0.0014* -2.11	-0.0003 -0.55
Dist % Native Am	0.0009* 1.96	0.0004 0.75	0.0003 0.59	0.0010** 2.58
Dissimilarity: Blacks	-0.0064 -0.42	-0.0170 -0.98	0.0164 0.91	-0.0034 -0.27
Dissimilarity: Hispanics	0.0055 0.38	0.0143 0.85	-0.0211 -1.2	-0.0009 -0.08
Dissimilarity: Asians	-0.0137 -1.09	-0.0055 -0.38	-0.0192 -1.29	-0.0211 -2
Dissimilarity: Native Am.s	-0.0130 -1.22	-0.0277* -2.26	-0.0155 -1.22	-0.0050 -0.56

Adjusted R-squared 0.822 0.8291 0.5319 0.6692

Note: The dependent variable in column 1 is the log of highest step on the district salary schedule. The dependent variable in column 2 is the log of district salary for a teacher with a master's degree and 20 years of experience, The dependent variable in column 3 is the log of district salary for a teacher with a master's degree and 30 additional educational credits toward an additional degree, the dependent variable in column 4 is the log of the lowest step on the district salary schedule. The sample size is 1505 districts. T-statistics are reported below each coefficient. All district level controls as described in Table 1 are included. Dissimilarity is a measure of segregation in the district that equals one in the case of perfect segregation and zero if the district is perfectly integrated.

**Significant at the 1 percent level.

*Significant at the 10 percent level.

Table 10**Teacher Salary and District Salary Schedule Regressions, Longitudinal Analysis, 1990-1991 to 1999-2000 Academic years**

	(1) Teacher Salary	(2) Highest Salary	(3) M.A. plus experience	(4) M.A. plus 30 credits
District % Black Students	-0.0820 0	-0.0003 -0.54	-0.0007 -1.14	-0.0002 -0.31
District % Hispanic	0.0255 0	-0.0005 -0.91	0.0001 0.18	0.0004 0.67
District % Asian Students	-0.0575 0	-0.0016 -1	-0.0033* -1.87	-0.001 -0.62
District % Native Am	0.0453 0	0.0001 0.17	0.0006 0.6	-0.0007 -0.84
Dissimilarity: Blacks	-0.9390 0	0.0302 1.05	0.0131 0.41	0.0164 0.57
Dissimilarity: Hispanics	1.4055 0	-0.0971** -3.15	-0.1058** -3.07	-0.0858* -2.8
Dissimilarity: Asians	-2.2709 0	-0.0138 -0.5	-0.0124 -0.4	0.0373 1.36
Dissimilarity: Native Am.s	-0.0424 0	-0.0383 -1.42	-0.0652* -2.16	0.0129 0.48
School % Black Students	-0.0002 -1.25			
School % Hispanic	0.0004* 2.21			
School % Asian Students	0.0004 1.06			
School % Native Amer.	0.0000 0			
Adjusted R-squared	0.7920	0.4923	0.4729	0.4443

Note: The dependent variable in column 1 is the log of teacher salary. The sample size is 18090 teachers from either 1990-1991 or 1999-2000. The teacher salary analysis has all teacher, school and district characteristics available in 1990 and contains district fixed effects. The dependent variable in column 2 is the log of the difference in the highest step on the district salary schedule, 1999-1990. The dependent variable in column 3 is the log of the difference in district salary for a teacher with a master's degree and 20 years of experience, 1999-1990. The dependent variable in column 4 is the log of the difference in district salary for a teacher with a master's degree plus 30 academic credits, 1999-1990. The district sample size is 961 districts, which were surveyed in both 1990 and in 1999. All district level controls available in 1990, which vary over time, as described in Table 1 are included. T-statistics are reported below each coefficient.

Dissimilarity is a measure of segregation in the district that equals one in the case of perfect segregation and zero if the district is perfectly integrated.

**Significant at the 1 percent level.

*Significant at the 10 percent level.