DOCUMENT RESUME

ED 228 698 EA 015 546

AUTHOR Richards, Craig; Encarnation, Dennis J.
TITLE Race and Educational Employment.
INSTITUTION Stanford Univ., Calif. Inst. for Research on Educational Finance and Governance.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
REPORT NO IFG-PR-82-A26
PUB DATE Dec 82
GRANT OB-NIE-G-80-0111
NOTE 71p.; Prepared for the Annual Meeting of the American Political Science Association (Denver, CO, September 2-5, 1982).
AVAILABLE FROM Publications, Institute for Research on Educational Finance and Governance, School of Education/CERAS Building, Stanford University, Stanford, CA 94305 ($3.00).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Bilingual Education Programs; Blacks; Elementary Secondary Education; Hispanic Americans; Mathematical Models; *Racial Composition; State Surveys; Students; Tables (Data); *Teacher Distribution; *Teacher Employment; Teacher Integration; Teachers; Teacher Supply and Demand; Whites
IDENTIFIERS *California

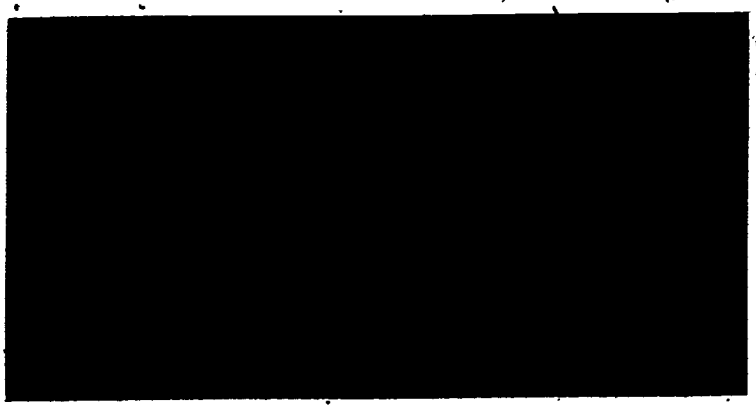
ABSTRACT

Using quantitative analysis, researchers studied the patterns of employment and assignment for Black, Anglo (White), and Hispanic teachers in California's public schools. After reviewing data on minority teacher and professional employment in the national public and private sectors and in California teaching, the authors discuss alternative explanations of minority employment patterns, based on either supply or demand factors. Using Multinomial Logit Analysis, they construct a mathematical model of the interrelationships among teacher employment and assignment, teacher race, and minority student desegregation. Data on school educational level, racial and ethnic changes in the student population, and teacher race, sex, education, experience, and bilingual certification were gathered from the 1981 survey of all California public school teachers. The authors find that teachers are assigned on the basis of schools' racial composition; that changes in the population of Anglo, Black, and Hispanic students contribute to racially based teacher employment and assignment; and that bilingual education programs help increase the segregation of Hispanic teachers into schools with larger percentages of Hispanic students. Implications for social theory and public policy are briefly discussed. An appendix offers further explanation of the mathematical model. (RW)

IFG

Institute for Research on Educational Finance and Governance

SCHOOL OF EDUCATION • STANFORD UNIVERSITY



Project Report No. 82-A26

RACE AND EDUCATIONAL EMPLOYMENT

Craig Richards
and
Dennis J. Encarnation

December 1982

Craig Richards is a Research Assistant at the Institute for Research on Educational Finance and Governance and a doctoral candidate in the School of Education at Stanford University.

Dennis J. Encarnation is a professor in the Graduate School of Business at Harvard University.

Paper prepared for the annual meeting of the American Political Science Association, Denver, Colorado, September 2-5, 1982. The research for this paper was supported by funds from the National Institute of Education (Grant No. OB-NIE-G-80-0111). The analyses and conclusions do not necessarily reflect the views or policies of this organization.

INSTITUTE FOR RESEARCH ON EDUCATIONAL
FINANCE AND GOVERNANCE

The Institute for Research on Educational Finance and Governance is a Research and Development Center of the National Institute of Education (NIE) and is authorized and funded under authority of Section 405 of the General Education Provisions Act as amended by Section 403 of the Education Amendments of 1976 (P.L. 94-482). The Institute is administered through the School of Education at Stanford University and is located in the Center for Educational Research at Stanford (CERAS).

The research activity of the Institute is divided into the following program areas: Finance and Economics; Politics; Law; Organizations; and History. In addition, there are a number of other projects and programs in the finance and governance area that are sponsored by private foundations and government agencies which are outside of the special R&D Center relationship with NIE.

Abstract

One important consequence of Lyndon Johnson's Great Society programs, first initiated in the 1960s, has been the direct generation of minority professional employment from increased government social spending and regulation. This government initiated increase in minority employment has been most noticeable in public sector professional and semi-professional occupations. Early analyses have concluded that this new middle class owes its new-found status to federal (and State) equal employment legislation and subsequent judicial interventions in pursuit of affirmative action. Later research drew a sharp distinction between the public and private sector and confirmed that, particularly for Black professionals, the public sector was the major source of new jobs. At the state and local level, where nearly all of this new public employment took place, public education accounted for over two-thirds of the social welfare employment increase.

This essay examines patterns of employment and assignment for Anglo, Black and Hispanic teachers in California Public Schools. This study challenges the conventional wisdom that teacher supply and demand responds to traditional human capital considerations alone and demonstrates that minority teachers are assigned to specific schools based on the racial composition of the pupils in these schools. Subsequently, the study explores how the selective demand for teachers based upon their race and ethnicity is exacerbated by the complex interactions of population growth and decline among Anglo, Black and Hispanic students. Finally, the research investigates how a particular social program--bilingual education--interacts with staff segregation and pupil growth and decline to influence teacher labor markets in subtle ways. The essay concludes with a review of major findings and their implications for both social theory and public policy.

Acknowledgments

We would like to thank Claudette Sprague for her secretarial assistance and Charles Bethel-Fox for his assistance in programming the models used in this research.

Introduction

Nearly two decades have elapsed since the first major federal social welfare programs were enacted in pursuit of Lyndon Johnson's Great Society. Since then, California and other states have matched and often surpassed federal funding and regulation in the areas of education, welfare, health, job security, and public housing. There is little disagreement that the proliferation of federal and state social policies since the 1960s, has fundamentally restructured the operations of government in the 1980s. From its inception, however, the social outcomes of this restructuring have been the subject of considerable debate. This essay explores one such outcome: the direct generation of minority professional employment from government social spending and regulation.

Numerous assessments of program implementation indicate that federal and state social policies have been unable to achieve their principal economic objective: to break the vicious cycle of intergenerational urban poverty.[1] Nevertheless, additional research does suggest that these same policies have improved the material well-being of some; namely, they served to expand the employment of ethnic and racial minorities in professional and semi-professional occupations. Early analyses have concluded that this growing minority middle class owed its new-found economic status to federal (and state) equal employment legislation and subsequent judicial interventions in pursuit of affirmative action.[2]

Later studies revealed, however, that most minority employment gains, particularly for professional occupations, were attributable not to growth in the private sector, but to the direct creation of publicly funded jobs in those government agencies that implement federal and state social welfare programs, especially those designed to serve low-income clientele.[3, 4] At the state and local level, where most of this new public employment took place, public education accounted for over two-thirds of the social welfare employment increase.[5] Educational employment therefore merits close scrutiny.

While existing research has concentrated on important public-private distinctions, little attention has been paid to the characteristics of labor markets internal to public sector institutions like schools, and even less attention has been given to the varied employment experiences of minority groups within public institutions.

This essay examines patterns of employment and assignment for Anglo, Black, and Hispanic teachers in California public schools.[6] Since minority employment trends in California are not unlike those reported nationwide, California is a reasonable "test case" for examining the relationship between race and educational employment. Minority employment trends are often explained as responses to variation in the available supply of qualfied applicants and in the relative demand for teachers in different job

environments. A quantitative analysis of minority employment in California schools, as of 1981, provides the empirical framework for examining the determinants of racially-selective teacher demand in the next three sections. The first part of this quantitative analysis begins with an effort to model the interrelationship of teacher race and minority student segregation on the employment and assignment of teachers within public schools. Subsequently, we explore how racially segregated teacher labor markets are exacerbated by the complex interactions of population growth and decline among Anglo, Black and Hispanic students. And finally, we investigate how a particular social program--bilingual education--interacts with staff segregation and pupil growth and decline to influence teacher labor markets in subtle ways. The essay concludes with a review of major findings and their implications for both social theory and public policy.

Before proceeding, however, some clarification of the language and terms used in this paper is required. The classification of teachers and students racially as either Anglo, Black or Hispanic is at best imprecise. Blacks, for example, may be of Ibero-American (Hispanic) origin.[7] Moreover, the consistent use of the term "race" as a substitute for the cumbersome phrase "race and ethnicity" is not meant to obfuscate the point that many Hispanics share a common caucasian racial history with Anglos. Additonally, the terms "minority segregation," school segregation," and "Anglo, Black or Hispanic

segregation" refer only to the level of student segregation, not to the level of teacher segregation in public schools. Finally, we apply the term "segregation" equally to both minority and non-minority schools that are racially isolated.

Minority Employment in Perspective

Public-Private and Within-Public Differences

Several empirical analyses of national census data covering the last 20-30 years conclude that, in relative terms, minority professional employment in the public sector exceeds similar employment in the private sector. Most of this research has focused on Black public employment gains. For example, a reanalysis of data compiled by Brown and Erie reveals that Blacks in 1976 constituted 10 percent of all professional, administrative, and technical positions in the entire federal, state, and local public sector labor force, up from 6% in 1960.[8] By contrast, during the same 16 year period, Anglo public employment in the identical professional categories declined as a proportion of total public sector employment (from 93 to 90 percent), despite growth in the absolute number of Anglos employed by government agencies. In other words, Blacks took a larger share of new hirings during this period of accelerated government involvement in social policy. So important were these gains that by 1976 more than five out of every ten Black professionals working

in the entire national economy was employed by government agencies, while for Anglos the ratio was less than three out of every ten.

As can be seen from Table 1, national trends reported in earlier, longitudinal studies are reflected in California. Within both local education agencies and the state civil service, Blacks comprise a larger share--almost two to one--of professional positions than do Blacks employed in the private sector.

TABLE 1

Professional Employment in California Education, Private Sector, by Race and Sector

	Public School Teachers (1980)	State Civil Service Professionals (1980)	Private Sector Professionals (1978)
Hispanic	11,804	5,180	37,011
Percent of Total	(5.9)	(7.7)	(5.0)
Black	9,400	5,246	24,681
Percent of Total	(6.4)	(7.8)	(3.4)
Anglo	121,323	51,143	627,290
Percent of Total	(82.5)	(76.3)	(85.0)
Other	7,568	5,429	45,647
Percent of Total	(5.1)	(8.2)	(6.2)
Total	147,117	66,998	734,629
	(100)	(100)	(100)

Sources: California Labor Market Issues: Hispanics, September, 1981; Californial Department of Education, Office of Inter-Group Relations, 1980; Annual Census of State Employees, Report to the Governor and Legislature, July 1981, California.

Note: The Category for State Civil Service Professionals includes technical workers but not administrators. The Category for Private Sector Professionals does not include officials and managers, occupations that have slightly higher participation rates for minorities.

Although the evidence is less compelling for Hispanics, earlier studies suggest that the general trend is the same. In Carnoy, Girling, and Rumberger's study on wage discrimination, they conclude: "Overall, it appears, that when education, age, and other variables are accounted for, Spanish surname workers (both men and women) do better in the public sector than in the private sector."[9] According to the data presented in Table 1, this conclusion is also at least partially supported in terms of relative employment in California: Hispanic professional employment in the state civil service was relatively larger than comparable Hispanic employment in the private sector. This public sector preference for Hispanics, however, is less significant when their level of job participation in the private sector is compared with education, and when it is compared with Black employment trends. These data suggest that the employment experiences of Blacks and Hispanics within the public sector may be different, a theme that will reemerge in subsequent analysis.

Within the public sector, Table I shows that local public education agencies are the single largest employers of Black and Hispanic professionals. This, too, mirrors national trends: for example, in 1976, over 60 percent of all Blacks employed in the public sector were employed in education.[10] One reason, of course, is that education is the largest single public sector employer. These same national data also reveal that within the public sector,

Blacks comprise a smaller proportion of the educational labor force than do Blacks in noneducational public sector jobs. For example, when social welfare employment for 1976 is broken down into educational and noneducational areas, Blacks comprise 12 percent of the former and 22 percent of the latter. Again, these national trends are reflected in California. According to Table 1, a greater proportion of professionals employed in the state civil service are Black or Hispanic than is the proportion employed by public schools. In short, while minorities are employed in greater numbers in education, their participation rates are markedly less than their relative employment in other public sector labor markets. And again, relative differences within the public sector are greater for Hispanics than Blacks.

One last finding to be drawn from earlier longitudinal analysis is that minority employment, especially of Black professionals in the public sector, has grown in absolute and relative terms over the last 20 years.[11] As reported in Table 2, this trend is replicated in California public schools. Historically, Blacks and Hispanics have been under-represented in the professions in all sectors of the national economy relative to their proportion in the general population. This was no less true in California public education, and remains so today. The dirth of minority educators did not go unnoticed by the minority community. By 1959, California faced mounting political pressure to rectify these imbalances, and in response, the

California State Board of Education established a "Commission on Discrimination in Teacher Employment" to address the problems minority teachers confronted when seeking public school positions. During its first year the Commission conducted a study of minority employment in California public schools. The Commission concluded that the most significant type of discrimination problem confronting teachers was that "members of certain racial and ethnic groups, particularly Negroes, still face limitations in finding jobs."[12] It also found that the total number of Hispanic teachers in California public schools was even lower than that of Blacks. As

TABLE 2

Totals and Percentages for California Public School Teachers by Race Comparing 1967, 1977, and 1980

Classroom Teachers	Anglo	Black	Hispanic	Other	Total
1967 Totals	163,523	8,137	4,189	4,003	179,852
(Percent)	(90.9)	(4.5)	(2.3)	(2.3)	(100)
1977 Totals	146,195	9,645	8,227	6,642	170,709
(Percent)	(85.6)	(5.6)	(4.8)	(4.0)	(100)
1980 Totals	121,323	9,400	8,826	7,568	147,117
(Percent)	(82.5)	(6.4)	(6.0)	(5.1)	(100)

Note: This table was adapted from Foote, et al., 1978, Table 15, page 35, and The California State Department of Eduoation, 1980 (Figures in parentheses are percentages.) The category 'other' includes: Asian, Pacific Islander, Filipino, American Indian, and Alaskan Native.

represented in Table 2, during the next two decades California public schools gradually improved their earlier employment practices with respect to minorities. Yet, despite their status as the state's largest minority group (24% compared to 10% for Blacks), Hispanic employment in California public schools even today, lags behind that of Blacks.

In summary, race has been and remains an important determinant of employment in the private and public sectors. While the job participation rates of minority professionals are now higher in government than in the private sector, such gains vary among Blacks and Hispanics and between public institutions providing educational and noneducational services. What factors account for these variations, especially variations within the public educational sector?

Alternative Explanations of Variations in Minority Employment

Two broad sets of explanations may be used to interpret the public-private and within-public variations in Black and Hispanic employment reported above. The first focuses on factors that shape the available supply of qualified personnel of a certain race or ethnicity; the second focuses on factors that shape the relative demand for different teachers with selected personal characteristics and qualifications. Whereas this study emphasizes

racially-based selective demand, some attention must also be given to supply side explanations. Indeed, given the complexity of employment decision making, it is often difficult to distinguish the causal orderings. The following provides one set of criteria for assessing the comparative merits of relative supply and selective demand explanations.

Supply

Two of the most oft-cited explanations of racial and ethnic employment patterns are that these patterns are a function of the unavailability of applicants within the pool of qualified candidates, and of the individual occupational preferences of those available candidates.

There is some evidence to suggest that the undersupply of qualified Black and Hispanic candidates has constrained their overall levels of employment in certain occupations. For example, the shortfall of qualified bilingual/bicultural teachers, especially teachers with Spanish-speaking skills, was estimated in California to be no less than five thousand during 1979-80.[13] Since Spanish-speaking Hispanic teachers would appear to have a natural language and cultural advantage in this segment of the labor market, their undersupply may constrain the general growth of Hispanic teachers in the total educational labor force. However, this thesis can be tested by comparing the assignment patterns of Anglo and Hispanic teachers with bilingual credentials. A priori one would not expect to find large numbers

of Anglo teachers employed in schools with relatively low percentages of Hispanic students, and the converse for Hispanic bilingual teachers. Given the overall shortage of bilingual teachers, one would expect to find qualified bilingual teachers similarly distributed among Hispanic pupils irrespective of the race of the teachers. As this example suggests, the "undersupply thesis" would fail to explain, at a given level of supply, variation in placement across different types of schools for Anglo and Hispanic teachers with comparable credentials, years of education, teaching experience, and other job-related characteristics. If the race or ethnicity of the teacher still remains an important determinant of the employment and location of Anglo, Black, and Hispanic teachers after introducing these controls, then the "undersupply thesis" is unconvincing.

A second supply side explanation focuses on the occupational preferences of individuals in the available pool of qualified applicants. Recent empirical analyses of "hedonic" price theory have reconfirmed what has long been known about the sociology of work: job characteristics and working conditions figure prominently in an individual's choice among alternative employment opportunities. To attract an employee to a job less preferred by a potential applicant, these labor market studies show that an employer must pay a higher wage, holding other determinants of employment constant. For example, in several studies of teacher employment in California and Florida,

Chambers found that school districts must pay higher wages to Anglo teachers in order to attract them to schools with one or more of the following characteristics: minority segregated, high levels of violence, inner city.[14] In short, employment in such schools is not preferred by Anglo teachers. One of the reasons for their preference ordering is described in the Safe School Study conducted by HEW in 1978:[15]

> ...white teachers confront substantially higher risks than others when they are teaching in predominantly nonwhite schools. A white teacher, for example, is seven times more likely to have been attacked in a minority school than in a predominantly white school; and in a minority school the risk that a white teacher will have been attacked is more than twice as great as the risk for a minority teacher. Clearly, then, the racial or ethnic background of a teacher relative to the racial/ethnic composition of the student body is a factor of some consequence in affecting his or her risk of being attacked or robbed. Since 89% of the teachers are white, the teachers at risk tend to be white teachers working in minority schools.

While this emphasis on occupational preferences suggests that Anglos will be less likely to teach in minority pupil segregated schools, it fails to explain any variation in the employment of Anglos and minorities in Anglo segregated schools. Moreover, independent of the relative risk, it is difficult to understand why employment in schools with poor working conditions would be preferred by anyone, be they Anglo, Black or Hispanic. These qualifications to the argument that occupational preference operating alone determines racial variation in employment patterns suggests that employers are not indifferent

to the personal attributes of the individuals they employ in certain positions. To understand what factors shape employer preferences, we turn to a discussion of the relative demand for Anglo and minority teachers.

Demand

Variation in employer demand for Anglo, Black, and Hispanic teachers can be explained by at least three sets of interrelated factors: (1) racial segregation of students, (2) regulations associated with federal and state categorical aid legislation, and (3) growth and decline associated with student demographic changes and fiscal constraints.

As noted above, the racial segregation of students may be an important determinant of racially-determined labor markets. For reasons of social control, the Safe School Study of 1978 recommended that more minority teachers be assigned to predominantly minority schools to reduce violence against teachers.[16] Research also suggests that minority teachers are important learning and role models for minority students.[17] Of course, historically these were not the most important objectives sought by early advocates of greater minority teacher employment. The increased hiring of minority faculty in public schools figured prominently in the demands of civil rights leaders and community groups who have been protesting and litigating for decades, a process that continues today. Pressure on the schools to hire more minority teachers was not limited to adults, but also involved widespread student

protests. The heightened racial awareness of minority youth which followed the Civil Rights movement in the 1960s served to call to their attention the absence of minority professionals in the schools, and undermined the legitimacy of white teachers in predominantly minority schools. While the causes of student militancy in public schools were certainly complex, there is clear evidence that the absence of minority faculty was an important element among their demands.[18] Even when students did not articulate their demands for minority faculty politically, they did so individually, and often hostilely by attacking white teachers. The research evidence reported above directly links the absence of minority educators in predominately minority schools to student violence against non-minority teachers.

Racial segregation of students remains today an important determinant of racially-determined labor markets only to the extent that pupil racial segregation remains an important characteristic of California public education. According to Table 3, not only has racial segregation persisted over the last two decades, but the incidence of racially segregated schools and of minority students (mainly Black and Hispanic) in such schools have increased significantly in the 12 years following 1967. During 1979, 44 percent of all Hispanic students and 43 percent of all Black students in California attended schools 50 percent or more minority.[19] To the extent

TABLE 3

Number of Schools with Fifty Percent or More Minority Enrollment
1967 to 1979

	Number of Schools	Minority Enrollment (Percent)*	Anglo Enrollment (Percent)**
Fall 1979	1,943	997,527 (61.3)	298,507 (7.3)
Fall 1977	1,755	921,052 (58.9)	275,146 (6.4)
Fall 1971	1,215	683,957 (52.0)	200,861 (4.4)
Fall 1967	987	553,182 (49.3)	139,523 (3.1)

Source: California State Department of Education, 1979, Table 6 and Table 7.

* Percent of all minority pupils.

** Percent of all Anglo pupils.

that minority employment is driven by minority student segregation, these trends suggest that Black and Hispanic gains in the educational labor market reported in Table 2 may be a function of the continued and growing segregation of public school students--an empirical question to be examined below.

The federal and state response to persistent racial segregation and the various political demands voiced by parents and students was to create a myriad of categorically funded programs. What distinguished categorical funds from previous state and federal aid was the tying of program funding to the provision of specified services targeted for low-income or minority students. The federal government created over 30 major educational and related manpower training programs between 1964 and 1975.[20] Each, in turn, was matched by an even broader array of state categorical aid programs whose funding often surpassed federal levels. By 1979, no fewer than 45 categorical aid programs could be identified in California.[21]

Some of these federal and state programs such as the Emergency School Aid Act, required as a condition for funding that school faculties had to be racially balanced, as did many school desegregation and affirmative action decisions. Other programs like compensatory education and Head Start have been specifically linked to Black employment gains as a result of their focus on the needs of low income, inner-city students.[22] Still other programs introduced special certification and training mechanisms, and have stipulated

that new teachers with these credentials must be hired if the school district is to satisfy program mandates and thereby qualify for funding. In the case of one such program, bilingual education, ethnic identity and professional specialization appear to overlap. Since bilingual proficiency is a condition of employment, Hispanics and other language minorities may have an edge in this expanding sector of the teacher labor market. To illustrate this point, Hispanics comprised almost 40 percent of all bilingual education teachers in California during 1980, yet they were less than 6 percent of the entire teaching force.

In short, certain categorical aid programs restructured the labor market for school personnel by creating a selective demand for personnel needed to address the special educational needs of low-income and minority students. To the extent that this restructuring created new opportunities for Blacks and Hispanics, their gains in the educational labor market may be a function of continued program funding. Nowhere should this be more apparent than in bilingual education programs, a special case singled out for close scrutiny below.

Most of these federal and state categorical aid programs originated during a period of relative growth in the total student population served by public schools, and in the fiscal capacity of local school districts, to provide services for these students. Since the size of the educational labor

force is a positive function of the size of student populations and of budgetary expenditures, such growth was reflected in expanded hirings of all teachers--Anglos, Blacks, and Hispanics. Over the last two decades, however, there have been dramatic changes in the student population served by public schools, as well as changes in the fiscal capacity of local districts. Not only has the total number of children attending public schools declined sharply over the last decade, but the number of students classified as disadvantaged for reasons of race, language, income, or physical disabilities has risen in absolute and relative terms.[23] In California, public school enrollments declined by over 350,000 students between 1967 and 1979, while students identified as social and ethnic minorities increased their numbers absolutely and relatively. This precipitous decline in total enrollments was due to a 26 percent decline over the 12 year period in Anglo students, who by 1979 constituted no more than 60 percent of all public school students. The remainder were minorities, of which Hispanics constitute the largest single grouping. Having grown by over 50 percent during the last decade, Hispanics by 1979 comprised over one-quarter of all public school students. In comparison, the Black growth rate over the same period mirrored the proportion of Black students in California's public schools during 1979--10 percent.[24]

Because of the severe fiscal crisis that hit California public schools during the late 1970s--a crisis precipitated by Proposition 13 and by a

simultaneous reduction in state revenues and per pupil expenditures--many districts were unable to cushion the layoffs from declining enrollments by markedly reducing class size. Furthermore, since the level of state funding was linked by formula to the number of students served within a given district, little short-term relief from the state was available to declining districts. Given that teacher salaries and fringe benefits accounted for 80-90 percent of the current budgets of most school districts, the standard solution taken by districts facing budgetary deficits was to reduce the teacher labor force. In short, teachers were laid off. However, given the seniority and tenure provisions secured over the last two decades by teacher unions, the first teachers dismissed were, by state law, those with the least seniority. As is apparent from Table 2, the employment gains of Black and especially Hispanic teachers, are of recent origin. These two minority groups are, therefore, most vulnerable to being dismissed. In this way, demographic declines and fiscal constraints interacted to erode previous minority employment gains.

Taken together, however, and put in the context of an already segregated school system, changes in student demography and changes in the fiscal capacity of local school districts may have contradictory implications for the employment of minorities statewide. While the tenure of newly hired Black and Hispanic teachers is jeopardized by severe fiscal constraints, the absolute

and relative growth of minority student populations in schools suggests that the demand for minority teachers to serve these populations may actually be growing. For example, growth in employment of Hispanic teachers in California kept pace and even surpassed growth in Hispanic students (96 percent versus 54 percent) between 1977 and 1979. Therefore, as shown in Table 4, the ratio of Hispanic teachers to Hispanic students narrowed significantly during this period. In contrast, reductions in Anglo teachers (-14.5 percent) did not keep pace with the decline of Anglo students (-26 percent) during this same period; seniority and tenure provisions protected Anglo teachers from the layoffs caused by declining enrollments. Consequently, Table 5 shows that the ratio of Anglo teachers to Anglo students was actually reduced. As for Blacks, teacher growth just kept pace with student growth so that the ratio of Black teachers to Black students over the last decade remained rather constant. These statewide figures suggest that the greatest minority employment gains should be recorded by Hispanics in schools with rapidly expanding Hispanic student populations.

TABLE 4

Changes in the Ratio of Teachers to Pupils by Race
1967 to 1979

Ratio of Teachers to Pupils	1967	1979
Anglo Teachers to Anglo Pupils	1 to 20	1 to 17
Hispanic Teachers to Hispanic Pupils	1 to 147	1 to 104
Black Teaches to Black Pupils	1 to 48	1 to 45
All Minority Teachers to Minority Pupils	1 to 69	1 to 61
All Teachers to All Pupils	1 to 25	1 to 24

Source: California State Department of Education, "Racial and Ethnic Distribution of Students and Staff in California Public Schools, Fall 1979," mimeographed, Table,14.

Moreover, since state funding is linked to a district's total student population, these employment gains should also be greatest in schools whose total student population is expanding.

Pupil Segregation and Minority Employment

Data and Methodology

Cursory evidence suggests student segregation is an important determinant of minority employment. To more accurately assess its impact, we estimated the probability of a minority teacher being employed in a school with specified racial concentrations of students while controlling statistically for the independent effects of selected variables commonly recognized to influence teacher demand and supply. This model takes the 1981 supply of employed California public school teachers and isolates the importance of teacher race in predicting the level of student segregation in the schools where teaches are asigned. Given the categorical nature of the dependent variable (levels of pupil segregation), these methodological objectives can best be satisfied through a set of statistical procedures known as Multinomial Logit Analysis.[25]

Multinomial Logit modeling provides a methodology for estimating the relative weight given to a teacher's race in predicting that teacher's likelihood of being employed in a school with a certain proportion of minority pupils, as compared to teachers in other schools with different proportions of minority pupils. In the analysis that follows, schools with 70 to 100 percent Black or Hispanic students will be used as the principal common point of comparison against which all other teacher assignments will be compared. From this, the first stage of the analysis is to estimate the dependent variables: (a) the log-odds of a teacher being assigned to a school with less than 10 percent Black or Hispanic students rather than being assigned to a school with more than 70 percent Black or Hispanics; (b) the log-odds of being

assigned to a school with 10-30 percent minority pupils as compared to 70+ percent; (c) the log-odds of being assigned to a school with 30-50 percent minority pupils as compared to 70+ percent; and finally, (d) the log-odds of being assigned to a school with 50-70 percent Black or Hispanic pupils as compared to a school that is 70+ percent Black or Hispanic. The choice of these five levels and the four sets of comparisons specified in the model, satisfy the objective of examining a broad range of racially segregated schools, constrained only by the statistical requirement that sufficient numbers of teachers for a given race are assigned to schools with these levels of minority pupil concentration.

To compute these log-odds, variables reflecting other supply and demand conditions are introduced simultaneously and their separate effects are controlled statistically. These variables include a variety of personal characteristics which, in addition to race, include the teacher's sex, education, teaching experience, and teaching credential (bilingual or regular). Job-related (i.e., school) characteristics must also be introduced; in addition to measures of the racial segregation of students, these include the grade-level of the school (elementary or secondary) and the recent (1979-80) change in Anglo, Black, and Hispanic student populations in the school to which the teacher is assigned. Given the simultaneous introduction of these supply and demand conditions, the multinomial logit model is said to

be of "reduced form"; i.e., it is not possible to formally separate the determinants of labor force supply and demand. For example, it is impossible from this model to determine whether Black or Hispanic teachers occupationally prefer teaching in racially segregated schools or whether they are only accepted for employment in segregated schools.

Once the log-odds of teacher assignment by level of pupil segregation are computed, the beta coeficients can next be converted into probability estimates. These conditional probabilities specify the likelihood that an Anglo, Black, or Hispanic teacher will be assigned to a school with one of five levels of racial segregation, while controlling for other personal and job-related characteristics.[26] It is these probability estimates which are reported in the text. We reserve to Appendix A the beta coefficients and "t-tests" from which these probabilities are derived and a formal presentation of the general form of the multiple logit model.

The statistics reported below were estimated on data derived from the 1981 teacher surveys conducted as part of the California Basic Education Data System (CBEDS). These surveys canvass the entire population of elementary and secondary teachers employed by local educational agencies in California. The estimates derived from these data reflect the relative importance of personal and job-related characteristics on the actual assignment to racially segregated schools of Anglo, Black, and Hispanic teachers still in the

educational labor force during that year. Random samples of teachers from each of three racial populations--Anglo, Black, and Hispanic--were drawn from these surveys. Since the unit of analysis is the teacher, more than one teacher could have been randomly selected from a given school. This stratified sampling technique generated three teacher subsamples of approximately equal size, and multinomial logit analyses were performed separately on each of these three subsamples.

Empirical Analysis

For each of these three samples and their separate multiple logit equations, the response rates for the seven independent variables are reported in Table 5: mean responses are reported for interval-level variables and percentages are reported for categorical variables. The first four variables after the constant reflect personal characteristics, and the remaining three job-related characteristics. Again, the dependent variable is the log-odds of a teacher being employed in a school with one of four possible levels of student segregation, as compared to the fifth level: teachers in the most Black or Hispanic segregated schools.

The figures reveal several differences among racial groups. First, teaching is still predominantly a woman's occupation, and it appears to be even more so among Blacks. In contrast, a greater percentage of Hispanic and

Anglo teachers are male; for both races, the frequency distributions by sex are roughly equal. Second, at least three fourths of all teachers are employed in elementary schools. The percentage is even higher for Blacks. Third, the level of education reported by teachers in the three samples is highest among Hispanics. This is a function of their teaching credentials. Nearly 40 percent of all Hispanic teachers hold a bilingual certificate--a certificate which typically requires an additional year of education. Fifth, Anglos have the longest presence in California's educational system with an average of 15 years, followed by Blacks with 13.4 years and Hispanics with just under 10 years. This racial distribution of average teaching experience or seniority, corresponds with the sequencing of Anglo, Black, and Hispanic hirings noted in Table 2. Black employment gains were largely experienced during the late 1960s, with Hispanic gains following in the early-to-mid 1970s. Given seniority-based retention policies during periods of teacher layoffs, this sequential hiring pattern favors Anglos over Blacks, and Blacks over Hispanics. As we will discuss below, however, many Hispanic teachers can be exempted by their school districts from the system of seniority-based layoffs because they possess bilingual certificates necessary to continued bilingual program funding.

TABLE 5

Mean Responses on Independent Variables by Race
For 1981 Teacher Sample

Variable		Teacher Sample by Race		
		Hispanic (N=2,286)	Black (N=2,305)	Anglo (N=2,233)
Sex	Male	37%	19%	35%
	Female	63%	81%	65%
Elementary Teacher	Yes	76%	85%	73%
	No	24%	15%	27%
Average Post-Secondary Education (4 = Masters Degree)	(Years)	3.69	3.40	3.49
Bilingual Certificate	Yes	39%	2%	2%
	No	61%	98%	98%
Years of Teaching Experience		9.80	13.39	14.95
Change from 1979-81[a] in Percentage of Hispanic Pupils		+2.39%	N/A[b]	+1.55%
Change from 1979-81[c] in Percentage of Black Pupils		N/A[b]	-1.81	+0.05%
Change from 1979-81[d] in Percentage of Anglo Pupils		-3.51%	-2.58%	-2.94%

Note: [a]Compared as the 1981 percentage of Hispanic students in a given school minus the 1979 percentage of Hispanic students in the same school.

[b]N/A = not applicable to this analysis.

[c]Computed as the 1981 percentage of Black students in a given school minus the 1979 percentage of Black students in the same school.

[d]Computed as the 1981 percentage of Anglo students in a given school minus the 1979 percentage of Anglo students in the same school.

The demographic changes reported in Table 5 reflect changes in the racial composition of students in the schools where the teachers sampled currently work. The average Hispanic teacher is employed in a school that over the last two years has experienced a rapidly growing Hispanic student population and a rapidly declining Anglo student population. Hispanic teachers are employed, according to these figures, in increasingly Hispanic segregated schools. Since Hispanics are the most rapidly growing group among public school students and Anglos are the most rapidly declining, we also find that the average Anglo teacher is employed in a school where Hispanics are an increasing percentage of the student body and Anglos are a smaller percentage. However, the rates of growth and decline among Hispanic and Anglo students respectively, are significantly less dramatic in schools where Anglos teach compared with schools where Hispanics teach. Consequently, during 1981, Hispanic teachers taught in schools that were becoming more Hispanic segregated than the schools where their Anglo counterparts taught. The average Black teacher typically taught in schools with declining numbers of Black pupils and even more rapidly declining numbers of Anglo pupils. To the extent Blacks are preferred for employment in Black segregated schools and depend upon growing student populations in such schools for new jobs, Black employment prospects seem to be diminishing. Not only are the prospects for Black growth-generated employment dim, but also many Black educators teach in

schools with sharply declining total pupil enrollments. Because Black teachers have lower average seniority (see Table 5) they are particularly vulnerable to layoffs in these schools.

Each of the independent variables listed in Table 5 was subsequently introduced as a control in the multiple logit equations estimated for the Anglo, Black, and Hispanic samples. The probability estimates of employment for Anglos, Blacks, and Hispanics with non-bilingual credentials are presented in Tables 6 through 9, showing variation by teacher race, teacher sex, school grade-level, and level of Hispanic or Black pupil segregation. Comparing Hispanics and Anglos first, different racially-determined patterns of employment in Hispanic segregated schools are observed in Tables 6 and 7,--patterns that hold even after controlling for the independent effects of other personal and job-related characteristics. First, at the secondary level, Anglo teachers are up to twice as likely to teach in schools with less than 10 percent Hispanics, while on the opposite extreme Hispanic teachers are four times as likely to teach in the most Hispanic segregated schools (70+%). Second, at the elementary level, Hispanic teachers are even more likely to teach in segregated schools: 40 percent of all Hispanic elementary teachers teach in schools with over 50 percent Hispanic students, compared to under 15 percent for similarly trained Anglo teachers. Again, at the other extreme,

Anglo elementary teachers are 3 times more likely than their Hispanic counterparts to teach in schools with fewer than 10 percent Hispanics.

TABLE 6

Probability of Hispanic Teacher Employment for Each Level of Hispanic Segregation[a] 1981

	Hispanic Pupil Concentrations in Public Schools[b]				
	0-10% (N=265)	10-30% (N=508)	30-50% (N=490)	50-70% (N=386)	70+ % (N=636)
Hispanic Elementary School Teachers with Regular Credentials					
Male	.10	.30	.21	.13	.27
Female	.11	.26	.20	.15	.28
Hispanic Secondary School Teachers with Regular Credentials					
Male	.21	.35	.25	.08	.12
Female	.23	.30	.25	.10	.12

[a] Controlling for the effects of average education, experience, changes in Hispanic pupil growth, and changes in Anglo pupil growth.

[b] "N" refers to the number of Hispanic teachers in a random sample of 2,285 Hispanics who teach in schools with these levels of Hispanic pupil concentration.

TABLE 7

Probability of Anglo Teacher Employment for Each Level of Hispanic Segregation[a] 1981

	Hispanic Pupil Concentrations in Public Schools[b]				
	0-10% (N=782)	10-30% (N=821)	30-50% (N=317)	50-70% (N=155)	70+ % (N=157)
Anglo Elementary School Teachers with Regular Credentials					
Male	.37	.38	.13	.06	.06
Female	.31	.38	.15	.07	.07
Anglo Secondary School Teachers with Regular Credentials					
Male	.41	.39	.12	.04	.03
Female	.36	.40	.14	.05	.03

[a]Controlling for the effects of average education, experience, changes in Hispanic pupil growth, and changes in Anglo pupil growth.

[b]"N" refers to the number of Hispanic teachers in a random sample of 2,232 Anglos who teach in schools with these levels of Hispanic pupil concentration.

Third, these trends apply irrespective of the teacher's sex. At no level of Hispanic pupil segregation does a teacher's sex appreciably alter the employment patterns of Anglo and Hispanic teachers within segregated elementary and secondary schools. In short, gender is not an important predictor of internal assignment in a labor market where three out of every four employees are women.[27]

Shifting from Hispanic segregated to Black segregated schools, we find in Tables 8 and 9 that racially-determined employment patterns are again discernable, even after controls for other personal and job-related characteristics are introduced. While Black teachers at both grade levels are fairly well distributed across schools with varying percentages of Black students, differences between Black and Anglo teachers are striking. No more than 8 out of every 100 Anglo teachers are likely to be found in elementary or secondary schools with more than 30 percent Black students. These same schools employ over 40 percent of all Black teachers. On the other extreme, over 75 percent of all Anglo teachers work in elementary or secondary schools with fewer than 10 percent Black students; for Black teachers, the probability of working in such schools is less than 40 percent. Note again that these patterns are not affected by a teacher's sex; nor are they affected by employment on elementary as opposed to a secondary school.

In summary, race remains in 1981 an important determinant of the employment and location of public school teachers in California. This seems

TABLE 8

Probability of Black Teacher Employment for Each Level of Black Segregation[a] 1981

	Black Pupil Concentrations in Public Schools[b]				
	0-10% (N=756)	10-30% (N=504)	30-50% (N=307)	50-70% (N=272)	70+ % (N=466)
Black Elementary School Teachers with Regular Credentials					
Male	.39	.17	.15	.09	.20
Female	.35	.24	.12	.10	.19
Black Secondary School Teachers with Regular Credentials					
Male	.34	.21	.14	.06	.25
Female	.30	.29	.11	.07	.23

[a] Controlling for the effects of average education, experience, changes in Black pupil growth, and changes in Anglo pupil growth.

[b] "N" refers to the number of Black teachers in a random sample of 2,305 Blacks who teach in schools with these levels of Black student concentration.

TABLE 9

Probability of Anglo Teacher Employment for Each Level of Black Segregation[a]
1981

	Black Pupil Concentrations in Public Schools[b]		
	0-10% (N=1,787)	10-30% (N=324)	30-100 (N=121)
Anglo Elementary School Teachers with Regular Credentials			
Male	.75	.18	.08
Female	.77	.16	.06
Anglo Secondary School Teachers with Regular Credentials			
Male	.79	.16	.05
Female	.81	.15	.04

[a]Controlling for the effects of average education, experience, changes in Anglo pupil growth, and changes in Anglo pupil growth.

[b]"N" refers to the number of Anglo teachers in a random sample of 2,232 Anglos who teach in schools with these levels of Hispanic pupil concentration.

especially true for Hispanic and Anglo teachers. For them, minority pupil segregation has opposite effects, effects that are often stronger in elementary schools. In the case of Black teacher assignment patterns, most Black teachers work in less segregated schools than Hispanic teachers. Yet, precisely for that reason, Black teachers are more vulnerable to layoffs than Hispanic teachers. This is because Anglo teachers have higher average seniority, and because the schools where Blacks teach are actually declining. Thus, ironically, Black teachers may be suffering from staff integration.[28]

Hispanic pupil growth and Anglo student decline have been greatest in elementary schools. Recent declines in Anglo and therefore total pupil enrollments have had a negative impact on aggregate teacher employment. In just one year (see Table 10), the number of public school teachers in California plummeted by over 11 percent. During that year, the number of teacher layoffs and new hires varied dramatically by race. Among the three largest racial groups, Hispanics alone show a substantial net increase in employment from 1979-1980. Anglos suffered the most precipitous declines, followed by Blacks.

The forces underlying this racial variance in the retention, layoff and hiring of teachers are complex. As noted in Table 5, the average Hispanic teacher is employed in a school which from 1979 to 1981 experienced a rapidly growing Hispanic student population and a correspondingly rapid decline in Anglo pupils, suggesting that Hispanics were teaching, in 1981, in schools more segregated than they were in 1979. Indeed, it was statistically shown that Hispanic employment was influenced by Hispanic pupil segregation.

Since the pupil growth variable in the previous logistic analysis of Hispanics (Table A-1, Appendix) shows that increasing segregation is also a function of Hispanic pupil growth, it is important to isolate how minority pupil growth may differentially affect teacher employment by race. More succinctly: is Hispanic employment a function of rapidly expanding Hispanic pupil populations in highly segregated schools?

TABLE 10

Net Growth and Decline of California Teachers by Race
(Percentages)
1979 and 1980

Classroom Teachers	Anglo	Black	Hispanic	Other	Total
1979 Totals	139,813	10,367	9,205	7,055	166,440
(Percent)	(84.0)	(6.2)	(5.5)	(4.3)	(100)
1980 Totals	121,323	9,400	8,826	7,568	147,117
(Percent)	(82.5)	(6.4)	(6.0)	(5.1)	(100)
Difference (1980-1979)	-18,494	-967	-379	+513	-19,323
% of 1979 Total	(-13.2)	(-9.3)	(-4.1)	(7.3)	(-11.6)
1980 New Hires	8,107	529	1,024	475	10,135
Percent of New Hires	(80)	(5.2)	(10.1)	(4.7)	(100)
Net Growth or Decline	-10,387 (-7.4)	-438 (-4.2)	+645 (+7.0)	+38 (+0.5)	-9,188 (-5.5)

Source: Figures taken from California Department of Education, Office of Intergroup Relations Summary Sheets, 1979, 1980.

To reduce the confounding effects associated with Anglo student declines that might outstrip Hispanic growth, three modifications were made to our original sample design: (1) We extracted from CBEDS all teachers (irrespective of race) who were employed in or after 1979 and still in the labor force; (2) From this group of teachers (approximately 23,000) we selected only those that worked in schools where total enrollments increased from 1979 to 1981. (3) Then, we split this sample into two groups: (a) those teachers (subsample one) who worked in schools with increasing Hispanic enrollments during the same period, and (b) those teachers (subsample two) who worked in schools with increasing Black enrollments during 1979-1981. (See Sample Design Flow Chart, Appendix A.) For each of these two subsamples, separate multinomial logit equations were estimated. The log-odds of an Anglo, Black or Hispanic teacher being employed in schools with different levels of racial segregation were computed, controlling for the independent effects of personal and job-related characteristics.

The entire first subsample of 9380 new hires--that is, teachers in schools with both increasing Anglo and Hispanic student populations--are rather evenly distributed across the five levels of segregated schools. When race is considered, however, important variations occur: Among Hispanic teachers nearly two-thirds were employed in schools 50 percent or more

Hispanic. Among Anglo teachers, the opposite occurs: over 60 percent are employed in schools with fewer than 30 percent Hispanics. Thus, even in schools where the total pupil population and the Hispanic population are both increasing, Hispanic and Anglo teachers obtain quite different probabilities of employment. Anglos are always more likely to secure jobs in schools with fewest Hispanics pupils and Hispanic teachers are always more likely to secure employment in schools with the greatest number of Hispanic pupils. A further conclusion emerges: Hispanic pupil growth is of little consequence in the employment of Hispanic teachers when it is in schools with less than 10 percent Hispanics students. Although one-fourth of all new teachers hired in the first subsample were employed in schools with less than 10 percent Hispanic pupils, less than 7 percent of those new jobs went to Hispanics and more than 90 percent of them went to Anglos. One can only conclude that growth is a necessary but insufficient condition for increased Hispanic employment; it is insufficient because growth must also take place in a highly segregated school.

Teachers in the second subsample of new hires met the same conditions as those in the first subsample, except this time they were employed in schools with both growing Black and growing Anglo student populations during 1979-81. Of the 6,116 teachers who satisfied these several conditions, less than 2 percent were employed in majority Black schools (i.e., 50+% Blacks).

Rather, over 75 percent were employed in schools with less than 10 percent Black pupils. While one of every three teachers hired in schools with 50 percent or more Black pupils were Black, such segregated schools were only a source of employment for 9 percent of the Black teachers in our sample. Indeed, the overall low rate of Black teacher employment among growing schools (5.5%) suggests that growth in general, and Black pupil growth in particular, is not a major factor in the employment of Blacks. These results are further substantiated by examining the beta coefficients in Table C-2 in the Appendix. The probability of employment within each level of school segregation rises drastically as the level of school segregation increases. Black employment is constrained, however, by the relative scarcity of schools over 50 percent Black whose total enrollments are also increasing. This is consistent with our earlier suspicions that Black pupil growth rates are not high enough to offset the rapid decline of Anglo pupils in such schools.

Although, in our sample, Anglo employment drops from a high of 80 percent of all jobs in schools with 10 percent or fewer Black pupils to 61 percent of all jobs in schools with 50 percent or more Black pupils, it is obvious that Anglo teachers have far greater access to employment in the entire spectrum of teaching jobs available than do Blacks or Hispanics. Indeed it may well be the case that Black and Hispanic teachers are compelled to compete with each other for jobs in minority expanding schools. Because the major contributor

to the demographic expansion is Hispanic growth, Hispanic teachers seem to enjoy an employment advantage over Blacks. If this is the case, it is unfortunate since Blacks and Hispanics are both underrepresented in the educational labor force in general and particularly so in schools with 10 percent or fewer minorities.

The evidence presented confirms the continuing significance of segregation when attempting to project the importance of education as an employer of minority professionals. Minority new hires are most likely to occur in rapidly expanding schools with highly segregated minority populations. There are two reasons why this seems to be the case: First, and most obviously, expanding pupil populations require more new teachers than stable or declining schools. Second, districts are likely to select minority teachers over non-minority teachers in highly segregated schools for each of the legitimacy, role modeling and social control reasons discussed earlier, and because fewer Anglo teachers are likely to apply for such jobs. With respect to demographics, schools with from 10 to 50 percent Hispanic pupils have average Anglo pupil declines that are outstripping average Hispanic increases by a factor of two to one. Only in schools 50 percent or more Hispanic is the average rate of growth in Hispanic pupils greater than the average rate of Anglo pupil decline. Thus, only in highly segregated

elementary schools is growth generated employment an important source of jobs for minority, and particularly Hispanic, teachers.

Elementary schools continue to play a central role in these conclusions: it is in elementary schools where most minorities work and it is in minority segregated elementary schools where minority teachers are most often assigned. Elementary schools also play a prominent role in this analysis because Hispanic pupil growth is highest at the elementary level and elementary schools have long been the focus of federal and state categorical aid programs. In the final analytical section of our study, we will conclude with an examination of one such categorical program, bilingual education, to determine its impact on minority employment and assignment.

Bilingual Education

Teaching jobs requiring bilingual certification have been a major avenue of entry for Hispanics into the educational labor force: 39 percent of all Hispanic teachers in our sample are bilingually certified. At the same time, however, the overall contribution of bilingual certification to Hispanic employment in the total teacher force has been relatively modest. There are two reasons for this. First, employment generated by bilingual education has also provided a significant number of new jobs for Anglo teachers in absolute

(about 2,400 in 1980), if not in relative terms. Moreover, even if all bilingual education teachers were Hispanic, the contribution of bilingual certification to the total labor force would be less than 5 percent. Given present hiring patterns, the net addition of Hispanic teachers to the total labor force as a direct result of bilingual programs was roughly 2 percent during 1980.

Keeping these important qualifications in mind, an important corollary question is whether state and federal bilingual education programs have themselves contributed to racially-determined employment patterns--a contribution that would be independent of the patterns already described with regard to teachers who have regular credentials. It seems reasonable to expect that the demand for bilingual certified teachers of all races would be greatest in schools--especially elementary schools--with the most Hispanic students. This should occur for three reasons. First, 60 percent of all Hispanic students are enrolled in grades K-6.[29] Second, the incidence of limited English speaking students is greatest in these schools because Hispanics are the largest language minority in California. And third, demand for these specially trained teachers outstrips supply by more than 100 percent: three-fourths of all bilingual teachers were in such schools in 1980.

By replicating the multinomial logit analysis performed in the section on segregation on teachers with non-bilingual credentials, probability estimates of employment for Anglos and Hispanics with bilingual certificates were generated. These estimates are presented in Tables 11 and 12. A separate analysis was not performed on Black teachers because they comprise less than 3 percent of all bilingually certified teachers. Several findings are especially noteworthy. First, the demand for bilingual education teachers regardless of race or grade level is extremely low in schools with less than 10 percent Hispanic pupils. This empirically verifies our previous supposition that the demand for teachers with bilingual certificates should be greater in schools with ever-larger concentrations of Hispanic students. Second, at the secondary level, where only one out of four bilingual teachers worked in 1980, Hispanic bilingual certified teachers are over twice as likely as their Anglo counterparts to work in Hispanic segregated schools (i.e., 50+% Hispanic students). On the other extreme, bilingually certified Anglo teachers are over twice as likely as Hispanics to work in schools with the fewest Hispanic students. Third, this pattern of racial assignment is even more exaggerated at the elementary level: Hispanics are almost three times more likely to work in the most segregated schools and are three times less likely to work in schools with less than 30 percent Hispanics. Finally, we again find little variation in employment patterns between sexes.

To determine whether bilingual education programs contribute to the racially-determined labor markets already observed with regard to non-bilingual teachers, Tables 11 and 12 must be compared with Tables 6 and 7. Looking first at Hispanic teachers only (compare Tables 11 and 6), Hispanics that are bilingually certified are 20 percent more likely to teach in schools with a majority of Hispanic students than are Hispanic teachers without that certificate.

TABLE 11

Probability of Employment for Hispanic Teachers with Bilingual Certificates for Each Level of Hispanic Segregation
1981

	Hispanic Pupil Concentrations in Public Schools[b]				
	0-10% (N=265)	10-30% (N=508)	30-50% (N=490)	50-70% (N=386)	70+ % (N=636)
Hispanic Elementary School Teachers with Bilingual Credentials					
Male	.02	.14	.24	.22	.38
Female	.02	.12	.24	.25	.38
Hispanic Secondary School Teachers with Bilingual Credentials					
Male	.05	.20	.36	.18	.21
Female	.05	.17	.36	.20	.22

[a] Controlling for the independent effects of average education, experience, changes in Hispanic pupil growth, and changes in Anglo pupil growth.

[b] "N" refers to the number of Hispanic teachers in a random sample of 2,285 Hispanics who teach in schools with these levels of Hispanic pupil concentration.

TABLE 12

Probability of Employment for Anglo Teachers with Bilingual Certificates Each Level of Hispanic Segregation 1981

	Hispanic Pupil Concentrations in Public Schools[b]				
	0-10% (N=265)	10-30% (N=508)	30-50% (N=490)	50-70% (N=386)	70+ % (N=636)
Anglo Elementary School Teachers with Bilingual Credentials					
Male	.09	.44	.21	.06	.20
Female	.07	.42	.22	.07	.21
Anglo Secondary School Teachers with Bilingual Credentials					
Male	.11	.52	.21	.05	.10
Female	.09	.51	.24	.06	.11

[a]Controlling for the independent effects of average education, experience, changes in Hispanic pupil growth, and changes in Anglo pupil growth.

[b]"N" refers to the number of Hispanic teachers in a random sample of 2,232 Anglos who teach in schools with these levels of Hispanic pupil concentration.

This trend holds in both elementary and secondary schools. On the other extreme, in schools with less than 30 percent Hispanic students, the opposite holds: Hispanic teachers without a bilingual credential are at least twice as likely to teach here; in elementary schools that ratio more than doubles, becoming five to one.

Looking next at Anglo teachers only (compare Tables 12 and 7), we see that bilingual education programs have partially ameliorated the impact of school segregation on Anglo employment. Anglo teachers with bilingual certificates are three times as likely to teach in the most Hispanic segregated schools (70+%) compared to Anglo teachers without this certification. Again, these trends apply equally to elementary and secondary schools. Despite these apparent differences, the impact of bilingual education employment on Anglo employment must be kept in perspective: over 50 percent of all Anglo teachers--those with bilingual credentials as well as those without--teach in an elementary or secondary school that has less than 30 percent Hispanic students.

And finally, the most telling comparisons can be drawn between Anglo teachers <u>with</u> a bilingual certificate and Hispanic teachers <u>without</u> bilingual certification (compare Tables 12 and 6). Despite the integration effects of bilingual-related employment on Anglo teachers, they are still less likely to teach in schools with more than 50 percent Hispanic students, and

are more likely to teach in schools that are less than 30 percent Hispanic. In other words, a Hispanic teacher with a general credential is more typically found in schools with greater levels of Hispanic segregation that an Anglo counterpart with a bilingual certificate. Thus, race remains the most important determinant of teacher employment. Taken together, these findings are consistent with earlier research: bilingual education programs contribute to the contradictory effects of increased Hispanic employment on the one hand and increased Hispanic staff segregation on the other.[30]

Conclusion

Summary

Throughout this analysis, we have made an effort to highlight the contours of an extremely complex relationship between race and eductional employment. While we concur with the assessment of previous researchers that the public sector has been a major source of employment for minority professionals, we do so with two important caveats. First, it was education, and local public schools in particular, which accounted for most minority employment gains during the 1960s and 1970s. And second, the absence in the 1980s of minority political pressures, Anglo student growth and local fiscal capacity--factors which jointly contributed to minority employment in the

previous decade--call into question the capacity of education, or perhaps even the public sector in general, to provide an occupational niche for minorities with aspirations of upward mobility.[31] These two caveats provided the foundation for our principal research question: How has the conflict between demands for minority employment reform and the new structural constraints on such reforms actually been expressed in patterns of minority employment and assignment. Since current employment patterns of minority professionals tell us something important about the progress made and the possibilities for future reform, this study has implicitly addressed a larger debate as well. This larger debate arises from the implications of declining employment opportunities for Black and Hispanic professionals in the public sector--a public sector previously credited with ameliorating racial bias and providing an important avenue of social mobility for minorities. Given the length and complexity of the arguments presented in this paper, a brief review of major findings should provide a useful conxtext for the more general disussion of public policy theory and practice which follows.

1. Race and minority student segregation are the two most important determinants of employment and assignment <u>within</u> the educational labor market. A teacher's race is far more important than a host of other personal characteristics: sex, teaching credential and years of teaching experience. Similiarly, Black or Hispanic student segregation is more important than a

variety of job-related characteristics, including the grade level of a school and the relative growth or decline of a school's minority or Anglo population.

2. Anglo, Black and Hispanic teachers have significantly different labor market experiences. These differences are evident in public-private sector comparisons, and within the public sector they are most striking within the public school system--California's single largest public sector employer of minorities. For example, Hispanic teachers more typically work in highly segregated Hispanic schools than do Black teachers in Black segregated schools. This is true even though Black pupils, on average, are more racially isolated than Hispanic pupils. In contrast, Anglo teachers predominate in schools where Black and Hispanic pupils are a small percentage of the total pupil population.

3. Growth and decline among Anglo, Black and Hispanic students also contributes to racially based employment and assignment. Growth related employment in California public schools is largely confined to schools that are highly segregated, predominately Hispanic, and at the elementary grade level. In seeking and retaining employment in these schools, Hispanics have an advantage over both Black and Anglo teachers, particularly when they hold a bilingual certificate. Indeed, Hispanics alone show a substantial net increase in employment from 1979 to 1980. Anglos show sharp declines, followed by Blacks.

4. State and federal categorical aid programs may also exacerbate the effects of teacher race and student segregation on educational employment. One such program, bilingual eduction, plays a significant (although fiscally constrained) role in employing Hispanics in schools even more segregated than those where general-credentialed Hispanic teachers are typically employed. This is not simply a function of assigning teachers with special skills to the schools where bilingual education is most needed: Anglo teachers with the same credentials teach in schools less segregated than do Hispanics without bilingual credentials.

Implications for Theory and Policy

The American common school system has a long history of ideological association with democracy and social reform.[32] Indeed, it has been a major locus of "reformist" pressure for much of the past century. Similiarly, the teaching profession itself has long been identified as an occupation conducive to the social mobility aspirations of young adults from working class and minority backrounds. Consistent with this tradition, supporters of increased employment of minority teachers have argued that such hiring is desireable for reasons of social equity, political legitimacy, and educational role-modeling. In sharp disagreement, a "revisionist" literature challenged the veracity of claiming schools as institutions predisposed to social reform and meaningful egalitarianism. Some radical critics of social welfare programs argue that

programs targeted at public schools function not in the pursuit of social reforms, but as models of "internal colonialism" by aiding the employment of minority professionals for the social control of a youthful minority underclass.[33]

The research evidence reported in this study suggests a middle ground--less sanguine than the reformists in their assessment and less critical than the radicals--where schools played an important role in expanding minority employment. The central tension that emerges from this study is expressed in a contradiction inherent to American public education: demands for minority employment arising from political action and social policy are structurally constrained by the persistence of segregation, uncontrollable demographic forces and the shifting fiscal fortunes of local school districts. Since these constraints are probably insurmountable even by the most reform-minded local officials, the educational sector as presently organized seems a less than promising avenue for increased minority employment in the 1980s. This same conclusion is shared by other observers of the educational labor market who argue that minority employment reforms are not likely to be undone, even though fiscal crises and a lack of institutional protections are combining to seriously erode two decades of progress.[34] While not directly confirmed, the data also suggest that a serious threat to minority employment gains can develop from the competition among minorities for jobs in segregated schools.

Black teachers with greater average seniority than Hispanic teachers, but lacking a parallel credential like a bilingual certificate that enjoys high demand, may find themselves at an employment disadvantage.

Hidden within the midst of such gloomy forcasts is one prospect for hope, or at the very least, a prospect for further inquiry. Even though education is the largest single employer of minority professionals, early in this study we saw that education lags behind the state civil service in terms of labor force participation rates. The state civil service differs from the public school system in one particularly important respect: hiring decisions in the civil service are centralized while hiring in the public schools is an extremely decentralized process. This may help to explain why minority employment continues to grow within the state civil service at rates higher than in the public schools. This speculation suggests a new line of inquiry in studies of minority employment within the public sector--an inquiry which compares minority employment gains by the level of decentralization of employment decisionmaking.

Footnotes

1. For an excellent summary see; Brown, Michael and Steven P. Erie. "Blacks and the Legacy of the Great Society: The Economic and Political Impact of Social Policy." Public Policy (Summer, 1981); Freeman, Richard B., (1973): "Changes in the Labor Market for Black Americans, 1948-1972." In Brookings Papers on Economic Activity 1: 67-120; William Julius Wilson argues a provocative variation on this theme in (1980): The Declining Significance of Race, Chicago: University of Chicago Press; also Butler and Heckman's review of literature on affirmative report of affirmative action (1977), Smith, James P., and Welch, Finnis, come to an appropriate conclusion of Freeman's work: Race Differences in Earnings--A Survey and New Evidence, (March 1978), Rand: Santa Monica, CA.

2. These studies are summarized in Wallace, P. A. (1977): "A Decade of Policy Developments in Equal Opportunities in Employment and Housing," in Robert H. Haveman, Ed., A Decade of Federal Antipoverty Programs, New York: Academic Press, pp. 329-359.

3. Brown and Erie op. cit., pp. 302-309; Carnoy, M., Girling, R., and Rumberger, R., (1976): Education and Public Sector Employment, Center for Economic Studies, Palo Alto, CA. For an excellent study on the growing importance of the service sector see, Ginzberg, Eli, and Vojta, G. J. (March 1981): "The Service Sector of the U.S. Economy," Scientific American.

4. Newman, Dorothy, et al., (1976): Protest, Politics, and Prosperity, Pantheon, New York, especially Chapter 5.

5. Brown & Erie, op. cit., estimated from Table 2, p. 307.

6. There is a considerable literature on internal labor market segmentation both theoretical and empirical which we, unfortunately, do not have space to review but implicitly informs our analysis. For the interested reader we provide the following: Cain, Glen (December 1976): "The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey." Journal of Economic Literature, pp. 1215-1257; Doeringer, Peter B., and Michael J. Piore (1971): Internal Labor Markets and Manpower Analysis, Lexington, Mass.: Heath Lexington Books; Edwards, R. (1979): Contested Terrain. New York: Basic Books, Inc.; Edwards, R., et al., eds. (1975): Labor Market Segmentation, Lexington: D. C., Heath and Co.; Gordon, D., Michael Reich, and R. C. Edwards (1972): "A Theory of Labor Market Segmentation," in M. Carnoy, ed.; Schooling in a Corporate Society, New York: David McKay Co.; Reich, Michael, David Gordon, and Richard Edwards (May 1973): "A Theory of Labor Market Stratification," American Economic Review, LXIII, No. 2, pp. 359-363; for an application of internal labor market segmentation to the public sector see, Harrison, Bennett (1980): "Public Employment and the Theory of the Dual Economy," in Harold Sheppard, Bennett, and Andrew Sum (1980): "Concepts and Data Needs," National Commission on Employment and Unemployment Statistics, GPO, Appendix I, Vol. I.

7. Hispanics have been recognized as a cultural minority by the courts. The term Chicano is a narrower term which applies to Hispanics of Mexican national origin. In recent years, California's Hispanic population has come to include a significant number of Central Americans who, while subjected to similar cultural and color barriers to employment, have a historical experience different from Chicanos.

8. Op. cit, Table 1, page 305.

9. Carnoy, et al., op. cit., p. 156.

10. Brown & Erie, op. cit., p.

11. For Blacks in 1959 the participation rate for professional and technical workers was 4.6 and grew by 1978 11.7; for Anglo professionals the comparative figures were 11.8 and 15.5. Source: Employment and Training Report of the President, 1979, USGPO, Table A-17, p. 263. According to Carnoy, et al., (1976) the number of Blacks employed by the government will have grown from 12% nationally in 1960 to a projected 15% in 1990. Further, the growth of the government labor force at 10% per year from 1940-1970 has been approximately twice the rate of growth of the private economy labor force.

12. Commission on Discrimination in Teacher Employment (1961): Toward Equal Employment Opportunity for Teachers in California's Public Schools. Second Annual Report, California State Department of Education, p. 1.

13. Interagency Task Force on Bilingual Teacher Preparation (November 1979): Report to the Joint Legislative Budget Committee: Bilingual Teacher Preparation: California State Department of Education, Sacramento, CA. See also: Addendum, (April 1980) op. cit.

14. Chambers, Jay (March 1979): "Educational Cost Differentials and the Allocation of State Aid for Elementary/Secondary Education," Journal of Human Resources, Vol. XIII, No. 4, Fall 1978.

15. National Institute of Education (NIE) (January 1978): Violent Schools—Safe Schools, Volume I, USGPO, p. 111. And, Hendrick, Irving G. (March 1975): Public Policy Toward the Education of non-White Minority Group Children in California, 1849-1870, NIE Report No. NE-6-00-3-0082. For an interesting debate on the merits of the "politics of disorder" as a strategy to empower minorities see the exchange between Piven and Cloward and Roach and Roach in Social Problems, December 1978; and Albritton, Robert B. (December 1979): "Social Amelioration through Mass Insurgency? A Reexamination of the Piven and Cloward Thesis," The American Political Science Review, pp. 1003-1011. Also see Newman, D. K., et al. (1976) Chapter 4, in Protest, Politics and Prosperity.

16. NIE, op. cit., p. 112.

17. Naboa, Abdin (Fall 1980): "Hispanics and Desegregation: Summary of Aspira's Study on Hispanic Segregation Trends in U.S. School Districts." METAS, 1-24; Haney, James E. (1978): "The Effects of the Brown Decision on Black Educators, Journal of Negro Education, 78, 1, p. 94; Dworkin, Anthony G. (April 1980): "The Changing Demography of Public School Teachers: Some Implications of Faculty Turnover in Urban Areas." Sociology of Education, Vol. 53, 2; p. 66.

18. For example, in negotiations with the school board following the East Los Angeles student walkouts in 1968, students demanded schools be taken over by Chicano personnel where enrollments indicated the majority of students were Chicanos. Munoz, Jr., Carlos (1974): "The Politics of Protest and Chicano Liberation: A Case Study of Repression and Cooptation," Aztlan, Vol. 5, Nos. 1 & 2, p. 119.

19. California State Department of Education, Office of Intergroup Relations (Fall 1979): A Racial and Ethnic Distribution of Students and Staff in California Public Schools.

20. Levin, Henry. "A Decade of Policy Developments in Improving Education and Training for Low-Income Populations." In Haveman, op. cit., pp. 123-188.

21. Kirst, Michael W. (February 1982): "Teaching Policy and Federal categorical Programs," Stanford Institute for Research on Educational Finance and Governance, Program Report No. 82-B1, p. 13. Kirst also notes that California has over 20 categorical programs of its own.

22. Brown & Erie, op. cit., p. 306.

23. Encarnation, Dennis, and Craig Richards (1981): "Labor Unions and Categorical Programs." IFG Policy Notes, Stanford University.

24. California State Department of Education, op. cit., Table 1. A number of referants could be used to depict relative level Hispanic staff representation at the school site. The use of staff-to-pupil ratios is typically used by the California State Department of Education to assess appropriate levels of staff integration.

25. Amemiya, Takeshi (December 1981): "Qualitative Response Models: A Survey." Journal of Economic Literature; Gurwitz, Aaron S. (1980): "School Finance Reform and Residental Choice: A Multinomial Logit Approach1," Rand Corporation Draft; Gunderson, Morley (Spring 1980): "Probit and Logit Estimates of Labor Force Participation," Industrial Relations, Vol. 19, No. 2, pp. 216-220; Schmidt, Peter, and Robert P. Strauss (June 1975): "The Prediction of Occupation Using Multiple Logit Models," International Economic Review, 251-259.

26. The equation for estimating such conditional probabilities is presented in Appendix A.

27. This study has necessarily restricted its analysis to racial issues, yet it goes without saying that gender, while not an important predictor in racial asssignment, becomes central when examining stratification across occupational segments within education (e.g., aides, elementary teachers, secondary teachers, and administrators). This issue is addressed in a forthcoming paper: Race, Gender and Educational Employment: A Case Study of California Administrators by Craig Richards, co-author of the current study.

28. Black teachers were well aware that integration and job loss could go hand-in-hand. See, for example: Haney, op. cit.; " Casualties of Progress: Black Teachers Lose Jobs in Eleven Southern States," Saturday Review (January 16, 1971).

29. California State Department of Education, op. cit., Table 2.

30. Naboa, op. cit.; Arias, Beatrice (May 1979): "Desegregation and the Rights of Hispanic Students: The Los Angeles Case," Telementery; Arias, Beatrice (1980): "Towards an Understanding of Desegregation Remedies for Hispanics," AERA Paper).

31. See Dworkin, op. cit., and Lortie, Dan (1975): Schoolteacher, Chicago: University of Chicago Press.

32. Cremin, Lawrence A. (1964): The Transformation of the School: Progressivism in American Education, New York: Random House, Vintage Books; Dewey, John (1916): Education for Democracy, Beacon Press; Wirth, Arthur (May 1981): "Exploring the Links between Dewey's Educational Philosophy and Industrial Reorganization," Economic and Industrial Democracy.

33. For an excellent review of the debate surrounding the potential of education for reform in the present period see, Hurn, Christopher (1978): The Limits and Possibilities of Schooling, Boston: Allyn and Bacon. On internal colonialism, see: Barrera, Mario (1979): Race and Class in the Southwest: A Theory of Racial Inequality, University of Notre Dame Press, Indiana; Carmichael, Stokely and Charles Hamilton (1965): Black Power, New York: Harper and Row; Carnoy, Martin (1974): Education as Cultural Imperialism, New York: David McKay and Co.

34. Levin, Henry and Martin Carnoy (1981): The Dialectics of Education, Unpublished manuscript, Stanford University; Katznelson, Ira (October 1978): "Considerations on Social Democracy in the United States," Comparative Politics.

APPENDIX A

Maximum Liklihood Estimates are calculated for the parameters in a multiple logit equation of the general form:

(1) $\text{LOGe}\ [P_{jt}/P_{1t}] = XB_j$

where $j = 2, 3....N_j$

and $t = 1, 2....T,$

t is the observation index, T = the number of observations,

Xt = t'th observation on a 1 x K vector of explanatory variables.

B_j is a K x 1 vector of (unknown) parameters.

The probabilities are calculated from the multiple logit equation using the following formula:

$$(2)\ P_{it} = \frac{e^{XtB_i}}{1 + \sum_{j=2}^{N} e^{XtB_j}}$$

The results in Tables A through C were estimated from subsample of the 1981 California Basic Educational Data System (CBED's) by race for Black, Hispanic, and Anglo teachers respectively, in functions of the following form:

$\text{LOG}_e\ [P_1/P_5] = B_{11} + B_{12}$ Sex + B_{13} Education + B_{14} Experience + B_{15} Bilingual Credential + B_{16} Elementary + B_{17} Hispanic Growth + B_{18} Anglo Growth.

$\text{LOG}_e\ [P_2/P_5] = B_{21} + ..., + B_{28}$ Anglo Growth

$\text{LOG}_e\ [P_3/P_5] = B_{31} + ..., + B_{38}$ Anglo Growth

$\text{LOG}_e\ [P_4/P_5] = B_{41} + ..., + B_{48}$ Anglo Growth

where Sex, Bilingual Credential, and Elementary are dicotomous independent variables taking the values: 1 = 'male', 'yes', and 'secondary', and 0 = 'female', 'no', and 'elementary', respectively. As an example of how to interpret coefficients, Table A-1 shows that as one moves from schools where there are 10 percent or fewer Hispanic students to the most segregated Hispanic schools (70+ percent) the strong negative weights associated with a bilingual credential decrease sharply for both Hispanic teachers. The consistently negative coefficients indicate that a bilingual certified Hispanic teacher is always more likely to be employed, ceteris paribus, in a more segregated school than in a less segregated school at all levels.

CHART I

SAMPLING DESIGN
FOR
MULTINOMIAL LOGIT ANALYSIS

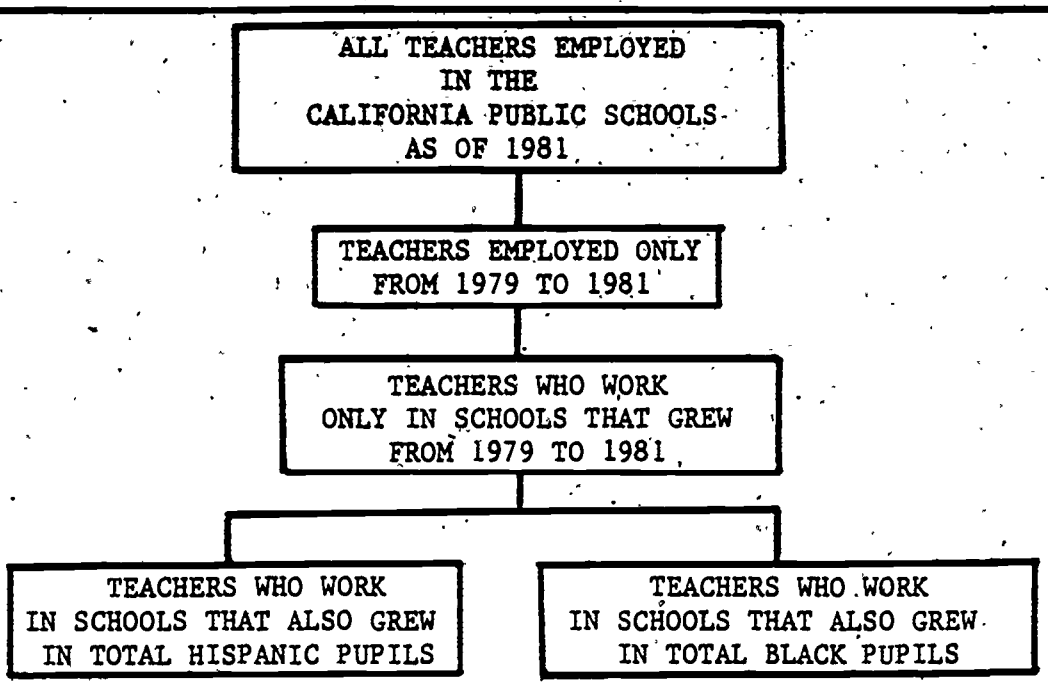


Table A-1

Multiple Logit Modeling of Hispanic Teacher Employment in California by level of Hispanic Pupil Segregation, 1981
Coefficients and "t-ratios"
(N=2285)

Dependent Variable	C	Sex	Level of Ed	Years of Exper.	Biling. Cred.	Elem	Hispanic Growth	Anglo Growth
LOGe P_1/P_5	.72 (-1.75)	-.07 (-.42)	-.16 (-1.78)	.07 (6.51)	-2.07 (-8.69)	1.51 (7.47)	-.16 (-7.10)	-.01 (-.63)
LOGe P_2/P_5	-.01 (-.04)	.17 (1.25)	-.14 (-2.05)	.04 (3.76)	-1.18 (-7.91)	.96 (5.46)	-.13 (-7.59)	-.12 (-7.40)
LOGe P_3/P_5	-.68 (-1.99)	.03 (.23)	.03 (-.40)	.02 (2.05)	-.19 (-1.49)	.99 (5.54)	-.09 (-5.38)	-.08 (-5.11)
LOGe P_4/P_5	-.73 (-1.99)	-.14 (-.91)	.02 (.22)	-.01 (-.70)	.19 (1.42)	.36 (1.69)	-.03 (-1.83)	-.06 (-3.65)

The dependent (polychotomous variable is constructed on the following five levels of Hispanic pupil segregation: P_1 = 0-10% Hispanic Pupils (n=265), P_2= 10-30% Hispanic pupils (n=508), P_3= 30-50% Hispanic pupils (n=490), P_4= 50-70% Hispanic Pupils (n=386), and P5 = 70+% Hispanic Pupils (n=636). It should be noted that the 'n' for each level refers to the number of Hispanic teachers assigned to schools with the corresponding percentage of Hispanic pupils.

Table A-2

Multiple Logit Modeling of Anglo Teacher Employment in California by level of Hispanic Pupil Segregation, 1981
Coefficients and "t-ratios"
n=(2232)

Dependent Variable	C	Sex	Level of Ed	Years of Exper.	Biling. Cred.	Elem	Hispanic Growth	Anglo Growth
LOGe P_1/P_5	1.63 (3.59)	.24 (1.11)	-.03 (-.34)	.02 (1.84)	-2.54 (-3.99)	0.97 (3.46)	-.24 (-9.10)	.001 (-.04)
LOGe P_2/P_5	1.49 (3.33)	.07 (6.33)	-.04 (-.42)	.02 (1.97)	-.95 (-2.28)	.91 (3.26)	-.20 (-7.80)	.10 (-4.51)
LOGe P_3/P_5	.52 (-5.00)	-.03 (-1.27)	-.01 (.18)	.02 (1.05)	-.67 (2.67)	.80 (-1.47)	-.07 (1.34)	-.03 (-7.48)
LOGe P_4/P_5	.15 (.27)	-.16 (-.59)	-.08 (-.61)	-.01 (.34)	-1.05 (-1.76)	.50 (1.50)	-.02 (-.84)	-.04 (1.34)

The dependent (polychotomous variable is constructed on the following five levels of Hispanic pupil segregation: P_1 = 0-10% Hispanic Pupils (n=782), P_2= 10-30% Hispanic pupils (n=821), P_3= 30-50% Hispanic pupils (n=317), P_4= 50-70% Hispanic Pupils (n=155), and P5 = 70+% Hispanic Pupils (n=157). It should be noted that the 'n' for each level refers to the number of Anglo teachers assigned to schools with the corresponding percentage of Hispanic pupils.

Table B-1

Multiple Logit Modeling of Black Teacher Employment in California by level of Black Pupil Segregation, 1981 Coefficients and "t-ratios" (n=2305)

Dependent Variable	C	Sex	Level of Ed	Years of Exper.	Elem	Black Growth	Anglo Growth
LOGe P_1/P_5	.56 (2.20)	.05 (.31)	.06 (1.13)	-.04 (-4.78)	.36 (-2.09)	-.01 (-1.09)	-.13 (-9.50)
LOGe P_2/P_5	.12 (.43)	-.42 (-2.35)	.08 (1.25)	-.04 (-4.07)	-.03 (-.14)	-.002 (-.30)	-.12 (-8.65)
LOGe P_3/P_5	-.59 (1.85)	.14 (.73)	-.02 (-.32)	-.02 (-2.31)	-.33 (-1.46)	-.14 (-10.37)	-.11 (-6.43)
LOGe P_4/P_5	-.71 (-2.11)	-.21 (-.97)	.06 (-.83)	-.02 (-2.38)	-.60 (-2.22)	-.18 (-12.90)	-.12 (-6.39)

The dependent (polychotomous variable is constructed on the following five levels of Black pupil segregation: P_1 = 0-10% Black Pupils (n=756), P_2 = 10-30% Black Pupils (n=504), P_3 = 30-50% Black pupils (n=307), P_4 = 50-70% Black Pupils (n=272), and P5 = 70+% Black Pupils (466). It should be noted that the 'n' for each level refers to the number of Black teachers assigned to schools with the corresponding percentage of Black pupils.

Table B-2

Multiple Logit Modeling of Anglo Teacher Employment in California by level of Black Pupil Segregation, 1981
Coefficients and "t-ratios"
(n=2232)

Dependent Variable	C	Sex	Level of Ed	Years of Exper.	Elem	Black Growth	Anglo Growth
LOGe P_1/P_3*	2.82 (6.11)	-.26 (-1.22)	.03 (0.30)	-.01 (-.75)	.53 (2.07)	-.13 (5.35)	-.02 (1.05)
LOGe P_2/P_3*	.68 (1.28)	-.16 (-.65)	.04 (.38)	.004 (.30)	.38 (1.34)	.18 (6.15)	-.03 (-1.47)

The dependent (polychotomous variable was originally constructed on the following five levels of Black pupil segregation: P_1 = 0-10% Black Pupils (n=1,787), P_2= 10-30% Black Pupils (n=324), P_3= 30-50% Black pupils (n=59), P_4= 50-70% Black Pupils (n=30), and P_5 = 70+% Black Pupils (n=32). It should be noted that the 'n' for each level refers to the number of Anglo teachers assigned to schools with the corresponding percentage of Black pupils. However, given the small 'n' in the last two levels, levels P_4 and P_5 were collapsed into level P_3* (n=121).

TABLE C-1[a]

Multiple Logit Modeling of the Effects of Hispanic Pupil Growth on Teacher Labor Markets, 1979-1981

Coefficients and "t-ratios"

(N = 9380)[b]

Variable	Loge P~1\/P~5\	Loge P~2\/P~5\	Loge P~3\/P~5\	Loge P~4\/P~5\
Constant	-1.56 (-6.48)	-.23 (-1.24)	-.57 (-2.74)	-1.05 (-4.63)
Sex	.0001 (.001)	.06 (.86)	-.14 (-1.69)	.05 (.59)
Elementary	.84 (8.19)	.64 (6.94)	.14 (1.28)	-.52 (-3.71)
Credibility	-1.70 (-8.46)	-1.33 (-10.53)	-.07 (-.67)	.05 (.47)
Hispanic	-.61 (-2.54)	-.48 (-3.10)	-.25 (-1.53)	.22 (1.25)
Black	.14 (.66)	.11 (.76)	.21 (1.28)	.46 (2.58)
Anglo	1.23 (7.22)	.62 (5.14)	.30 (2.24)	.43 (2.82)
Years in District	.08 (1.82)	-.08 (-.2.21)	-.01 (-.04)	-.01 (-.19)
Highest Level of Education	.02 (.58)	.05 (1.66)	.01 (.39)	.04 (1.14)

[a]The dependent (polychotomous variable is constructed on the following five levels of Hispanic pupil segregation: P_1 = 0-10% Hispanic pupils (n=1505), P_2 = 10-30% Hispanic pupils (n=2721), P_3 = 30-50% Hispanic pupils (n=1560), P_4 = 50-70% Hispanic pupils (n=1293), and P_5 = 70+% Hispanic pupils (n=2251).

[b]The 'n' for each level refers to the number of Hispanic teachers assigned to schools with the corresponding percentage of Hispanic pupils.

TABLE C-2[a]

Multiple Logit Modeling of the Effects of Black Pupil Growth on Teacher Labor Markets, 1979-1981
Coefficients and "t-ratios"
(N = 6054)[b]

Variable	P~1\/P~4\	P~2\/P~4\	P~3\/P~4\
Constant	3.24 (5.53)	2.06 (3.40)	1.13 (1.50)
Sex	-.48 (-2.30)	-.71 (-3.25)	-.41 (-1.45)
Elementary	1.38 (3.23)	1.42 (3.26)	1.72 (3.58)
Hispanic	1.24 (1.96)	.47 (.73)	1.10 (1.52)
Black	-2.07 (-4.83)	-1.45 (-3.29)	-1.19 (-2.14)
Anglo	.25 (.62)	-.18 (-.45)	-.53 (-1.05)
Years in District	-.18 (-1.54)	-.25 (-2.09)	-.31 (-2.04)
Highest Level of Education	.21 (2.15)	.28 (2.79)	.01 (.06)

[a]The dependent (polychotomous variable was originally constructed on the following five levels of Black pupil segregation: P_1 = 0-10% Black pupils (n=4748), P_2 = 10-30% Black pupils (n=1113), P_3 = 30-50% Black pupils (n=135), P_4 = 50-70% Black pupils (n=38), and P_5 = 70+% Hispanic pupils (n=62).

[b]The 'n' for each level refers to the number of Black teachers assigned to schools with the corresponding percentage of Black pupils. However, given the small 'n' in the last two levels, levels P_4 and P_5 were collasped into level P_4 (n=120).