DOCUMENT RESUME

ED 260 167 UD 024 388

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TITLE Effects of Employer Recruitment Methods, Employer Job Placement Decisions, and School Desegregation on Minority and Female Hiring and Occupational Attainment. Three Reports. Report No. 359.
INSTITUTION Johns Hopkins Univ., Baltimore, Md. Center for Social Organization of Schools.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE Jul 85
GRANT NIE-G-83-0002
NOTE 193p.; For individual papers, see UD 024 389-391.
PUB TYPE Collected Works - General (020) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC08 Plus Postage.
DESCRIPTORS Affirmative Action; Blacks; *Desegregation Effects; Educational Attainment; Education Work Relationship; Elementary Secondary Education; *Employment Level; Higher Education; High Schools; *Job Placement; *Job Search Methods; Minority Groups; Outcomes of Education; *Racial Bias; Racial Differences; Racial Discrimination; *Recruitment; School Role; Sex Differences
IDENTIFIERS Project Concern CT

ABSTRACT

Three separate reports are bound together in this volume. Each examines one area of the transition from school to work in order to identify how elements of the process differ for blacks and women compared to whites and white males, and how these elements might better meet the needs of blacks and women. The three papers, and their authors, are as follows: (1) "A Comparison of the Use of School Placement Services and Other Employment Recruitment Methods for Jobs Filled by Differen Race, Sex, and Education Attainment Groups" (James M. McPartland and Russell L. Dawkins); (2) "How Race Affects Job Placement Decisions: Results of a Vignette Experiment with a National Sample of Employers" (Jomills H. Braddock II, Robert L. Crain, James M. McPartland, and Russell L. Dawkins); and (3) "School Desegregation and Black Occupational Attainments: Results from a Long-term Experiment" (Robert L. Crain and Jack Strauss). (KH)

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THREE REPORTS: EFFECTS OF EMPLOYER RECRUITMENT METHODS, EMPLOYER JOB PLACEMENT DECISIONS, AND SCHOOL DESEGREGATION ON MINORITY AND FEMALE HIRING AND OCCUPATIONAL ATTAINMENT

Grant No. NIE-G-83-0002

James M. McPartland and Russell L. Dawkins

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Report No. 359

July 1985

Published by the Center for Social Organization of Schools, supported in part as a research and development center by funds from the National Institute of Education, U. S. Department of Education. The opinions expressed in this publication do not necessarily reflect the position nor policy of the National Institute of Education, and no official endorsement should be inferred.

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Printed and assembled by VSP Industries
2440 West Belvedere Avenue
Baltimore MD 21215

The Center

The Center for Social Organization of Schools (CSOS) has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization. The Center works through three research programs to achieve its objectives:

The School Organization Program investigates how school and classroom organization affects student learning and other immediate outcomes of schooling. Current studies focus on parental involvement, microcomputers in schools, use of time in schools, cooperative learning, and other organizational strategies that alter the task, reward, authority, and peer group stuructures in schools and classrooms.

The Education and Work Program examines the relationship between schooling and students' later-life occupational and educational success. Current projects include studies of the competencies required in the workplace, the sources of training and experience that lead to employment, college students' major field choices, and employment of urban minority youth.

The Schools and Delinquency Program studies the problems of crime, violence, vandalism, and disorder in schools and the role that schools play in delinquency. Ongoing projects address the development of a theory of delinquent behavior, school effects on delinquency, and the evaluation of delinquency prevention programs in and out of schools.

CSOS also supports a Fellowships in Educational Research Program that provides opportunities for talented researchers to conduct and publish significant research in conjunction with the three research programs.

This report, prepared by the Education and Work Program, includes three research studies that investigate the relationship of race, sex, and other variables to employer recruitment methods, job placement decisions, and school desegregation.

Abstract

The high rate of unemployment and low occupational attainment of blacks, especially black males, remains a major concern in the United States. Despite some positive gains, this group continues to be confronted with major barriers to achieving parity with whites in employment and attainment. At the same time, achieving parity with white males remains an elusive goal for females.

These three reports examine three areas of the transition from school to work in order to identify how elements of the process differ for blacks and women compared to whites and white males, and how these elements might better meet the needs of blacks and women.

The first report examines employer recruitment methods and how their use varies by race and sex groups, by public and private sector, by education level, and other variables. Major findings include: (1) particular methods are associated with high education level jobs (school placement, professional organizations, private employment agencies, and media ads) -- while other methods are associated with low education level jobs (use of friends and relatives, public employment services, and unions); (2) high school placement services are infrequently used by employers or graduates to fill or get low education level jobs, but are used occasionally in recruiting for female office jobs, and (3) social networks to which whites are attached are more useful for access to higher level jobs than are the social networks to which blacks are attached.

The second report examines placement decisions made by personnel officers. The results suggest that white personnel officers tend to assign black male high school graduates to lower paying positions than those assigned to white male high school graduates. Similar patterns are observed for black female college graduates. These patterns of apparent bias in job placement are found to be offset to some degree in firms that have strong affirmative action policies.

The third report examines the effects of attending desegregated schools on the occupational attainment of blacks, following students who began desegregated schooling in 1966 as part of a randomized experiment. The main finding of this report is that the desegregated black students obtained different types of employment than did the students in the control group. The desegregated students are now working in occupations which are less commonly held by blacks — men are salesmen rather than postmen, women are secretaries rather than nurses' aides. In general, those who experienced desegregated schooling are more likely to be working in white collar and professional jobs in the private sector, while those from segregated schools are more likely to be working in government and in blue-collar jobs.

THREE REPORTS

A Comparison of the Use of School Placement Services and Other Employment Recruitment Methods for Jobs Filled by Different Race, Sex, and Education Attainment Groups

James M. McPartland and Russell L. Dawkins

How Race Affects Job Placement Decisions: Results of a Vignette Experiment with a National Sample of Employers

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A Comparison of the Use of School Placement Services and Other Employer Recruitment Meth for Jobs Filled by Different Race, Sex, ar Education Attainment Groups.

James M. McPartland
Russell L. Dawkins

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1. Introduction

Research on how employers recruit new workers is needed to develop and examine more realistic theories of education's role in career development processes and to develop practical ways to help students make a successful transition from school to work.

1.1 Recent theories of education and work

Until recently, theories of career development have emphasized the productivity aspects of schooling to coincide with a wage competition model of education and work. Under a wage competition framework, individuals seeking jobs would sell their skills in the labor market by negotiating the best wage for their talents with employers who had openings that required such skills. The role of schools in this model is to train the human capital that is required for different jobs. A great deal of research has been devoted to estimating the market value of education in terms of the increased earnings that is returned to additional education.

The need for schools to educate and train students in the skills required for different jobs remains of theoretical and practical interest. But he recent development of a job vacancy competition theory has added new questions about the role of schools in the economy. Under this theory, individuals do not negotiate wage rates with employers to create a

hiring occasion. Instead, vacancies occur at fixed wage levels due to current employees leaving their position or due to new jobs being created in firms. To find employment, an individual must learn of a vacancy, show up as an applicant and be chosen by the employer to fill the position. The issues that arise about the role of education under this formulation include questions at each stage of the employment process. At the recruitment stage, how do schools help individuals become candidates for certain vacancies? Do they provide formal placement services that employers can use to get applicants? Do they provide informal networks of information and contacts that individuals can use to learn about particular job openings? At the selection stage, how are credentials and information provided by schools used by employers to rank candidates? How are appropriate job skills learned at school measured by employers in the process of selecting new employees? At the job promotion stage, what school credentials continue to have meaning, and how do skills learned at school compare to skills learned on the job in determining who moves up in a firm?

This paper, will concentrate on the recruitment stage of the employment process. We will investigate the use and importance of school placement services and education credentials in employer recruitment and individual job search methods.

1.2 Some practical issues

Questions about the role of schools in the recruitment phase of employment also relate to practical issues of efficiency, effectiveness, and fairness. Can and do schools provide cost-effective formal mechanisms for matching applicants with vacancies? Can and do employers use information provided by schools about individuals employers to accurately rank and match candidates to new positions? Do all segments of the population, including racial and ethnic minorities, have equal access to and equal success in using the information and processes through which different job openings are filled?

2. Research Design

We will analyze a set of data that was assembled to study both employer and employee behaviors associated with the same job position in the same firm at major stages of the employment process. In this paper, we examine the job recruitment activities of the employers and the job search activities used by employees to fill openings in a nationally representative sample of jobs filled by young workers in the approximate age range of 22 to 25.

Our data are from a national survey of 4078 employers. The information provided by the survey is linked to jobs held in 1976 or 1979 by a sample of individual respondents to the National Longitudinal Survey of the High School Grad-

uating Class of 1972 (NLS). The National Longitudinal Survey is a large-scale study conducted by the National Center for Education Statistics that collected base year data from over 20,000 high school seniors in 1972 and follow-up survey data from them at four subsequent times. The third and fourth NLS follow-up surveys were used to select a sample of employers through the information provided by NLS respondents on the name and location of their employer in October 1976 and October 1979. The sampling and survey procedures are described elsewhere (McPartland and Humphrey, 1984). Completed survey questionnaires were obtained in 1983 from approximately 75 percent of the sampled employers for a total achieved sample size of 4078.

Many questions on the employer survey pertained to a specific "sample job" title and duties described on the earlier individual NLS respondent questionnaires as the position filled by the individual in 1976 or 1979. By merging the employer surveys with the individual NLS surveys so as to match information in a single record in the same "sample job" in the same firm, we are able to investigate similar issues about the job from the perspective of employer and employee.

The data we have, in essence, describe how the employer views a job, how it is generally filled, and how it relates to the firm. At the same time, our data describe the actual

employee in that job, and the job search procedures that he/she used to get the job.

From the employee questionnaires, we will use information on the individuals' race, sex, and educational attainment, as well as the job search behaviors used to find the job. From the employer questionnaires, we will use information on the demographic characteristics of incumbents of the sample job (percent male, race distribution, and educational attainment distribution) as well as the job recruitment methods used most often by the employer to fill openings in the "sample job." We will examine jobs from both the private and public sectors. The private sector workers were defined as "an employee of a PRIVATE company, bank, business, school or individual working for wages, salary, or commissions," and public sector workers were defined as "a GOVERNMENT employee (Federal, State, county, or local institution or school)."

3. A Statistical Description of Job Recruitment and Job Search Behaviors.

The employee questionnaire listed twelve job search methods, and asked the individual "How did you find this job? (Circle as many as apply.)" The employer questionnaire listed eleven corresponding job recruitment methods, and asked the employer "How often do you use each of the following methods to find applicants from the outside when open-

ings occur in the SAMPLE JOB?" (Circle one response for each method: Always, Often, Sometimes, Seldom, Never.) The wording was the same or similar for the employer and employee methods, as follows:

Employer	Employee
1. Ask your current employees to recommend their friends and acquaintances.	1a. Relatives. 1b. Friends.
2. School or college placement services.	2. SAME
3. Professional periodicals or organizations.	3. SAME
4. Civil Service applications.	4. SAME
5. Public employment services.	5. SAME
6. Private employment agencies or services.	6. Private employment agency.
7. Community action or welfare groups.	7. SAME
8. Newspaper, TV, or radio ads.	8. SAME
9. Unsolicited applicants ("walk-in" applicants)	9. Direct application to employers.
10. Referrals from a union.	10. Registration with a union.
11. Other (please specify___)	11. SAME

3.1 Comparison of public and private sectors.

Table 1 presents the percent of employers and employees who reported using each method, with separate tabulations for private and public sector jobs. (Employer results are the percent who circled "always" or "often".)

Table 1 about here

We notice from Table 1 that (a) the public and private sectors differ in the most frequently used search and recruitment methods, and (b) there is good agreement between employer and employee in the relative rankings assigned to each method.

Besides the obvious sector diffference in use of Civil Service applications, which are exclusively the domain of public employment,* there are other sizeable differences between private and public employment in job recruitment and job search methods. Public sector jobs are more likely to be filled by the use of school placement services, community action or welfare groups, professional organizations, and public employment services. Private sector jobs are more likely to be filled by the use of friends or relatives of current employees, private employment agencies, media advertisements, and unions. In each of these comparisons, employer and employee sources agree on the direction of the sector difference, and at least one source demonstrates a statistically significant difference. The only method that does not show a statistically significant sector difference from either source is the method that ranks first in fre-

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* The small percent in the public sector reporting use of Civil Service applications are probably errors either in the sector classification of the employer or in the respondent's understanding of the question.

quency of use: direct application (or "walk-in" applicants).

Except for the obvious sector difference in Civil Service applications, it is not clear from these simple tabulations why public and private jobs differ on other methods. The reasons may derive from possible differences in the distribution of job skills and training required in each sector, or from organizational aspects of the enterprises such as size and formalization of operations, or from characteristics of the local labor markets in which the various activities are located. We will examine some of these factors in our further research with these data.

3.2 Consistency of employer and employee reports.

While the absolute frequencies reported for each method differ between employer and employee, the relative rank orderings methods are in good agreement. In the Total columns, both employer and employee sources rank "Direct application (walk-in)" above all other methods; both rank "Friends" as the second in frequency of use, and "media ads" as third. "School placement services" are about in the middle of the rankings of both sources, ranked fourth by employees and fifth by employers. The least frequently used methods are union sources, community agencies or welfare groups, professional periodicals or organizations, Civil Service applications and private employment services. The

rank-order correlation coefficient between employer and employee values is .812, which is statistically significant. In the next sections of this paper, we will examine how the use of various methods is related to different types of jobs and job candidates within each sector.

Employers and employees differ in the absolute frequencies of use reported for each method. One reason is that the question asked employees to "circle as many as apply" but forced employers to assess each method individually. A sum of the percentages down the Total columns of Table 1 across all methods for each group indicates how many different methods were indicated by the average employer and employee. The average employer had indicated frequent use for about two methods (average = 2.27), while the average employee had only circled about one method (average = 1.21). Apparently many employees did not realize from the wording of the question that they could answer more than one method, or they did not conceive that more than one method could be used in finding a single job. Another possible methodological reason for employer - employee differences in response rates is the difference in the time of the questionnaires: employee data were collected in 1976 and 1979 while employer data were collected in 1983. There may also be response errors in the employer understanding of the "sample job" and in the employer or employee understanding of descriptions of specific methods.

Besides methodological sources of response rate differences, there are also possible substantive sources of employer-employee differences. Most specific jobs in a firm are filled by several different individuals over a period of time, especially if the establishment is large. Therefore, an employer response will usually be a generalization over the various individual cases who have been recruited to the job, while an employee response will constitute just one case that may or may not reflect the typical way in which the particular job is filled. Also, when multiple methods are used by employers and employees for the same position, each party may have different perceptions of which method was the most important in filling the job.

Table 2 is a inter-correlation matrix between employee job search methods and employer job recruitment methods used for the same job. If employer and employee agree on the methods used, then the largest positive value in any row or column of the matrix should be the value on the diagonal (which is the position in the matrix of variables where there is a match between employers and employee methods). The absolute value of the diagonal entries indicates the strength of the agreement between employer and employee methods.

The diagonal values in Table 2 (underlined) are usually the largest positive numbers in the relevant row and column

and all are statistically significant. But several of these values are below .10 in absolute value. This provides overall evidence of the validity of our measures of the methods used to link job candidates to job openings, and indicates which particular methods are measured with lower validity. The methods showing most agreement (in order of the size of the diagonal intercorrelation) are: Civil Service, private employment agency, union referral, media ads and school placement service. The methods with less agreement (in descending order of size) are: professional organizations, public employment services, community groups, friends, and direct application. The three most informal methods demonstrate the weakest agreement between employer and employee for the same job.

3.3 Frequency of use and importance

The method that employers use most frequently to find applicants for job openings may not be the same as the method that they view as most important for finding the person who is actually hired for the job. For example, one method may produce many candidates, but a different method may produce fewer but better candidates. To examine these possibilities, a subsample of 1945 employers were asked this question following their answers to questions about frequency of use: "Which THREE of the above methods have been most important for finding the persons who are actually

hired from the outside for the sample job? Which is most important? Which is second most important? Which is third most important?" Table 3 shows that the responses to these questions for private and public sector employers parallel the findings from Table 1. The rank order of methods and the public-private sector differences in Table 3 are essentially the same as previously shown in Table 1. Thus the frequency with which employers use each job recruitment method is strongly related to the importance that method has for locating the person who is actually hired.

3.4 Relationships between recruitment methods

Table 4 summarizes factor analyses of the 10 items on employer recruitment methods, examined separately in the private and public sectors. The table presents the varimax rotated facator matrix and the final communality estimates for each item. Three similar factors emerge in the private and public sectors. The minor differences between the sectors concern the amount of variance of specific variables accounted for the factors, and the single variable in each sector that loads equally on two factors.

Three factors are clearly defined in Table 4. The first factor is composed of four items: use of school placement services, professional periodicals or organizations, private employment agencies, and newspaper and media ads. Each of these methods requires more expense or effort on the part of

the employer than do other methods, and, as we shall see later in this paper, is usually associated with filling jobs requiring education beyond high school. This factor is presented in Table 4 as Factor 1 in the Private Sector and Factor 2 in the Public Sector.

The second factor is composed of three items: use of public employment services, community action or welfare groups, and union referrals. Each of these methods involves low cost and limited employer effort, and, as will be revealed in subsequent analyses, is primarily associated with filling jobs that require high school completion or less. (In Table 4, see Factor 2 in the Private Sector and Factor 1 in the Public Sector.) The third factor is composed of two items: use of current employees for recommendations, and unsolicited or "walk-in" applicants. These are the informal methods that use of word-of-mouth and social networks to bring job candidates to the employer.

One item, use of Civil Service applications, is not included in any factor, because it mainly distinguishes between the Private and Public sectors and has no clear relationships with other methods within either sector. Within the Public Sector, this item has the lowest communality, indicating that the factors account for the least variance in this measure. In the Private Sector, this item loads about equally on two factors and has a relatively low

communality, indicating unclear and unimportant meaning. As suggested earlier, variation on this item in the Private Sector is probably due to invalid measurement or classification.

Within the Private Sector, the item with the lowest communality is use of friends of employees, and use of walk-ins is the next lowest. Either these items are poorly associated with other methods of job recruitment used by employers, or (as suggested by Table 2, discussed earlier) not reliably measured by the employer reports used in these analyses.

In the Public Sector, the item on Civil Service is lowest in estimated communality, suggesting that it accompanies other methods of recruitment with equal frequency among public employers; and the use of private employment agencies has the least distinguishing factor loadings, suggesting that this method is infrequently used as an adjunct to other methods.

It was not possible to examine possible underlying factor structures for the individual job search items, since the average individual selected one method only as having been used to find the job.

In defining the three factors for employer recruitment methods, we followed the convention of selecting an eigenva-

lue of 1 or greater as the cut-off point in a principal components analysis that preceded the varimax rotation. As such, a bit less than 50 percent of the variance in the ten component items is accounted for by the three-factor solution in each sector (47.0 percent in the private sector, 49.4 percent in the public sector). We will continue to study the separate items in the rest of this paper, to capture as much as possible as the full range of complexity in job search and job recruitment methods.

4. How Job Recruitment and Job Search Methods are Related to Sex and Education Characteristics of Job and Applicant.

Do employers within each sector use different job recruitment methods depending upon the type of vacancy to be filled? For what types of jobs do private and public employers rely most on school placement services to locate candidates for job openings? How is the use of other recruitment methods related to the type of job opening and type of employer? In this section, we will analyze these issues for two dimensions of job openings: the education level of past occupants in the job at the establishment, and the sex composition of previous incumbents in the particular job.

We will conduct parallel analyses from the perspective of job recruitment methods used by employers to fill jobs with different sex composition and educational distributions, and

from the perspective of job search methods used by individuals from different sex and educational attainment subgroups. Our analyses will be conducted separately within the private and public employment sectors.

4.1 Measures and methods

Two multiple regression analyses of employer practices to fill different jobs are summarized in Table 5. For these analyses, the job is the unit of analysis, and the dependent variable is either (a) the percent male of current employees in the job, or (b) the percent of current job occupants whose highest educational attainment did not include any college study (that is, those who graduated from high school and those who did not finish high school.)

The first regression analysis estimates an equation to predict the percent male in the job by one single employer recruitment method (such as use of "friends of employees"), controlling for the percent with no college education. Each employer recruitment method is measured on a five-point scale with higher values equalling more frequent use. For example, the first 3 values in the top row of Table 5 (-.0094, -.029, 2.6) are the regression coefficients and test statistic when the recruitment method "friends of employees" is used to predict "percent male in the job", and "percent with no college in the job" is included as a control variable in the regression equation.

A second regression analysis estimates an equation to predict "the percent with no college in the job" by one method of employer recruitment, controlling for "the percent male in the job." For example, the values in columns 4, 5 and 6 of the first row of Table 5 (.0012, .114, 0.0) are the regression coefficients and test statistic when the recruitment method "friends of employees" is used to predict "the percent with no college in the job," with "percent male" included as a control. Thus each set of three values (b, B, F) in Table 5 is from a separate regression analysis.

Multiple regression analyses of individual job search behaviors are reported in Table 6. In this case, the unit of analysis is the individual job applicant, and the dependent variable is the job search method used to find the job (scored as a 1/0 dummy variable). Two independent variables are used in each analysis: the individuals' sex (scored Male = 1, Female = 0) and the individuals' educational attainment (scored High School = 1, Some College = 2, College Degree = 3). Thus each row in Table 6 is from a sepa-

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* An alternative analysis would switch the roles of dependent and independent variables in the multiple regression analyses, using the job recruitment method as the dependent variable and "percent male in the job" and "percent no college in the job" as independent variables. The values for B and F shown in Table 5 would be exactly the same under the alternative analysis, only the unstandardized values would be different. The substantive interpretations provided for Table 5 would not change under the alternative approach. We chose the order of variables used for the Table 5 analyses because we believed it to more correctly follow the actual causal process.

rate multiple regression analysis.

4.2 Results on education level of job and applicant in private sector.

The size and consistency of results in Table 5 and Table 6 show that education level of the job and the education of the job applicant are strongly related to the job recruitment and job search methods used.

Table 5 and Table 6 about here

The four methods most strongly associated with jobs that require advanced education are school placement services, professional periodicals and organizations, private employment agencies, and media ads. The results for these methods are similar in Table 4 and Table 5: the same methods have the four largest statistically significant values in the same direction for increasing education levels. This similarity of results indicates that employers and employees agree that these four methods are the most used to recruit for or search for jobs that require advance education.

The results for methods associated with filling lower education jobs are not so clear: the four largest (positive) values in Table 5 are not statistically significant in Table 6. Employers (Table 5) report that they use four methods are used more often when jobs are filled by workers

with low education levels: public employment services, community action or welfare groups, direct application (walk-in) and union regerrals. Employees (Table 6) report that individuals with lower levels of education are more likely to use friends and especially relatives to find jobs.

Although none of the statistically significant values in one Table statistically significant in the other Table, each of the six significant values found in Tables 5 and 6 have substantive meaning. We previously observed (Table 2) that the items with the poorest employer-employee intercorrelations are medias ads, friends and relatives, community groups, and public employment services, which are the same items at issue in Tables 5 and 6 (along with unions). Thus, it should be no surprise that relationships in Tables 5 and 6 do not match in strength. Also, an employee may often be more aware than the employer when informal social networks (friends and relatives) are used to match job seekers to job vacancies, so that the results with the employee measure may have more meaning in our studies. On the other hand, the employer data is likely to be more valid on most other methods, because the question formats required a direct rating of each method by the employer but not by the employee.

Taking the employee results as more meaningful for the "friends" or "relatives" measure and the employer results as more meaningful on the other items in question, we conclude

from Tables 5 and 6 that the five methods used especially to fill jobs with lower educational requirements are: (1) employees' friends or relatives, (2) public employment services, (3) community action or welfare groups, (4) direction application (walk-in), and (5) unions.

4.3 Results on sex composition of job and sex of applicant in private sector

The pattern of results in Tables 5 and Table 6 is not as strong or consistent for sex of job as for education level of job. With one exception, job recruitment and job search methods are more strongly associated with education level than with sex, as seen from a comparison of columns 2 and 5 and of columns 3 and 6 for each row. The exception is the use of unions which is used more for male jobs in the private sector.

This suggests the need to analyze sex differences within fixed categories of jobs according to their education level. Before separately examining each education subcategory, ir is useful to note the results for sex composition of job in Table 5 and sex of job applicant in Table 6 when education level is held constant statistically.

Employer reports (Table 5), indicate that unions are used more often to fill mostly male jobs, while school placement services, media ads and direct application (walk-ins) are

methods used more often to fill mostly female jobs. Employee reports (Table 6) agree strongly with the finding of more use of unions by males and the greater use of ads by females. However, employee reports also suggest that males use friends and relatives more to find jobs, and that females use private employment services more to find jobs.

Table 7 shows the relationship between each employer recruitment method and percent male in the job for different types of jobs categorized by the educational level of the current job occupants. The following results are of interest:

Table 7 about here

1. When school placement services are used for high school jobs, the method is more often used to fill positions held by females, and these jobs are often clerical and office work.* For jobs at higher educational levels where school (college) placement services are used most often (Table 5), there is no tendency to use the method more for one sex than another.

*We examined the job titles of female-high school jobs filled by school placement services compared to other methods.

2. When private employment services are used for high school jobs, the method is also more often used to fill positions held by females (frequently for office and clerical work). For higher level jobs where private services are used most often (Table 5), there are no significant differences by sex composition of the job.

3. Media ads are used more to fill jobs held by women at each separate educational level of work. Media ads are used more for higher level jobs (Table 5), and the tendency to use this method to fill women's jobs was also greater for positions at the higher educational levels (comparison of b's across row 6 of Table 7).

4. Direct application (walk-ins) is more often used to fill jobs usually held by women at lower and intermediate educational levels. This method is not as frequently used for jobs usually held by college graduates (Table 5) and there are no significant sex differences in the method at this level.

5. The only method with a significant sex difference that favors jobs usually held by males is union referrals. This method applies mainly to lower level jobs (Table 5) where the sex difference is greatest.

4.4 Public sector results

Public and private employers differ in the frequency with which they use particular recruitment methods, but when a given method is used it often is directed toward the same educational level and sex type of job regardless of the sector. Tables 5 and 6 show the similarities.

Like private firms, public employers more often use school placement services, professional organizations and media ads to recruit for jobs filled by those with advanced education. For lower education jobs, public employers are more likely to use public employment services, and community action or welfare groups, following the same tendencies of private employers. On the other hand, use of employees' friends, private employment agencies, walk-ins and union referrals are not related to the education level of public sector jobs, where these methods are used significantly less frequently than in the private sector where they are related to job level. Civil Service Applications, used exclusively in the public sector, tend to be used more for lower level positions.

4.5 Cannonical correlation analyses

Cannonical correlation can be used when there are multiple independent variables and multiple dependent variables to estimate an equation that is the best linear combination of the independent variables that has the highest multiple correlation with the best linear combination of the depen-

dent variables. The coefficients for variables on each side of the equation can be interpreted as estimates of the relative importance and direction of influence of each measure, in the same manner that standardized regression coefficients are interpreted in ordinary multiple regression analyses. A second cannonical correlation analysis can be performed following the estimation of the initial equation that is based on the set of residuals from the first, to estimate the linear combination of variables that best accounts for the remaining variation (Cooley and Lohner, 1971; Thompson, 1984; Warwick, 1975.

Our case, with ten job recruitment techniques being used to predict the percent male in the job and the percent with no college in the job, is well suited to cannonical correlation analyses. We will report separate cannonical analyses of both employer recruitment methods and employee search methods in the private and public sectors. Table 8 summarizes six cannonical correlation analyses for different methods and sectors.

Each cannonical analysis shown in Table 8 reports the cannonical weights for each variable for the first and second cannonical equation, together with the eigenvalue that gives the percent of variance accounted for by the best fitting equation. For example, the first column of values in

the top panel of Table 8 shows the weights associated with each of ten employer recruitment methodsthat best predict a combination of education level and sex composition of job. This first equation (CANVI) is mainly predicting education level of job (weight = .967) rather than sex composition of job (weight = .183) and shows that jobs held by a high percent with no college are mainly filled by public employment service (.429) and unions (.196) rather than by the methods with large negative weights such as school placement services (-.548) professional organizations (-.374) private employment services (-.194) or media ads (-.253). This equation explains 20.7 percent of the variance (eigenvalue = .207). The adjacent column of values in Table 8 (CANV2) gives the second cannonical equation, which explains about 4 percent of the remaining variance (eigenvalue =.041) with an equation primarily concerned with high percent male jobs (weight = .987). Other portions of Table 8 report separate cannonical analyses in the same format.

Table 8 about here

The following conclusions seem warranted from Table 8:

1. Reports of employer methods are much superior to employee methods in accounting for variance in job composition. The eigenvalues indicate that the first cannonical equation estimated for employer methods accounts for over 20

percent of the variance, while the use of reports of employee search methods accounts for about six percent.

2. There is strength and consistency to results about how methods are related to the education level of jobs. In both sectors and for both employer and employee reports, particular methods are associated with high education level jobs (school placement, professional organizations, private employment agencies, and media ads) while other methods are associated with lower education level jobs (public employment services and unions). In addition, according to employee results, friends and relatives seem to be used especially for lower level jobs. The pattern for direct applications (walk-ins) is small in size and inconsistent in direction.

3. Most of the results for sex composition of job are inconsistent across sector and methods and account for a small amount of the variance explained by recruitment or search methods. Table 9 reports a partitioning of variance explained by employer methods in sex composition and education level composition that shows the minor role of sex composition in the first prediction equation. The unique portion of variance for sex is the difference between the squared cannonical correlation for the total equation (eigenvalue = .20682) and the correlation from a conventional multiple regression of ten employer recruitment meth-

ods to predict percent with no college in the job (.20682 - .20130 = .00552). The unique portion for education level is the difference between the cannonical correlation and the R2 from a conventional multiple correlation of percent male in the job on ten employer recruitment methods (.20682 -.05316 = .15366). The joint portion is the difference between the squared cannonical correlation and the sum of the unique portions (.20682 - (.00552 + .15366) = .04764. Table 9 shows that most of the variance in job composition explained by ten employer recruitment methods is uniquely assigned to education composition (74.3 percent in the private sector, and 83.3 percent in the public sector). Almost none is uniquely assigned to sex composition (2.7 percent in private sector and 0.1 percent in public sector). Some of the explained variance cannot be empirically separated into components for sex composition or education level of job (joint portion equals 23.0 percent in the private sector and 16.6 percent in the public).

Table 9 about here

Besides this minor role of sex composition in the first cannonical equation, Table 8 shows the weak ability of the second cannonical equations to account for the remaining variance in job sex composition with job recruitment methods. The very small eigenvalues range from .041 to .011.

4. The weights that show the most consistent strength and direction between method and percent male in the job apply to the use of unions (positive).

4.6 Summary of sector, sex and education level differences

A convenient method to summarize our results so far is to pick one subgroup as a base for all comparisons. Figure 1 shows the relative frequency that different employer recruitment methods are used to fill private sector male jobs, depending upon whether the job is usually held by high school graduates or college graduates. The values graphed in Figure 1 are reported in Table 10, together with adjustment factors to estimate the use of each method in the public sector and for jobs usually held by females. The adjustment factor is an estimate of the amount to be added or subtracted to the percentages shown for male private sector jobs to obtain the value for public sector and/or female jobs. These adjustment factors are the unstandardized regression coefficients from a multiple regression where the dependent variable is the percent of employers using each method and the independent variables are job sector (Public = 1, Private = 0)and job sex (jobs with 50 percent or more female = 1, otherwise = 0), with percent in the job with no college also included as an independent variable.

Figure 1 and Table 10 about here

Figure 1 illustrates both the comparison between education levels and the relative importance within each education level of each employer recruitment method. Thus we can see that while some methods are used more for higher level jobs (school placement, professional organizations, private employment agencies and media ads) and some are used more for lower level jobs (public employment services, community groups, walk-ins and unions), the most frequently used method at each level is "walk-ins," and "friends of employees" is near the top in relative use.

Table 10 shows that when we examine public sector jobs, there would be major adjustments for less frequent use of friends and walk-ins and more frequent use of civil service and community groups, with minor adjustments for use of other methods in the public sector. The adjustment factors shown for female jobs in Table 10 are not as large as for sector and do not indicate how sex differences may vary for separate education levels. Nevertheless, we can observe that the three largest average adjustment factors for female jobs include a greater use of walk-ins and media ads and a lesser use of unions. Our studies of more detailed tables in the previous section suggested that the sex differences for walk-ins and unions were mainly for lower level jobs and the sex differences for media ad use were greater for higher level jobs.

The method of school placement services is of special concern for our interest in the role of education in career processes. We learned that use of school placement shows the largest difference between low education level jobs and high education level jobs, with school placement services assisting in recruitment mainly at the college level. For lower education level jobs, high school placement services are used occasionally in recruiting for female office jobs.

5. Characteristics of Firms and Labor Markets Related to Employer Recruitment Methods

We have reported how employer recruitment methods differ on the average for private or public employers. We also examined how other selected features of the firm and labor market are related to the frequency with which different employer recruitment methods are used for jobs in different categories of education level and sex composition. These features are size of labor market, size of firm, industry of firm, and priority worker traits for the job.

5.1 Size of establishment and labor market

Table 11 reports the coefficients for firm size and city size as independent variables in multiple regression analyses where each employer recruitment method is a dependent variable (scored 1 to 5 on a scale corresponding to the range of use from "never" to "always"), with "percent male in the job" and "percent with no college in the job" as additional independent variables in the equations. The size of the firm* is defined by the employer's answer to the question: "Overall, about how many persons are currently employed full-time and part-time at this location?" City size is measured by individual respondents' answers to the

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* The paragraph preceding this question made it clear that the size estimate should apply to a single location for those organizations that have multiple locations. "Establishment" is the phrase often used to signify this unit of analysis.

question "Which of the following best describes the location of the place where you live?" with categories ranging from "In a small city or town of fewer than 50,000 people" to "In a very large city over 500,000 people."**

Table 11 shows that several employer recruitment methods vary with firm size and/or city size. In the private sector, city size has its largest effects on the use of private employment agencies, community action or welfare groups, and media ads: the frequency of each is greater in larger cities. In the private sector, smaller statistically significant effects of city size include positive effects on the use of friends of employees, professional organizations and union referrals, and negative effects on the use of public employment services. In the public sector, city size has only one large effect: civil service applications are used more in larger cities. A smaller positive statistically significant effect of city size in the public sector is on the use of community action or welfare groups.

Table 11 about here

The size of firm has large effects on many job recruitment methods in both sectors. In the private sector, firm size is significantly related in one direction or another to

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** Other measures of city urbanicity based on Census data, such as whether the location is an SMSA or the percent urban in the county, show the same results as Table 11.

all methods except use of professional organizations, civil service applications, and media ads. Larger private sector establishments more often use community action or welfare groups, public employment services, unsolicited applicants, school placement services and union referrals. Larger private sector establishments less often use friends (as reported by the employer) and private employment agencies. The effects of establishment size are much the same in the public sector. Establishment size increases the use of unsolicited applicants, community action or welfare groups, public employment services, union referrals and civil service applications. A smaller negative effect of establishment size is observed for use of employee friends.

5.2 Industry differences

Using census codes for the industry within which each sample establishment is located, we constructed dichotomous variables for eight broad industrial categories. Table 12 displays how our sample is distributed across the eight industrial categories within the private and public sectors, and names the most frequent industry codes that appear in our sample for each category. Our sample of public sector jobs is concentrated in the categories of Service, Public administration, and Communications (postal service), with all other industrial categories having less than 3 percent of our public sector sample and less than half the percent

for the same category found for private sector jobs. The industrial categories with most jobs from our private sector sample are Services, Manufacturing, and Trade (wholesale and retail). Other industrial categories that are mainly in the private sector are Finance, insurance, and real estate; Transportation, communications and utilities; Construction, and Agriculture and mining.

Table 12 about here

Table 13 summarizes the relationship of industry with employer job recruitment methods within private and public sectors. Each recruitment method is used as a dependent variable in a regression analysis and the independent variables are one industry dichtomous variable, size of establishment, city size, percent with no college in the job and percent male in the job. Each set of three coefficients (b, B, F) in Table 13 is from a separate regression equation using a particular combination of recruitment method and industry category in the analysis, along with the remaining four control variables.

Table 13 about here

We will describe the major results of Table 13 in two ways. First, we will discuss each separate industrial category and examine the recruitment methods that are used more than in other sectors and the methods that are used less by comparing B and F statistics down the columns of each industrial category. Second, we will examine each recruitment method separately and highlight the industrial categories where it is used especially frequently and the categories where it is used least, by comparing b and F statistics across the rows of Table 13. We will focus on the large statistically significant values in Table 13.

Beginning with the Agriculture and mining category in the private sector, no method stands out for greater use, but several methods (especially media ads) are used less to recruit new workers than in other industries. The Construction industry is where union referrals stand out as the characteristic recruitment method, with all other methods being used less frequently than in other industries. Private manufacturing industries use public employment services and community groups more frequently, and use of friends, school placement, professional organizations and walk-ins less frequently. Private Transportation, communications and utilities use community groups and unions somewhat more; media ads less. Private wholesale and retail trade industries use much more walk-ins and much less public employment services, unions and professional organizations. Three

methods are more frequently used in private Finance, insurance and real estate industries: private employment agencies, friends of employees, and community action groups. The private Service industries, including schools and hospitals, make especially heavy use of professional organizations or periodicals, media ads and school or college placement services in their recruitment, and less use of public employment services and community groups. Industries classified as Public administration are not a significant part of our private sector sample.

In the public sector, we discuss the three industrial categories where we have our largest sample. In the Transportation, communication and utilities category (including the U.S. Postal Service), compared to other public sector industries, somewhat less use is made of walk-ins or public employment services to recruit new workers.

In the Service and the Public administration categories of public sector industries, we see opposite patterns in the use of methods. For services, Civil Service applications and public employment services are used much less than by other public employers, while unsolicitied applicants are used somewhat more. A closer examination of the industrial codes underlying this comparison shows that methods used to recruit public school teachers largely accounts for this contrast among public employers.

On the other hand, the Public administration category of the pubic sector shows a much greater emphasis on using civil service applications, somewhat greater emphasis on using public employment services and somewhat less use of unsolicited applicants, compared to other public employers. Government officials and workers in this category are the positions that primarily account for these results.

We now go back over the results of Table 13 to highlight the industrial categories where each recruitment particularly stands out. In the private sector:

1. Friends of employees are used more frequently in the Finance, insurance and real estate catgegory (including banking), and used less in manufacturing.

2. School placement services are used more in Service industries and in the Finance, insurance and real estate category, and used less in construction and manufacturing industries.

3. Professional organizations and periodicals are used more frequently in Service industries and less in the wholesale and retail trade category.

4. Public employment services are more often used in Manufacturing, and less often in Trade and Service categories.

5. Private employment agencies stand out in the Finance, insurance and real estate category, and less often in Services and Trade industries.

6. Community action groups are used more to recruit new workers in the Finance, Manufacturing, and Transportation, communication and utilities categories, and less in Services and Construction industries.

7. Media ads are more frequently used to recruit in Service industries and less often in Transportation, communication and utilities.

8. Use of unsolicited (walk-in) applicants is much more typical in retail and wholesale trade industries and somewhat less typical in the Construction, Manufacturing and Transportation categories.

9. Unions stand out in Construction and Transportation and are less common to recruit workers in the Trade and Finance categories.

In the public sector, constrasts in the use of recruitment methods are mainly between the Service and Public administration categories, where Civil Service and public employment services characterize the latter and unsolicited applicants characterize the former.

5.3 Specific job traits

Our analyses have focused on two aspects of jobs (education level and sex composition) to study the use of different employer recruitment methods. But it is likely that other aspects of the job, such as the need for particular worker competencies, may be related to employer methods after the education level and sex composition of the job are taken into account. We will use cannonical correlation analyses of 17 job traits that were rated by employers for each sample job in our survey to investigate this issue.

Each employer was asked to rate each of 17 job traits on a four point scale from "extremely important" to "not at all important," with the following survey question.

When you are looking for new workers to fill the SAMPLE job, how important is it that they....

...work well at a set routine schedule; that is, are METHODICAL?

...are able to work well with their hands; that is have MANUAL DEXTERITY?

...are able to learn new things quickly; that is, are QUICK LEARNERS?

...are able to read materials about as difficult as the daily newspaper; that is, have BASIC ADULT LITERACY?

...are able to read complex written materials; that is, are ADVANCED READERS?

...are able to accurately add, subtract, multiply and divide; that is, can PERFORM BASIC ARITHMETIC?

...are able to handle complex numerical calculations; that is, are EXCELLENT AT MATH?

...have prior knowledge of how to perform the specific duties of this job; that is, have SPECIALIZED KNOWLEDGE?

...are able to make a good impression outside the organization with clients or customers; that is, are good at CLIENT RELATIONS?

...are likely to stay with the organization for a long time; that is, will have PERMANENCE?

...are likely to move up within the organization to higher level jobs; that is, have GROWTH POTENTIAL?

...are able to get along well with people; that is, are GOOD TEAM MEMBERS?

...will easily accept supervision; that is, have the PROPER ATTITUDES about work and supervisors?

...can be counted on to come to work regularly and on time; that is, are DEPENDABLE?

...can deal with new complex situations; that is, have GOOD JUDGMENT?

...can provide direction and leadership; that is, CAN SUPERVISE?

...have OTHER qualifications? (PLEASE SPECIFY).

Tables 14 and 15 present the results of cannonical correlation analyses using the 17 job trait measures. We will investigate how the percent of variance accounted for by the ten employer recruitment methods changes as we use different combinations of job traits and job composition measures.

Tables 14 and 15 about here

The first column of Table 14 gives results for the private sector. Row 1 shows that when ten recruitment methods are used in a cannonical analysis to predict the percent with no college in the job and the percent male in the job the percent of variance accounted for by the cannovical

equation equals .20682. Row 2 shows that when the measure of the single job trait of "Methodical" is added to percent no college and percent male in a cannonical analyses with the same ten recruitment methods as predictor variables, the percent of variance accounted for by the cannonical equation increases slightly to .21083. Each of the remaining rows 2 through 18 show the amount of variance accounted for by the best fitting cannonical equation where a different mesure of one job trait is added to percent no college and percent male in the job in a prediction equation with the same ten employer recruitment methods.

The same analyses are shown for the public sector in the second column of Table 14. We also present parallel analyses in Table 15 where "percent in the job with a college degree" replaces "percent in the job with no college" for every estimated equation. Although these measures are highly related in a negative direction, we repeat the analyses in Table 15 to check whether the pattern of results changes when we distinquish the educationally most demanding jobs from all others rather than distinguishing the least demanding jobs from all others.

Rows 19 through 23 of Tables 14 and 15 present estimates of the partitioning of variance explained by recruitment methods among job composition components and job traits. (These analyses use the same type of calculations described

earlier for Table 9). Row 19 gives the total variance accounted for by ten methods predicting both job composition measures and all 17 job trait measures. Row 20 presents tne variance accounted for by predicting only the 17 job traits. Rows 21, 22 and 23 present the unique and joint proportions of variance explained.

We draw the following conclusion from Tables 14 and 15:

1. Job composition measures (education level and sex composition) and job trait measures have some common relationship to the kinds of recruitment methods used by employers to fill job vacancies, but some job traits reveal additional impact on the recruitment methods.

The 17 job traits are more strongly related than the two job composition measures to differences in job recruitment methods (row 20 versus row 1). But the two sets of variables overlap considerably in their ability to account for variations in recruitment methods, as seen from the bottom three lines. We estimate that the joint contribution of job composition and job traits in accounting for job recruitment difference is about half of the total variance explained (line 23). The unique contribution of job composition measures in the equations is estimated to be between 12 and 15 percent (line 22), while the unique contribution of job traits is estimated to be between 30 and 40 percent. In other words, when we characterize jobs only by their educa-

tion and sex composition, we can account for between 60 and 70 percent of the variance in job recruitment methods, compared to the predictive power when 17 job traits are also available with eduaction and sex composition to measure job differences.

2. The specific job traits which add most to accounting for recruitment methods beyond what is picked up by job composition are client relation s, advanced reading, and good judgment in the private sector; and supervisory skills, good judgment, and basic arithmetic in the public sector.

An inspection of each of the columns of Table 14 and 15 reveals which individual job traits add most explanatory power to the equation. We indicate the rank order among the 17 traits in parentheses on each line.

3. Our understanding of the particular recruitment methods that are used more often to target each specific trait may be helped by a comparison of the cannonical weights associated with each variable for the first equation estimated for ten methods with two job composition mesures (equation associated with line 1) versus the weights for equations where one job trait is added to the equation (lines 2 through 18). In addition, the inspection of weights for variables in a follow-up cannonical equation on residual variation may be helpful, if the weight for the job trait measure stands out from the job composition measures

in the particular equation. These analyses will be the subject of further research.

6. How Job Recruitment and Job Search Methods are Related to Race and Ethnic Characteristics of Job and Applicant.

We can also investigate whether the methods used to match job openings with job applicants differ for racial or ethnic minorities, when other characteristics of the job and applicant are taken into account Do blacks and Hispanics have equal access to the information about job vacancies and have equal opportunities to become candidates for the positions for which they otherwise qualify?

We address this question with analyses that use race of job and job applicant to parallel our earlier investigations of the determinants of sex composition of jobs. First, we examine relationships in the public and private sectors controlling for sex and education levels. Table 16 summarizes multiple regression analyses to estimate how each employer recruitment method is related to percent black or percent Hispanic in the job, controlling for percent male in the job, percent with no college in the job and sector. Tables 17 and 18 report cannonical correlational results concerning employer recruitment methods. Table 19 presents results from multiple regression analyses of employee job search methods.

Second, we will look at relationships within fixed categories of the education level of the job. Tables 20 and 21 present these results.

6.1 Race and ethnic effects, controlling for sex and education level

The following conclusions are drawn from Tables 16, 17, and 18:

1. In the private sector, jobs with higher percent black composition are strongly related to the use of community action or welfare groups as an employer recruitment method. Table 16 shows this finding in in row 8 for the Private Sector. This is substantiated in Table 17 where the third cannonical equation (CANV3) associated mostly with job race in the Private sector (row 13) has one recruitment method (row 7) that is much larger than any others in the same column and row: use of Community groups. This cannonical correlation result indicates that the use of community groups is a recruitment method primarily related to the race composition of the job.

The other method in the private sector with an especially strong association with job race composition is use of media ads, which is negatively related to jobs with larger black concentrations.

2. In the public sector, no method really stands out as one producing large independent impacts on the race composition of jobs. There is some indication in Table 16 of a negative impact of use of media ads or professional organizations on producing higher black representation in jobs. But, in Table 17, no cannonical equation associated with race of job passes conventional levels of statistical significance.

3. The Hispanic composition of jobs in the private sector is not clearly related to recruitment methods that are independent of other job composition factors. Table 18, which reports three stages of cannonical analyses in the Private Sector, produces no equation with a high weight for Percent Hispanic in the Job (row 13). The only statistically significant value in TAble 16 associated in the Private Sector with Hispanic composition is the netagive effect of use of media ads (row 18).

4. In the public sector, the use of community action or welfare groups has a clear positive relationship to Percent Hispanic in the Job. This can be observed in Table 16 for the Public Sector (row 17) and in Table 18 for the third equation in the Public Sector (CANV2, row 7). There is also some suggestion from the cannonical analyses in Table 18 that using friends of employees to fill Public jobs has a positive impact on Percent Hispanic, and using Civil Service

applications has a negative impact, but these suggestions are not substantiated in Table 16 results.

5. Analyses that use employee search methods have few silmilarities to the results just reported from analyses of employer recruitment methods. Table 19 shows the results from regressions using employee data. For example, in contrast to earlier Tables, Table 19 suggests that blacks and Hispanics use public employment services more than whites to obtain private sector jobs.

As we concluded earlier, the employee reports may be especially useful for learning about informal methods of finding jobs, such as use of friends and relatives or in direct applications (walk-ins). Table 19 does not indicate race and ethnic differences in these factors, with the possible exception of less frequent use by blacks of direct application in the private sector.

6.2 Race and ethnic effects within education levels

As was true with our study of sex differences, some interesting race and ethnic patterns emerge when we examine jobs within fixed categories of education level. Table 20 presents results for percent black in the job and Table 21 presents results for percent Hispanic in the job.

1. With regard to methods associated with higher black compositions in private sector jobs, Table 20 shows that use

of community groups (positive) and edia ads (negative) have impacts at each education level. The strongest method, use of community groups may even grow in importance for producing blacks in jobs as the education level of the position increases (comparison of b across row 7).

Table 20 also suggests two methods that are only important for college degree private sector jobs in relation to percent black in the position. First, use of friends of employees as a job recruitment method is negatively related to percent black in this category, suggesting that the informal networks in operation are mainly useful to whites at this level. Second, when union referrals are used to recruit workers for college degree jobs (which is not often), they tend to produce higher black compositions.

2. In the public sector, there is no method that consistently produces a significantly higher black percentage for all eduction level categories of jobs.

In the public sector at the college degree level only, we note that use of friends of employees is negatively related to percent black in the job, just as was true in the private sector at this level. Informal social networks apparently help whites get college level jobs more than blacks. That is, the social networks to which white are attached are more useful for access to higher level jobs than the social networks to which blacks are attached. We will further examine

the issue of the "quality" of the social networks used by blacks to obtain jobs in the next section of this paper. We will examine the type of job obtained by blacks who use segregated black social networks versus blacks who use desegregated social networks that include white friends to find jobs.

3. In terms of private sector methods that produce higher Hispanic concentrations in jobs, no single method has a consistent impact across all education levels of jobs (Table 21).

4. In the public sector, the use of community groups may produce a stronger relationship with Percent Hispanic as the education level of the job increases (comparison of values across row 17 of Table 21). It looks as if use of community groups is an especially useful method for Hispanics to fill higher level jobs. However, the impact of community groups is not very strong for Hispanics at any given education level of jobs.

Use of Civil Service applications in the public sector appears to have a negative impact in producing high Hispanic concentrations in high school level jobs, while the reverse may be true for college level jobs (row 14, Table 21).

6.3 A closer look at black use of social networks.

In our discussion of Table 20, we noted some interesting interactions of racial differences in the use of informal social networks and the educational level of the job: college level jobs that are filled by the use of informal networks are less likely to have black workers, indicating that college level jobs that have fewer black incumbents tend to use white social networks for recruiting applicants, and these networks are not as accessible to black job seeker. For lower level jobs, no significant relationship was observed in Table 20 between an employer's use of social networks to fill the job and percent black in the job. We will now look closer at race effects from the use of social networks, by examining the questionnaire item from the individual survey concerning the use of friends to find a job.

Table 22 shows the percent of workers who reported using friends or relatives to find their job, tabulated by race, sex and education level of the worker and sector of the job. There is a clear ordering of percentages according to education level of the worker in the private sector: social networks are used more by workers at lower levels of education than at higher levels. There is also an interesting pattern of race differences: for the most part whites use social networks more frequently than blacks to find jobs in the private sector, but blacks use social networks more than

whites to find public sector jobs. The race differences in the private sector favoring white use of social networks are especially pronounced for males. The race differences favoring blacks use of friends or relatives in the public sector are largest at the college degree level. (The reversal in the race pattern in the public sector is probably due to some bias of reports in the category of black males with some college that fails to fit the expected education trend or other reasonable patterns of percentages).

The race contrasts in Table 22 can be interpreted like the patterns noted in Table 20: where jobs are more dominated by whites, the social networks used in recruitment will be white, so that blacks will be more deprived of access to the useful information and contacts such networks provide. In the case of Table 22, private jobs have a higher percentage of white workers creating more white channels of informal job search connections in the private sector and more black networks in the public sector. This contributes to the pattern where social networks are more useful to whites than blacks for finding private sector jobs, while the opposite race pattern is usually observed in the public sector.

In Table 23, we focus entirely on black workers who are high school graduates (with no college) to compare the kinds of jobs obtained by using social networks of different

racial compositions. Although we have no direct information on whether the friendship networks used by blacks to find jobs are segregated (mostly black friends) or desegregated (includes white friends) we may be able to get at this distinction indirectly. In Table 23, we use combinations of categories of whether the black worker used friends to find the job (column 1) and whether the black worker graduated from a segregated or desegregated high school (column 2) to infer the type of informal friendship networks accessible to each worker and used by each worker. In column 3 of Table 23 we infer different types of social networks from the variable cross-classifications in column 1 and column 2, to study the kinds of jobs blacks obtain in each case. Table 23 presents these measures of the type of job: the average percent white of coworkers in the same job (column 4), the average percent white of co-workers in the same firm (column 5), the average hourly wage now paid for the job as reported by the employer in 1983 (column 6), and the average hourly wage paid earlier in thejob as reported by the entry-level employee in 1976 or 1979. There are clear differences of job type shown in Table 23 depending on whether the black worker had access to black or white friendship networks and used them to find the job.

Looking first at the black males, we find that those who used desegregated social networks (row 4) get the highest paying positions in firms and jobs with the highest percent

of white co-workers. Those black male high school graduates who used segregated black social networks (row 3) on the average get the lowest paying positions in firms and jobs with the lowest percentage of white co-workers. Those black males who did not use social networks to find their job (rows 1 and 2), fall in between the other groups in pay level and desegregation of co-workers. Put another way, the value of social networks for finding good jobs by blacks depends upon the kind of social networks being used: black friendship networks lead to poorer paying more segregated jobs (it is better to use other job search techniques) and white friendship networks lead to better paying less segregated work.

The bottom half of Table 23 (rows 5 through 8) report the results for female black high school graduates in private sector jobs. There are no large consistent differences in average job pay that depend upon use of social networks for black females. But the same patterns for racial composition of co-workers that we observed for black males are also true for black females. Those who use desegregated networks have the highest percent white co-workers, those who use segregated networks have the lowest percent white co-workers, and those who do not use social networks fall in between.

The wage pattern interpretation is clearest from the employer data (column 6). The highest paying job on the average is consistently found to come from use of desegregated networks (columns 6 and 7), but the lowest paying job interpretation depends upon the measure being used.

6.4 Summary and discussion of race and ethnic effects

The most important race and ethnic differences in methods through which individuals become candidates for job openings may be in the quality of the method rather than in the type of method used in the job recruitment and job search processes.

We found few overall race and ethnic differences in type of method that were not primarily due to contrasts in educational level of different jobs and social groups. Except for the use of community groups in the private sector as a method that produces jobs with higher black representations, and the use of community groups in the public sector as a method that produces jobs with higher Hispanic concentrations, our analyses do not indicate large consistent race or ethnic differences in access to jobs through alternative recruitment methods. Although there were no overall large race differences in the use of informal networks of friends, we did find race differences in how such informal social networks were use to match workers with particular job vacancies.

Use of friends of employees to recruit job applicants was negatively related to black representation in college level jobs in both the public and private sectors. This finding suggests that the quality of information and contacts within particular methods that may be more important than the sim-

ple use of a method. In this case, the social networks used by whites appear to carry more useful information and contacts for access to college level jobs than do the social networks used by most blacks at this education level. Furthermore, we observed opposite racial patterns in private and public sectors in the level of use of social networks to find jobs. Whites used friends and relatives more frequently than blacks to find private sector jobs, while blacks used these methods more frequently than whites in the public sector. We interpreted this difference to be the consequence of the greater concentration of white workers in the private sector that produce segregated white social networks used by white job seekers in this sector, and the converse pattern of black concentrations and segregated black informal job networks used by blacks in the public sector.

Similarly, the racial composition of social networks was a factor in our further investigation of the types of jobs filled by black high school graduates in the private sector. Black males who used desegregated networks found higher average paying jobs in less segregated firms, while those who used segregated (black) networks became employed in lower paying more racially segregated jobs, and those who did not use social networks were between the other two groups.

Taken together, it appears from our results that there are important race and ethnic differences in the first stage of the employment process that derive from the quality of recriutment and job search methods to which the different groups have access.

7. Summary and Discussion

Our investigations of how employers recruit new workers indicates some general ways that education plays a major role in career processes and some areas where the school's role is weak.

First, education level of the job is a major determinant of what job recruitment methods and job search methods are used. Education level is much more important in this regard than sex, race, or ethnic factors. Education level alone also picks up a majority (from 60 to 70 percent) of the variance explained in job recruitment methods by various measures of job traits.

We find that jobs usually held by individuals with higher education levels are filled more often by School placement, Professional organizations, Private employment agencies, and Media ads. At the other end of the education spectrum, lower level jobs are more often filled by public employment services, community groups, walk-ins and unions.

Second, the specific method associated with educational institutions--placement services conducted by schools or colleges--is often used for matching individuals to higher level (college) jobs, but infrequently used otherwise. When school placement services are used to fill high school level jobs, it is primarily for office jobs filled by females.

Some evidence exists that females and minorities experience unequal access to job recruitment methods used by white males at the same education level, but we do find differences in recruitment methods and employment. Blacks are proportionally much more likely to work in public sector jobs and to use community groups to find private sector jobs. Blacks also seem to have less useful social contacts to find higher level jobs, for private sector jobs, and for-some higher payingjobs in desegregated work environments. Jobs filled by women make less use of union referrals and more use of direct applications and media ads.

References

Becker, H. J.

1977 How Young People Find Career-Entry Jobs: A Review of the Literature. Baltimore: Center for Social Organization of Schools, Johns Hopkins University.

Berg, I. (Ed.)

1981 Sociological Perspectives on Labor Markets. New York: Academic Press.

Black, M.

1980 An Analysis of Youth Job Search and Geographic Mobility. Washington: D.C.: Mathematics Policy Research.

Boudon, R.

1974 Education, Opportunity, and Social Inequality. New York: Wiley.

Cooley, W. & Lohnes, P. R.

1971 Multivariate Data Analysis. New York: Wiley.

England, P.

1918 "Assessing trends in occupational sex segregation, 1900-1976." Pp. 273-296 in Berg, I. (Ed.) Sociological Perspectives on Labor Markets. New York: Academic Press.

Fernandez, J. P.

1981 Racism and Sexism in Corporate Life: Changing Values in American Business. Lexington, MA: Lexington Books.

Friedman, T. & Williams, E. F.

1982 "Current use of tests for employment" Pp. 99-169, in Wigdor, A. K. & Garner U. R. (Eds.) Ability Testing: Uses, Consequences and Controversies. Washington, D.C.: National Academy Press.

Granovetter, M.

1974 Getting a Job: A Study of Contacts and Careers. Cambridge, MA: Harvard University Press.

Granovetter, M.

1981 "Toward a sociological theory of income differences" Pp. 11-48 in Berg, I. (Ed.) Sociological Perspectives on Labor Markets. New York: Academic Press.

Jencks, Christopher et al.

1979 Who Gets Ahead? New York: Basic Books.

Kalleberg, A. L. & Sorensen, A. B.

1979 "The sociology of labor markets. Annual Review of Sociology, 5, 351-79.

Lippman, S. & McCall, J.

1976 "The economics of job search: A survey." Economic Inquiry, 14, 155-189.

McPartland, J. M. & Crain, R. L.

1980 "RAcial discrimination, segregation, and processes of social mobility." Pp. 97-125. In Covello, V. T. (Ed.) Poverty and Public Policy. Boston: G. K. Hall.

McPartland, J. M. & Humphrey, R.

1984 Procedures to Construct a Nationally Representative Sample of Employers Linked to the Jobs Held by Respondents to the National Longitudinal Survey. Baltimore: Center for Social Organization of Schools, Johns Hopkins University.

Panel on Secondary School Education for the Changing Workplace

1984 High Schools and the Changing Workplace: The Employers' View. Washington, D.C.: National Academy Press.

Rosenbaum, J. E.

1984 Career Mobility in a Corporate Hierarchy. New York: Academic Press.

Sheppard, H. L. & Belitsky, A. H.

1966 The Job Hunt, Job Seeking Behavior of Unemployed Workers in a Local Economy. Baltimore: The JOhns Hopkins Press.

Sorensen, A. G. & Kalleberg, A. L.

1981 "An outline of a theory of the matching of persons to jobs." Pp. 49-74 in Berg, I. (Ed.) Sociological Perspectives on Labor Markets. New York: Academic Press.

Schmidt, F. L. & Hunter, J. E.

1981 "Employment testing: Old theories and new research findings." American Psychologist, 36: 1128-1137.

Sorensen, A. B. & Kalleberg, A. L.

1981 Outline of a theory for the matching of persons to jobs. In Berg, I. (Ed.) Sociological Perspecstives on the Labor Market. New York: Academic Press.

Tenopyr, M. L.

1981 The Realities of Employment Testing," American Psychologist, 36: 1120-1127.

Thompson, B.

1984 Cannonical Correlation Analysis: Uses and Interpretation. Beverly HIlls, CA: Sage.

Thurow, L. C.

1975 Generating Inequality. New York: Basic Books.

U.S. Department of Labor

1975 Job-seeking Methods Used by AmericanWorkers (Bulletin 1886). Washington, D.C.: U.S. Government Printing Service.

Warwick, P. V.

1975 Cannonical Correlation Analysis. Pp. 515-527, In Hie, N. H. et al. SPSS (Second Edtion). New York: McGraw-Hill.

Wielgorz, J. B. & Carpenter, S.

1984 "The effectivenes of job search and job finding methods of young Americans." Pp. 90-126. In Baker, P. et al. (Ed.) Pathways to the Future, Vol. IV. Columbus, OH: Center for Human Resource Research.

Wigdon, A. K. & Garner, W. R. (Eds.)

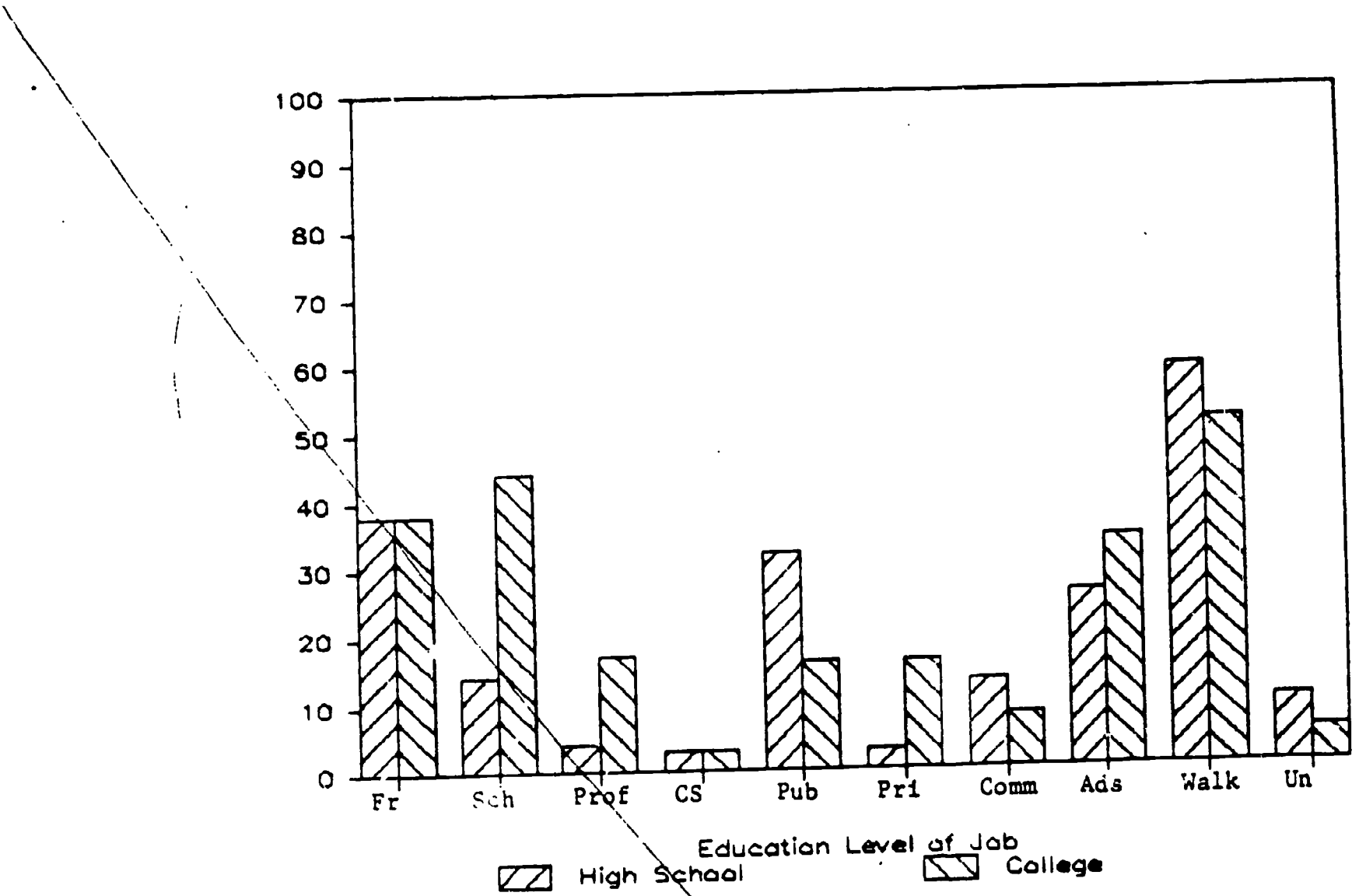
1982 Ability Testing: Uses Consequences, and Controversies. Part II: Documentation Section. Washington, D.C.: National Academic Press.

U.S. Department of Labor

1976 Recruitment, Job Search and the Unites States Employment Service (R & D Monograph 43). Washington, D.C.: U.S. Government Printing Service.

Figure 1

Employer Recruitment Methods for Private Sector Male Jobs



Fr = Friends of Employees
Sch = School Placement
Prof = Professional Organizations
CS = Civil Service
Pub = Public Employment Serv.
Pri = Private Employment Serv.
Comm = Community Groups
Ads = Media Ads
Walk = Walk-ins
Un = Unions

TABLE 1

Percent of Employers Who Use Different Job Recruitment Methods, and Percent of Employees Who Use Different Job Search Methods, by Employment Sector

	Employer				Employee			
	Total (N=3389)	Private Sector (N=2530)	Public Sector (N=859)	Pub.-Pri. t-statistic	Total (N=3810)	Private Sector (N=2900)	Public Sector (N=910)	Pub.-Pri. t-statistic
	% (Rank)	% (Rank)	% (Rank)		% (Rank)	% (Rank)	% (Rank)	
Friends	34.5 (2)	38.6 (2)	22.7 (6)	-8.48***				
Relatives					15.8	16.8	12.8	-2.82**
Friends					29.0 (2)	29.3 (2)	27.7 (2)	-0.96
School placement service	26.0 (5)	24.5 (5)	30.4 (4)	3.77***	8.9 (4)	7.3 (4)	14.0 (4)	6.13***
Professional organizations	8.9 (7)	7.7 (7)	12.2 (8)	3.91***	1.4 (8.5)	1.4 (8)	1.5 (8)	0.28
Civil Service	11.1 (8)	2.7 (10)	35.5 (2)	29.21***	4.9 (6)	0.4 (10)	19.0 (3)	24.37***
Public employment service	27.8 (4)	27.0 (4)	30.1 (5)	1.48	6.9 (5)	6.2 (5)	9.0 (5)	2.92**
Private employment service	5.9 (9)	7.0 (8)	2.4 (10)	-4.95**	3.7 (7)	4.7 (6)	0.7 (9)	-5.59***
Community groups	14.0 (6)	11.6 (6)	20.9 (7)	6.78***	0.9 (10)	0.5 (9)	2.0 (7)	4.16***
Media ads	33.2 (3)	33.6 (3)	31.9 (3)	-0.88	11.0 (3)	12.4 (3)	6.8 (6)	-4.68***
Direct application (walk-in)	60.0 (1)	60.4 (1)	58.8 (1)	-0.79	37.3 (1)	37.7 (1)	36.2 (1)	-0.82
Union referral	5.7 (10)	5.9 (9)	4.6 (8)	-1.47	1.4 (8.5)	1.7 (7)	0.4 (10)	-2.81**
Sum =	2.271				1.212			

*** = $p < .001$

** = $p < .01$

* = $p < .05$

TABLE 2

Correlation between Employee Job Search Methods
and Employer Job Recruitment Methods Used for the Same Job

Employee Methods	Employer Methods									
	1	2	3	4	5	6	7	8	9	10-11
1. School placement service	.133	.085	.044	-.034	.031	-.004	-.011	-.010	-.004	-.024
2. Professional organizations	.070	.086	-.001	-.046	.019	-.012	-.002	-.025	.000	.014
3. Civil Service	-.032	-.035	.462	01	-.071	.074	-.014	-.068	.014	-.125
4. Public employment service	-.037	-.016	.025	.074	.005	.015	.005	-.044	-.016	-.034
5. Private employment service	.040	.055	-.033	.026	.201	.022	.045	-.006	-.010	.024
6. Community group	-.003	.008	.029	.042	-.007	.064	.025	-.014	.005	-.034
7. Media ads	.027	.025	-.028	-.013	.053	-.002	.145	.016	-.023	.006
8. Direct application (walk-in)	.068	.030	-.040	-.058	-.058	-.006	-.010	.049	-.030	-.014
9. Union referral	-.055	-.040	-.043	-.045	-.034	-.046	-.030	-.072	.188	-.022
10. Relatives	-.096	-.075	-.024	.014	-.069	.004	-.092	-.020	.039	.003
11. Friends	-.040	-.008	-.018	.012	-.053	-.001	-.006	.002	.017	.051

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TABLE 3

Percent of Employers Who Rank Each Job Recruitment Methods as "Most Important" and as "One of Three Most Important", by Sector

	Percent: Most Important Method			Percent: One of Three Most Important Methods			
	Total (N=1945)	Private Sector (N=1362)	Public Sector (N=583)	Total (N=1945)	Private Sector (N=1362)	Public Sector (N=583)	T-test (Pri-Pub)
1. Friends of employees	17.1	20.6	8.9	50.4	55.7	33.4	-10.05***
2. School placement service	9.5	8.5	11.7	31.1	30.6	32.1	0.64
3. Professional organizations	1.7	1.8	1.7	14.1	13.5	15.6	1.22
4. Civil Service	9.2	2.9	23.8	16.0	8.0	34.8	15.66***
5. Public employment service	12.3	12.8	11.1	35.6	35.8	35.0	-0.35
6. Private employment service	2.5	3.5	0.2	9.3	12.0	2.9	-6.41***
7. Community groups	0.9	0.4	1.9	11.0	9.7	14.1	2.83**
8. Media ads	18.4	20.4	13.7	43.0	45.3	37.7	-3.09**
9. Walk-ins	19.6	21.6	15.1	57.1	57.3	56.6	-0.30
10. Union referrals	1.2	1.7	0.2	3.6	4.6	1.4	-3.46**
11. Other	7.5	5.7	11.7	12.6	9.8	19.0	5.65*

*** = $p < .001$

** = $p < .01$

* = $p < .05$

TABLE 4

Summary of Factor Analysis of Employer Recruitment Methods, by Employment Sector

Varimax Rotated Factor Matrix

Private Sector	Factor 1	Factor 2	Factor 3	Communality
1. Friends of employees	.10036	.00147	.25265	.07391
2. School placement serv.	.44576	.14948	.13215	.23851
3. Professional orgs.	.74060	.04874	.02908	.55171
4. Civil Service	.24336	.26595	-.02051	.13037
5. Public empl. serv.	.12555	.48937	.13670	.27394
6. Private empl. serv.	.46983	.08306	.03800	.22909
7. Community groups	.08912	.83377	.34698	.82351
8. Media ads	.33036	-.02724	.24756	.17117
9. Walk-ins	-.00412	.07593	.31801	.10691
10. Unions	-.00928	.29258	-.17303	.11563
Public Sector				
11. Friends of employees	.08519	.17593	.28219	.11784
12. School placement serv.	.12467	.54940	.21605	.36406
13. Professional orgs.	.04376	.79359	.10119	.64194
14. Civil Service	.15318	-.13225	-.22040	.08953
15. Public empl. serv.	.71507	.13582	.03111	.53074
16. Private empl. serv.	.22445	.25189	.05523	.11688
17. Community groups	.64609	.11722	.05978	.43475
18. Media ads	.29861	.36207	.16053	.24603
19. Walk-ins	.27382	.05392	.68497	.54707
20. Unions	.26383	.06044	.14926	.09554

TABLE 5

Summary of Multiple Regression Analyses of
Demographic Characteristics of Job on Employer
Recruitment Methods, with One Control Variable*, by Sector

(b = unstandardized regression coeff.; B = standardized regression coeff.)

Independent Variable (Job Recruitment Method)	Dependent Variable: Percent Male in the Job			Dependent Variable: Percent with no College in the Job		
	b (1)	B (2)	F (3)	b (4)	B (5)	F (6)
Private Sector (N=3100)						
1. Friends of employees	-.0094	-.029	(2.6)	.0012	004	(0.0)
2. School placement serv.	-.0256	-.080	(18.1)	-.0920	-.299	(303.4)
3. Professional orgs.	-.0054	-.013	(0.5)	-.1140	-.295	(298.3)
4. Civil Service	.0176	.031	(2.9)	-.0239	-.043	(5.9)
5. Public empl. serv.	-.0054	-.018	(1.0)	.0435	.152	(73.8)
6. Private empl. serv.	-.0079	-.018	(1.1)	-.0726	-.180	(104.8)
7. Community groups	-.0110	-.030	(2.9)	.0186	.033	(9.1)
8. Media ads	-.0269	-.081	(25.3)	-.0477	-.168	(90.2)
9. Walk-ins	-.0340	-.103	(33.5)	.0179	.056	(9.9)
10. Union referrals	.0698	.162	(83.2)	.0317	.076	(17.9)
Public Sector (N=978)						
11. Friends of employees	-.0113	-.038	(1.4)	-.0072	-.023	(0.5)
12. School placement serv.	-.0189	-.069	(3.9)	-.1160	-.410	(196.8)
13. Professional orgs.	.0216	.066	(3.8)	-.1192	-.352	(138.6)
14. Civil Service	-.0173	-.080	(6.2)	.0388	.174	(30.3)
15. Public empl. serv.	-.0062	-.024	(0.5)	.0372	.138	(19.1)
16. Private empl. serv.	-.0269	-.052	(2.7)	-.0039	-.007	(0.0)
17. Community groups	.0068	.024	(0.6)	.0296	.100	(9.9)
18. Media ads	.0077	.029	(0.8)	-.0362	-.121	(17.1)
19. Walk-ins	-.0188	-.062	(3.8)	.0078	.025	(0.6)
20. Union referrals	.0268	.061	(3.6)	.0145	.032	(0.9)

*When "Percent Male in the Job" is the dependent variable, "Percent with no College" is the control variable; when "Percent with no College in the Job" is the dependent variable, "Percent Male" is the control variable.

TABLE 6

Summary of Multiple Regression Analyses of Job Search Methods on Individual's Sex and Educational Attainment, by Sector

(b = unstandardized regression coeff.; B = standardized regression coeff.)

Dependent Variable (Job Search Method)	Private Sector (N=3100)					
	Independent Variables*					
	Sex			Educational Attainment		
	b (1)	B (2)	F (3)	b (4)	B (5)	F (6)
1. Relatives	.0608	.081	(21.0)	-.0664	-.135	(58.3)
2. Friends	.0447	.049	(7.4)	-.0256	-.042	(5.7)
3. School placement serv.	.0048	.009	(0.2)	.0549	.160	(81.0)
4. Professional orgs.	.0034	.014	(0.6)	.0106	.068	(14.4)
5. Civil Service	.0049	.036	(4.1)	-.0002	-.000	(0.0)
6. Public empl. serv.	-.141	-.029	(2.6)	0035	-.010	(0.3)
7. Private empl. serv.	-.0265	-.062	(12.3)	.0180	.065	(13.3)
8. Community groups	-.0048	-.003	(3.4)	.0020	.021	(1.4)
9. Media ads	-.0501	-.076	(18.0)	.0207	.047	(7.1)
10. Direct application	.0171	.017	(0.9)	.0087	.013	(0.5)
11. Union	.0230	.089	(24.9)	-.0001	-.000	(0.0)
	Public Sector (N=978)					
12. Relatives	.0291	.042	(1.7)	-.0307	-.073	(5.3)
13. Friends	.0058	.006	(0.0)	-.0040	-.007	(0.0)
14. School placement serv.	-.0056	-.007	(0.0)	.0885	.205	(42.8)
15. Professional orgs.	-.0022	-.008	(0.0)	.0046	.030	(0.8)
16. Civil Service	.0182	.002	(0.5)	-.0323	-.090	(10.2)
17. Public empl. serv.	-.0037	-.006	(0.0)	-.0323	-.090	(8.2)
18. Private empl. serv.	.0029	.018	(0.3)	.0023	.022	(0.5)
19. Community groups	-.0100	-.035	(1.2)	-.0072	-.041	(1.6)
20. Media ads	-.0214	-.041	(1.7)	-.0138	-.044	(1.9)
21. Direct application	.0343	.035	(1.2)	.0568	.095	(8.9)
22. Union	-.0026	-.019	(0.3)	.0020	.024	(0.5)

*Sex: Male = 1; Female = 0
Education attainment: 1 = High School, 2 = Some College, 3 = College Degree

TABLE 7

How Employer Recruitment Methods are Related to Sex Composition of Jobs, by Educational Level and Sector*

Private Sector

	High School Jobs (N=1925)			Some College Jobs (N=790)			College Degree Jobs (N=558)		
	b	B	F	b	B	F	b	B	F
1. Friends of employees	-.0092	-.027	(1.4)	-.0149	-.049	(1.9)	-.0058	-.020	(0.2)
2. School placement service	-.0468	-.132	(33.5)	-.0116	-.036	(1.0)	-.0094	-.034	(0.6)
3. Professional organizations	-.0171	-.034	(2.3)	-.0226	-.058	(2.6)	-.0036	-.012	(0.1)
4. Civil Service	.0221	.036	(2.6)	.0217	.039	(1.2)	.0026	.005	(0.0)
5. Public employment service	-.0042	-.014	(0.1)	-.0144	-.048	(1.8)	.0098	.033	(0.8)
6. Private employment service	-.0312	-.064	(8.0)	.0010	.003	(0.0)	.0257	.076	(3.3)
7. Community groups	.0002	.000	(0.0)	-.0363	-.107	(9.0)	-.0148	-.042	(1.0)
8. Media ads	-.0208	-.068	(9.8)	-.0386	-.111	(13.9)	-.0420	-.156	(13.8)
9. Walk-ins	-.032[illegible]	[illegible]95	(1[illegible]	-.0372	-.118	(11.1)	-.0145	-.048	(1.3)
10. Union Referrals	.0863	.206	(86.[illegible]	.0389	.085	(5.6)	.0247	.050	(1.4)

Public Sector

	High School Jobs (N=471)			Some College Jobs (N=258)			College Degree Jobs (N=292)		
	b	B	F	b	B	F	b	B	F
11. Friends of employees	0[illegible]3	-.088	(3.7)	.0139	.049	(0.6)	-.0186	-.073	(1.6)
12. School placement service	-.[illegible]09	[illegible]52	(1.8)	-.0079	-.029	(0.2)	-.0353	-.[illegible]38	(5.2)
13. Professional organizations	.0385	.087	(3.6)	.0094	.026	(0.2)	.0089	.034	(0.3)
14. Civil Service	.0239	.107	(5.6)	.0401	.184	(8.4)	.0098	.048	(0.7)
15. Public employment service	.0040	.014	(0.1)	-.0252	-.100	(2.5)	.0039	.016	(0.1)
16. Private employment service	-.0106	-.020	(0.2)	-.0698	-.127	(4.2)	-.0222	-.051	(0.8)
17. Community groups	.0169	.055	(1.5)	.0145	.053	(0.7)	.0177	.068	(1.4)
18. Media ads	.0146	.052	(1.3)	.0040	.015	(0.1)	.0053	.022	(0.1)
19. Walk-ins	-.000[illegible]	-.001	(0.0)	-.0203	-.070	(1.2)	-.0479	-.175	(9.1)
20. Union Referrals	.0525	.118	(6.8)	.0667	.133	(4.6)	-.0336	-.085	(2.1)

* High School Jobs are those where 50 percent or more of the job incumbents have no more than a high school diploma; some College Jobs are where 50 percent or more have some college. College Jobs are 50 percent or more have some college; College Degree Jobs are where 50 percent or more have college degrees. Each set of coefficients (b, B, F) is from a separate regression analysis, where "Percent male in the job: is the dependent variable, and one employer recruitment method is the first independent variable, and "Percent with High School Education in the Job" or "Percent with a College Degree in the Job: is the second independent variable.

TABLE 8

Summary of Six Canonical Correlation Analyses

Employer Methods:	Private (N = 3100)		Public (N = 978)		Total (N = 4078)	
	CANV 1	CANV 2	CANV 1	CANV 2	CANV 1	CANV 2
First Set						
1. Friends	.086	-.057	.105	-.138	.118	-.036
2. School placement	-.548	-.098	-.690	-.480	-.614	-.212
3. Professional organization	-.374	.305	-.345	.670	-.418	.402
4. Civil Service	.005	.137	.200	.320	-.055	.004
5. Public service	.429	-.204	.278	-.222	.399	-.179
6. Private service	-.194	.062	.078	-.383	-.088	-.053
7. Community group	.050	-.166	.201	.211	.082	-.085
8. Ads	-.253	-.228	-.107	.227	-.201	-.149
9. Walk-In	.071	-.478	.130	-.366	.085	-.496
10. Union	.196	.703	.020	.411	.156	.750
Second Set						
1. Job % no college	.967	-.269	.998	-.075	983	-.201
2. Job % male	.183	.987	.024	1.001	.111	.998
Eigenvalue	(.207)	(.041)	(.282)	(.033)	(.220)	(.034)
Emp. ee Methods:						
First Set						
1. Relatives	.578	.077	.403	NS	.567	.201
2. Friends	.235	.208	.025		.175	.297
3. School placement	-.467	.535	-.568		-.588	.509
4. Professional organization	-.120	.227	-.093		-.130	.256
5. Civil Service	-.051	.296	.491		-.027	.149
6. Public service	.095	-.370	.309		.123	-.259
7. Private service	-.276	-.041	-.065		-.190	-.031
8. Community group	-.042	-.125	.018		-.060	-.071
9. Ads	-.236	-.151	-.054		-.141	-.125
10. Walk-In	-.108	-.013	-.162		-.132	074
11. Union	.316	.543	.067		.282	.638
Second Set						
1. Job % no college	.058	-.522	.941		.897	-.451
2. Job % male	.444	.900	.292		.368	.434
Eigenvalue	(.067)	(.019)	(.066)	(.011)	(.061)	(.014)

TABLE 9

Partitioning of Variance Accounted for by
Employer Recruitment Methods

	Private	Public	Total
Unique (Sex composition)	.00552 (2.7%)	.00014 (0.1%)	.00228 (1.0%)
Unique (Educ. composition)	.15366 (74.3%)	.17236 (85.3%)	.17937 (81.3%)
Joint (Sex and Education)	.04764 (23.0%)	.03422 (16.6%)	.03891 (17.6%)
Total	.20682 (100%)	.28194 (100%)	.22056 (100%)

Table 10

PERCENT OF PRIVATE SECTOR EMPLOYERS WHO FREQUENTLY USE VARIOUS JOB RECRUITMENT METHODS FOR MALE JOBS WITH DIFFERENT EDUCATION LEVELS, WITH ADJUSTMENT FACTORS* FOR SECTOR AND JOB SEX

Job Recruitment Method	Education Level of Job			Adjustment Factor for:	
	High School	Some College	College Degree	Sector (Public)	Job Sex (Female)
Friends of employees	38	37	38	-16	+1
School placement service	14	27	44	+2	+3
Professional organizations	4	8	17	+3	-1
Civil service	3	4	3	+34	-3
Public employment services	32	24	16	+4	-1
Private employment services	3	10	16	-5	0
Community groups	13	12	8	+10	-1
Media ads	26	34	34	-4	+5
Walk-ins	59	52	51	-15	+8
Union referr	10	6	5	-1	-4

TABLE 11

Effect of Firm Size and City Size on Frequency of Use of Different Employer Recruitment Methods, with 2 Controls*, by Sector

Dependent Variable (Job Search Method)	Private Sector (N=3100)					
	Firm Size			City Size		
	b (1)	B (2)	F (3)	b (4)	B (5)	F (6)
1. Friends of employees	-.1145	-.040	(4.8)	.0411	.037	(4.J)
2. School placement serv.	.2998	.103	(36.5)	-.0026	-.002	(0.0)
3. Professional orgs.	.0389	.017	(0.9)	.0330	.037	(4.4)
4. Civil Service	.0456	.028	(2.4)	.0082	.013	(0.5)
5. Public empl. serv.	.5403	.173	(96.8)	-.0598	-.049	(7.7)
6. Private empl. serv.	-.0885	-.040	(5.1)	.0964	.11?	(39.0)
7. Community groups	.8281	.320	(352.7)	.0740	.3	(18.2)
8. Media ads	.0315	.010	(0.3)	.0927	.076	(17.8)
9. Walk-ins	.4735	.168	(89.4)	.0121	.011	(0.4)
10. Union referrals	.1586	.073	(17.1)	.0331	.039	(4.8)
	Public Sector (N=978)					
	Firm Size			City Size		
	b (1)	B (2)	F (3)	b (4)	B (5)	F (6)
11. Friends of employees	-.1641	-.062	(3.6)	.0065	.006	(0.0)
12. School placement serv.	.0493	.017	(0.3)	-.0120	-.009	(0.1)
13. Professional orgs.	-.0308	-.013	(0.2)	.0160	.015	(0.2)
14. Civil Service	.3821	.104	(10.9)	.2317	.144	(20.7)
15. Public empl. serv.	.4153	.137	(18.1)	-.0521	-.039	(1.5)
16. Private empl. serv.	.0115	.008	(0.0)	-.0111	-.016	(0.2)
17. Community groups	.5192	.188	(34.5)	.0788	.065	(4.1)
18. Media ads	.1612	.055	(2.8)	-.0335	-.025	(0.6)
19. Walk-ins	.6061	.212	(32.4)	-.0628	-.054	(2.9)
20. Union referrals	.2594	.146	(20.1)	.0826	.010	(0.1)

* Control variables are "percent male in the job" and "percent with no college in the job".

Table 12

Distribution of Industries in Sample of Employers and Jobs

Industrial Category	Private Sector		Public Sector	
	% in Sample	Most frequent industries in sample	% in Sample	Most frequent industries in Sample
1. Agriculture and Mining	2.5	Crude oil, Coal, Agriculture	0.6	Forestry
2. Construction	4.3	Construction	2.1	Construction
3. Manufacturing	24.2	Motor vehicle, Apparel, Chem., Steel, Elec equip, Printing	2.7	Paint mfgr.
4. Transportation, Comm. & Util.	7.8	Telephone, Trucking, Elec. Util., Railroads	6.7	U.S. Postal, Sanitary Serv.
5. Trade	22.7	Eating & Drinking Places; Dept. Stores, Grocery Stores	2.1	Eating & Drinking Places
6. Finance, Ins. & Real Estate	9.5	Banking, Insurance	2.6	Real Estate, Insurance, Banking
7. Services	28.4	Hospitals, Schools, Bus. Serv., Hotels	56.1	Schools, Colleges, Hospitals, Social Serv.
8. Public Administration	0.6	Justice & Safety, Environment, Quality or Housing Administration	27.1	Justice and Safety, General Government

Table 11

Effect of Industrial Category on Frequency of Use of Different Employer Recruitment Methods, with 4 Controls*, by Sector

Dependent Variable (Job Recruitment Method)	Agr. & Mining			Construction			Manufacturing			Trans., Comm., & Util.		
Private Sector (N = 3100)	b	B	F	b	B	F	b	B	F	b	B	F
1. Friends of employees	.2019	.025	(1.8)	-.0580	-.009	(0.2)	-.1675	-.056	(8.8)	-.0810	-.017	(0.9)
2. School placement service	-.2741	-.033	(3.8)	-.4417	-.069	(15.6)	-.1604	-.053	(8.9)	-.0900	-.001	(1.2)
3. Professional orgs.	-.0393	-.006	(0.1)	-.0705	-.014	(0.6)	-.1324	-.055	(9.4)	-.0284	-.007	(0.2)
4. Civil Service	-.0897	-.020	(1.2)	-.0083	-.003	(0.0)	-.0468	-.028	(2.2)	-.0029	-.001	(0.0)
5. Public empl. serv.	-.1624	-.018	(1.1)	-.3795	-.055	(9.4)	.5044	.155	(71.9)	.1917	.017	(4.4)
6. Private empl. serv.	.0468	.007	(0.2)	-.1279	-.026	(2.1)	.7110	.031	(2.8)	-.0367	-.010	(0.3)
7. Community groups	-.2384	-.032	(3.6)	-.3473	-.061	(12.2)	.1784	.066	(14.1)	.2424	.056	(10.8)
8. Media ads	-.5485	-.061	(12.0)	-.1263	-.018	(1.0)	.0833	.025	(1.9)	-.5041	-.096	(29.5)
9. Walk-ins	.0708	.009	(0.2)	-.3126	-.050	(7.7)	-.1565	-.053	(8.4)	-.1871	-.040	(5.0)
10. Unions	-.2129	-.035	(1.8)	.9280	.194	(119.6)	.0614	.027	(2.2)	.1928	.054	(9.1)
Public Sector (N = 978												
11. Friends of employees	-.5108	-.029	(0.8)	-.2076	-.023	(0.5)	.2355	.030	(0.8)	-.2252	-.043	(1.7)
12. School placement serv.	.1294	.007	(0.0)	-.0546	-.006	(0.0)	-.0303	-.003	(0.0)	-.3688	-.065	(4.6)
13. Professional orgs.	-.1439	-.009	(0.1)	.1317	.016	(0.1)	-.0969	-.013	(0.2)	-.1248	-.026	(0.7)
14. Civil Service	-.0411	-.002	(0.0)	.3663	.030	(0.9)	-.0487	-.004	(0.0)	.2348	.033	(1.0)
15. Public empl. serv.	1.1343	.057	(3.2)	-.0436	-.004	(0.0)	.7108	.077	(6.0)	-.4238	-.072	(4.9)
16. Private empl. serv.	-.0444	-.004	(0.0)	-.0316	-.006	(0.0)	.4086	.088	(7.5)	-.0282	-.009	(0.1)
17. Community group	.1669	.009	(0.1)	.1649	.018	(0.3)	.4601	.055	(3.0)	-.0246	-.004	(0.0)
18. Media ads	-.1111	-.005	(0.1)	-.2349	-.023	(0.5)	.0021	.000	(0.0)	.0568	.009	(0.1)
19. Walk-ins	.1369	.008	(0.1)	.2189	.025	(0.6)	.5596	.070	(5.0)	-.3391	-.066	(4.2)
20. Unions	.2668	.023	(0.5)	.1530	.025	(0.6)	.2243	.041	(1.7)	-.0691	-.020	(0.4)

Four control variables are: size of establishment, city size, percent with no college in the job, percent male in the job.

Table 11 (Continued)

Dependent Variable (Job Recruitment Method)	Trade			Fin., Ins., Real Est.			Services			Public Admin.		
Private Sector (N = 3100)	b	B	F	b	B	F	b	B	F	b	B	F
1. Friends of employees	-.0303	-.010	(0.3)	.4721	.108	(35.1)	.0027	.001	(0.0)	-.5841	-.034	(3.6)
2. School placement service	.0735	.024	(1.9)	.1829	.041	(5.8)	.1438	.050	(7.7)	.1914	.011	(0.4)
3. Professional orgs.	-.1618	-.065	(14.1)	.0744	.021	(1.5)	.2614	.114	(38.8)	-.0399	-.003	(0.0)
4. Civil Service	.0060	.003	(0.0)	-.0139	-.006	(0.1)	.0520	.032	(2.9)	.1617	.017	(0.9)
5. Public empl. serv.	-.2678	-.081	(20.6)	.2817	.060	(11.2)	-.3172	-.102	(31.0)	.3561	.019	(1.2)
6. Private empl. serv.	-.0946	-.040	(5.0)	.4268	.127	(51.0)	-.1257	-.057	(9.5)	-.4215	-.032	(3.4)
7. Community groups	-.1000	-.036	(4.4)	.3386	.086	(25.2)	-.2386	-.093	(27.2)	.8266	.054	(10.2)
8. Media ads	-.0291	-.009	(0.2)	.0149	.003	(0.0)	.1957	.063	(11.3)	.8259	.044	(6.4)
9. Walk-ins	.2967	.099	(30.5)	.0194	.004	(0.1)	-.0177	-.006	(0.1)	.2124	.013	(0.5)
10. Unions	-.1629	-.071	(15.6)	-.2498	-.076	(18.1)	-.0362	-.017	(0.8)	-.0037	-.000	(0.0)
Public Sector (N = 978												
11. Friends of employees	-.0941	-.010	(0.1)	-.3331	-.041	(1.6)	.1502	.057	(2.8)	-.0449	-.015	(0.2)
12. School placement serv.	.5139	.052	(3.?)	.3267	.037	(1.6)	.0686	.024	(0.6)	-.0674	-.021	(0.5)
13. Professional orgs.	.0931	.011	(0.1)	.2021	.027	(0.8)	.0548	.023	(0.5)	-.0651	-.024	(0.7)
14. Civil Service	-.5118	-.041	(1.8)	.2181	.142	(0.4)	-1.0054	-.276	(76.2)	1.0256	.254	(72.5)
15. Public empl. serv.	.3111	.030	(0.9)	.0064	.001	(0.0)	-.2798	-.094	(7.7)	.2853	.086	(7.4)
16. Private empl. serv.	.0747	.014	(0.2)	.1701	.036	(1.2)	-.0394	-.026	(0.6)	-.0248	-.015	(0.2)
17. Community groups	-.2775	-.029	(0.9)	.1167	.014	(0.2)	-.1834	-.067	(4.0)	.1426	.047	(2.2)
18. Media ads	.8235	.082	(6.6)	.0805	.009	(0.1)	-.0036	-.001	(0.0)	-.0728	-.022	(0.5)
19. Walk-ins	-.1840	.021	(0.4)	-.2133	-.026	(0.7)	.2492	.096	(8.4)	-.2204	-.076	(6.0)
20. Unions	- 2708	-.045	(2.0)	-.0861	-.016	(0.2)	.0881	.050	(2.2)	0.6870	-.044	(1.9)

*The four control variables are: size of establishment, city size, percent with no college in the job, percent male in the job.

TABLE 14

Summary of Cannonical Correlation Analyses of
Job Recruitment and Job Traits, by Sector

		Private (N=3100) R2 (Rank)	Public (N=978) R2 (Rank)
	Ten Job Recruitment Methods with Percent No College and Percent Male In Job	.20682	.28194
1.	Add: Methodical	.21083 (15)	.28295 (15)
2.	Manual Dexterity	.21522 (14)	.28266 (16)
3.	Quick Learner	.21893 (13)	.29439 (12)
4.	Basic Literacy	.23929 (5)	.28342 (14)
5.	Advanced Readers	.24937 (2)	.31391 (6)
6.	Basic Arithmetic	.22622 (9)	.33301 (3)
7.	Excellent Math	.23034 (7)	.31182 (7)
8.	Specialized Knowledge	.24251 (4)	.32086 (4)
9.	Client Relations	.25093 (1)	.30480 (9)
10.	Permanence	.22273 (12)	.30028 (11)
11.	Growth Potential	.22365 (11)	.30187 (10)
12.	Good Team Members	.22426 (10)	.30849 (8)
13.	Proper Attitudes	.20688 (17)	.28257 (17)
14.	Dependable	.20795 (16)	.28481 (13)
15.	Good Judgement	.24760 (3)	.33336 (2)
16.	Can Supervise	.23990 (6)	.35346 (1)
17.	Other	.22995 (8)	.31587 (5)
18.		.32019	.44016
19.	Add: All 17 Job Traits	.27623	.38404
20.	Ten Methods with 17 Job Traits	.11337 (35.4%)	.15822 (35.9%)
21.	UNIQUE (Traits)	.04396 (13.7%)	.05612 (12.7%)
22.	UNIQUE (% no coll., % male)	.16286 (50.9%)	.22582 (51.3%)
23.	JOINT		

TABLE 15

Summary of Cannonical Correlation Analyses of
Job Recruitment and Job Traits, by Sector

		Private (N=3100) R2 (Rank)	Public (N=978) R2 (Rank)
	Ten Job Recruitment Methods with		
1.	Percent College Dgree and Percent Male in Job	.18334	.31588
2.	Add: Methodical	.18609 (15)	.31711 (15)
3.	Manual Dexterity	.18845 (14)	.31596 (16)
4.	Quick Learner	.20286 (13)	.33289 (11)
5.	Basic Literacy	.22901 ( )	.32164 (13)
6.	Advanced Readers	.23797 (2)	.34023 (6)
7.	Basic Arithmetic	.21659 (8)	.36349 (3)
8	Excellent Math	.21907 (7)	.34515 (5)
9.	Specialized Knowledge	.22399 (5)	.33375 (10)
10.	Client Relations	.24180 (1)	.33595 (8)
11.	Permanence	.20495 (12)	.32385 (12)
12.	Growth Potential	.20794 (10)	.33539 (9)
13.	Good Team Member	.20684 (11)	.33692 (7)
14.	Proper Attitudes	.18353 (17)	.31592 (17)
15.	Dependable	.18384 (16)	.31828 (14)
16.	Good Judgement	.23611 (3)	.36727 (2)
17.	Can Supervise	.22165 (6)	.37037 (1)
18.	Other	.21180 (9)	.35266 (4)
19.	Add: All 17 Traits	.31660	.45195
20.	Ten Methods with 17 Job Traits	.27623	.38404
21.	UNIQUE (Traits)	.13326 (42.1%)	.13607 (30.1%)
22.	UNIQUE (% college, %male)	.04037 (12.8%)	.06791 (15.0%)
23.	JOINT	.14297 (45.2%)	.24797 (54.9%)

TABLE 16

How Employer Recruitment Methods are Related to Race and Ethnic Composition of Jobs, With Two Controls,* By Sector

Independent Variable (Job Recruitment Method)	Private (N=3100) b	B	F	Public (N=978) b	B	F	Total (N=4078) b	B	F
Dependent Variable = Percent Black in the Job									
1. Friends of employees	.0004	.002	(0.0)	-.0093	-.040	(1.6)	-.0025	-.012	(0.6)
2. School Placement	.0030	.014	(0.6)	-.0077	-.036	(1.1)	.0002	.001	(0.0)
3. Professional organizations	-.0040	-.015	(0.7)	-.168	-.066	(3.9)	-.0080	-.030	(3.6)
4. Civil Service	.0140	.037	(4.4)	.0041	.024	(0.6)	.0086	.038	(4.7)
5. Public employment service	.0066	.033	(3.5)	.0040	.020	(0.4)	.0062	.031	(4.1)
6. Private employment service	-.0065	-.023	(1.7)	.0182	.045	(2.1)	-.0019	-.006	(0.2)
7. Community groups	.0297	.126	(51.3)	.0066	.030	(0.9)	.0228	.098	(41.1)
8. Media ads	-.0125	-.065	(12.8)	.0131	-.063	(4.0)	-.0128	-.065	(17.3)
9. Walk-ins	.0098	.046	(6.6)	.0077	.033	(1.1)	.0091	.041	(7.1)
10. Unions	.0064	.023	(1.6)	.0173	.050	(2.5)	.0095	.032	(4.2)
Dependent Variable = Percent Hispanic in the Job									
11. Friends of employees	.0024	.015	(0.8)	.0059	.035	(1.2)	.0032	.020	(1.6)
12. School placement	-.0004	-.002	(0.0)	.0004	.003	(0.0)	.0001	.000	(0.0)
13. Professional organizations	.0001	.001	(0.0)	.0076	.040	(1.4)	.0024	.012	(0.6)
14. Civil Service	.0083	.030	(2.8)	-.0066	-.053	(2.7)	-.0022	-.013	(0.5)
15. Public employment service	-.0027	-.019	(1.1)	.0057	.039	(1.4)	-.0001	-.001	(0.0)
16. Private employment service	.0026	.013	(0.5)	.0123	.042	(1.7)	.0042	.019	(1.5)
17. Community groups	-.0013	-.007	(0.2)	.0149	.092	(8.2)	.0040	.023	(2.2)
18. Media ads	-.0064	-.044	(6.0)	.0030	.020.	(0.4)	-.0041	-.028	(3.1)
19. Walk-ins	.0050	.032	(3.1)	-.0022	-.013	(0.2)	.0030	.019	(1.4)
20. Unions	.0050	.024	(1.7)	.0049	.019	(0.4)	.0054	.024	(2.4)

* Two control variables are Percent with no college in the job, and Percent male in the job. A dichotomous variable for private or public sector is added to the total analyses as a control.

Table 17

Summary of Cannonical Correlation Analyses of Percent Black in the Job

Cannonical Variables	Private Sector (N=3100)			Public Sector (N=978)		
	CANVI	CANV2	CANV3	CANV1	CANV2	CANV3
First Set:						
1. Friends	-.083	-.043	-.096	.091	-.054	NS
2. Sch. placement	.541	-.125	.143	-.677	.528	
3. Prof. orgs.	.372	.282	.155	-.402	.660	
4. Civil serv.	-.011	.110	.187	.200	.303	
5. Publ. serv.	-.417	-.142	-.413	.273	-.177	
6. Pri. serv.	.196	.066	-.033	.093	-.437	
7. Community	-.086	-.302	.904	.206	.176	
8. Ads	.267	-.166	-.445	-.124	.304	
9. Walk-in	-.078	-.487	.025	.141	-.398	
10. Unions	-.191	.700	.080	.030	.337	
Second Set:						
11. % no college in job	-.942	-.202	-.331	.961	.015	
12. % male in job	-.182	.964	.213	.035	.941	
13. % black in job	-.117	-.209	.986	.144	-.258	
Eigenvalue	.209	.042	.021	.287	.034	.011

Table 18

Summary of Cannonical Correlation Analyses of Percent Hispanic in the Job

Cannonical Variables	Private Sector (N=3100)			Public Sector (N=978)		
	CANV1	CANV2	CANV3	CANV1	CANV2	CANV3
First Set:						
1. Friends	-.086	.048	-.220	-.107	.107	-.300
2. Sch. placement	.548	.095	-.089	.691	.503	.186
3. Prof. orgs.	.374	-.304	.022	.394	-.690	-.157
4. Civil serv.	-.007	-.152	-.371	-.198	-.260	.576
5. Publ serv.	-.428	.215	.250	-.278	.223	-.010
6. Pri. serv.	.193	-.074	-.316	-.079	.355	-.282
7. Community	-.050	.172	.152	-.204	-.297	-.770
8. Ads	.255	.252	.601	.107	-.214	.137
9. Walk-in	.072	.452	-.655	-.129	.401	.313
10. Unions	-.197	-.704	-.024	-.021	-.410	.034
Second Set:						
11. % No college in job	-.963	.285	.015	-.997	.092	.102
12. % male in job	-.183	-.975	.941	-.024	-.995	.112
13. % Hispanic in job	-.022	-.116	-.258	-.013	-.150	-.994
Eigenvalue	.207	.042	.005	.282	.033	.017

Table 19

How Employee Race is Related to Job Search Methods, with Two Controls,* by Sector

Dependent Variable (Job Search Method)	Race Independent Variable: Black (=1) White (=0)					
	Private (N=3100)			(Public (N=978)		
	b	B	F	b	B	F
1. Relatives	-.0122	-.016	(0.8)	.0224	.033	(1.0)
2. Friends	-.0095	-.010	(0.3)	.0206	.023	(0.5)
3. School placement	.0122	.023	(1.6)	-.0276	-.040	(1.3)
4. Professional orgs.	.0068	.028	(2.5)	-.0065	-.026	(0.6)
5. Civil Service	.0072	.053	(8.7)	-.0316	-.040	(1.5)
6. Public empl. serv.	.0583	.118	(43.5)	.0188	.033	(1.0)
7. Private empl. serv.	.014?	33	(3.4)	-.0054	-.033	(1.0)
8. Community groups	.?	.036	(4.0)	.0027	.096	(8.5)
9. Media ads	.0152	-.023	(1.6)	-.0156	-.031	(0.9)
10. Walk-in	-.0481	-.048	(7.3)	-.493	-.051	(2.4)
11. Unions	.0014	.005	(0.1)	-.0016	-.022	(0.5)
	Ethnicity Independent Variable: Hispanic (=1) White (=0)					
	Private (N=3100)			(Public (N=978)		
	b	B	F	b	B	F
12. Relatives	.0041	.004	(0.1)	.0040	.006	(0.0)
13. Friends	.0100	.009	(0.2)	.0059	.006	(0.0)
14. School placement	-.0101	-.016	(0.8)	-.0073	-.010	(0.1)
15. Professional orgs.	-.0036	-.013	(0.5)	-.0046	-.017	(0.3)
16. Civil Service	.0077	.048	(6.8)	-.0755	-.089	(7.3)
17. Public empl. serv.	.0478	.081	(20.2)	.0588	.093	(8.0)
18. Private empl. serv.	.0106	.021	(1.3)	-.0098	-.056	(2.8)
19. Community groups	.0027	.016	(0.7)	.0373	.124	(14.2)
20. Media ads	-.0247	-.031	(2.9)	-.0060	-.011	(0.1)
21. Walk-in	-.0344	-.029	(2.6)	.0125	.012	(0.1)
22. Unions	.0026	.008	(0.2)	.0016	.011	(0.1)

*Two control variables = individual's educational attainment (1 = high school, 2 = some college, 3 = college degree), individual's sex (1 = male, 0 = female).

TABLE 20

How Employer Recruitment Methods are Related to Percent Black in the Jobs, By Education Level and Sector*

Job Recruitment Method	Private Sector								
	High School Jobs (N=1925)			Some College Jobs (N=790)			College Degree Jobs (N=558)		
	b	B	F	b	B	F	b	B	F
1. Friends of employees	.0051	.022	(1.0)	-.009	-.005	(0.0)	-.0156	-.088	(4.5)
2. School placement service	.0037	.016	(0.4)	.0083	.004	(1.5)	.0089	.052	(1.5)
3. Professional organizations	-.0109	-.033	(2.2)	-.0032	-.014	(0.1)	.0063	.034	(0.6)
4. Civil Service	.0128	.032	(1.9)	.0161	.049	(1.9)	.0124	.042	(0.9)
5. Public employment service	.0057	.028	(1.5)	.0073	.042	(1.3)	.0163	.090	(4.7)
6. Private employment service	-.0046	-.014	(0.4)	.0070	.031	(0.8)	-.0131	-.063	(2.3)
7. Community groups	.0259	.105	(21.8)	.0343	.172	(23.4)	.0367	.171	(17.6)
8. Media ads	-.0101	-.049	(4.7)	-.0127	-.074	(4.3)	-.0124	-.075	(3.2)
9. Walk-ins	.0106	.047	(4.3)	.0113	.061	(2.9)	.0096	.052	(1.6)
10. Union referrals	-.0051	-.018	(0.6)	.0118	.044	(1.5)	.0532	.176	(18.7)

	Public Sector								
	High School Jobs (N=471)			Some College Jobs (N=258)			College Degree Jobs (N=292)		
	b	B	F	b	B	F	b	B	F
11. Friends of employees	.0001	.000	(0.0)	-.0012	-.006	(0.0)	-.0313	-.151	(6.9)
12. School placement service	-.0100	-.040	(0.7)	.0094	.046	(0.5)	-.0145	-.069	(1.3)
13. Professional organizations	-.0292	-.088	(3.6)	-.0300	-.109	(3.1)	.0045	.021	(0.1)
14. Civil Service	.0082	.049	(1.1)	.0187	.115	(3.1)	-.0104	-.063	(1.2)
15. Public employment service	.0073	.035	(0.6)	.0194	.102	(2.7)	-.0122	-.063	(1.2)
16. Private employment service	.0256	.065	(2.0)	-.0071	-.017	(0.1)	.0096	.027	(0.2)
17. Community groups	.0099	.043	(0.9)	.0177	.087	(1.9)	-.0051	-.024	(0.2)
18. Media ads	-.0182	-.086	(3.5)	-.0086	-.045	(0.5)	-.0024	-.012	(0.0)
19. Walk-ins	.0116	.049	(1.1)	.0187	.086	(1.9)	-.0029	-.013	(0.0)
20. Union referrals	.0263	.079	(2.9)	.0308	.082	(1.7)	-.0040	-.012	(0.0)

* Dependent variable = Percent Black in the job; Independent variables = one job recruitment method, Percent male in the job, and either Percent with no college in the job or Percent with college degree in the job.

TABLE 21

How Employer Recruitment Methods are Related to Percent Hispanic in the Job, By Education Level and Sector*

Private Sector

Job Recruitment Method	High School Jobs (N=1925)			Some College Jobs (N=790)			College Degree Jobs (N=558)		
	b	B	F	b	B	F	b	B	F
1. Friends of employees	.0036	.021	(0.8)	-.0000	-.000	(0.0)	.0009	.011	(0.1)
2. School placement service	.0020	.011	(0.2)	-.0014	-.010	(0.1)	-.0001	-.001	(0.0)
3. Professional organizations	.0002	.001	(0.0)	.0005	.003	(0.0)	.0036	.039	(0.8)
4. Civil service	.0015	.005	(0.0)	.0178	.075	(4.4)	.0132	.088	(4.3)
5. Public employment service	-.0049	-.031	(1.9)	.0060	.047	(1.8)	.0000	.000	(0.0)
6. Private employment service	.0026	.010	(0.2)	.0083	.051	(2.1)	-.0032	-.032	(0.6)
7. Community groups	-.0062	-.033	(2.0)	.0135	.093	(6.7)	.0015	.014	(0.1)
8. Media ads	-.0084	-.053	(5.4)	-.0075	-.061	(2.9)	-.0028	-.034	(0.6)
9. Walk-ins	.0018	.010	(0.2)	.0165	.122	(11.8)	-.0019	-.021	(0.2)
10. Union referrals	.0015	.007	(0.1)	.0195	.099	(7.8)	.0050	.034	(0.6)

Public Sector

	High School Jobs (N=471)			Some College Jobs (N=258)			College Degree Jobs (N=292)		
	b	B	F	b	B	F	b	B	F
11. Friends of employees	.0125	.062	(1.8)	.0105	.060	(0.9)	-.0067	-.055	(0.9)
12. School placement service	-.0047	-.023	(0.2)	.0101	.060	(0.9)	.0078	.064	(1.1)
13. Professional organizations	.0069	.026	(0.3)	.030	.136	(4.8)	.0050	.041	(0.5)
14. Civil Service	-.0216	-.158	(11.8)	-.0125	-.092	(2.0)	.0128	.131	(5.0)
15. Public employment service	.0023	.013	(0.1)	.0063	.040	(0.4)	.0114	.100	(2.9)
16. Private employment service	.0016	.005	(0.0)	.0176	.052	(0.7)	.0270	.129	(4.9)
17. Community groups	.0064	.034	(0.5)	.0185	.109	(3.1)	.0174	.139	(5.7)
18. Media ads	.0060	.035	(0.6)	-.0023	-.014	(0.0)	.0051	.044	(0.6)
19. Walk-ins	.0007	.004	(0.0)	-.0064	-.036	(0.3)	-.0035	-.026	(0.2)
20. Union referrals	.0095	.035	(0.6)	-.0126	-.040	(0.4)	-.0003	-.001	(0.0)

* Dependent variable = Percent Hispanic in the Job; Independent variables = one job recruitment method, Percent male in the job, and eith Percent with no college in the job or Percent with college degree in the job.

TABLE 22

Percent of Workers Who Used Friends or Relatives to Find Their Job, by Sector and Worker's Race, Sex and Educational Attainment (Sample size shown in parentheses)

	Private Sector		Public Sector	
	Blacks	Whites	Blacks	Whites
Males				
High School	.49 (226)	.55 (304)	.49 (69)	.41 (32)
Some College	.44 (147)	.47 (242)	.24 (63)	.41 (61)
College Degree	.33 (67)	.38 (188)	.48 (25)	.34 (55)
Females				
High School	.44 (242)	.45 (350)	.41 (104)	.35 (51)
Some College	.33 (164)	.33 (248)	.37 (83)	.35 (49)
College Degree	.27 (88)	.30 (173)	.36 (63)	.28 (99)

TABLE 23

Job Race Compoeition and Wage Rate for Black High School Graduates, By Use of Segregated and Desegregated Social Networks; Private Sector, Males and Females

	Use Friends (1)	High School Race Comp. (2)	Interpretation of (1) and (2) (3)	Percent White of Job (4)	Percent White of Firm (5)	Hourly Wage Now (6)	Hourly Wage Earlier (7)
Black Male, High School Graduates, Private Sector							
1.	NO	SEG	Not Use Black Friends	.534 (91)	.636 (84)	6.66 (91)	4.67 (100)
2.	NO	DESEG	Not Use White Friends	.504 (46)	.622 (43)	6.42 (46)	4.78 (49)
3.	YES	SEG	Use Black Friends	.488 (34)	.514 (32)	6.03 (35)	4.89 (36)
4.	YES	DESEG	Use White Friends	.547 (25)	.697 (26)	7.73 (23)	5.12 (31)
Black Female, High School Graduates, Private Sector							
5.	NO	SEG	Not Use Black Friends	.470 (87)	.549 (77)	5.08 (92)	3.79 (79)
6.	NO	DESEG	Not Use White Friends	.507 (53)	.580 (48)	4.81 (58)	3.62 (56)
7.	YES	SEG	Use Black Friends	.440 (41)	.530 (38)	5.42 (43)	3.38 (44)
8.	YES	DESEG	Use White Friends	.580 (17)	.688 (15)	4.82 (18)	3.32 (18)

How Race Affects Job Placement Decisions: Results Of A Vignette Experiment With A National Sample Of Employers

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Abstract

This study examines the effect of job candidates' race on employers' job placement decisions. Analyses are based on data gathered through the randomized vignette technique as part of the Johns Hopkins University Survey of American Employers. The results suggest that, net of controls for educational credentials, recommendations, age, high school quality, employment sector, firm size and region, white personnel officers tend to assign black male high school graduates to lower paying positions than those assigned to white male high school graduates. Similar patterns are observed for black female college graduates. These patterns of apparent bias in job placement are found to be offset to some degree in firms with strong affirmative action policies. The findings are discussed in the context of Thurow's (1975) theory of statistical discrimination.

The often hotly debated question of whether blacks continue to be victims of labor market discrimination is important for several reasons. First, major differences in black-white unemployment and average earnings persist despite a dramatic closing of the racial gap in educational attainment over the last quarter-century. Darity and Myers (1980) point out that young white high school dropouts have lower unemployment rates (16.7 percent) than black youth with some college training (21.4 percent) and about the same unemployment rate as blacks who have completed college (16.5 percent). Using the Census Bureau's Current Population Surveys from 1968 to 1978, Darity and Myers also show that annual relative earnings for black males in the 16-24 and 25-34 age groups have actually fallen since 1968.

Second, affirmative action practices and youth job training programs ostensibly aimed at providing equal employment opportunities are now being questioned as appropriate public policy. Some officials argue that the "intent" to discriminate must be proven in each specific instance before any considerations for minority hiring be extended.

Third, in the realm of public opinion, black perceptions and white perceptions of equal employment opportunities for blacks in America differ sharply. For example, in 1978, 73 percent of whites responding to a Gallup poll thought blacks had as good a chance as whites of obtaining any job in their community for which they were qualified while only 38 percent of black respondents concurred.

Thus, a better social science understanding of persisting occupational inequities, more informed public policy debates, and

more enlightened public opinion requires additional research on the ways in which minorities may face special barriers or may encounter different processes than white males in finding career opportunities. Similar research is needed concerning the problems of women.

Most research on the concept of "discrimination" has been indirect, non-specific and static (McPartland and Crain, 1980). Studies estimating the extent to which discriminatory factors create major gaps between the attainments of blacks and whites have typically measured discrimination indirectly, as the residual gap between the occupational success of blacks and whites after individual differences in job credentials or competencies and labor market locations have been statistically controlled (See, for example, Siegel, 1965; Duncan, 1969; Ashenfelter, 1972; Griliches and Mason, 1972; Jencks et al., 1972; Weiss and Williamson, 1972; Welch, 1973; Porter, 1974; Masters, 1975; Wright, 1978; Braddock, 1980). Thus these studies estimate the impact of discrimination without directly measuring the forms that discrimination may take, and we do not learn about the specific barriers that minorities may face.

This study investigates racial discrimination in job placement by examining survey responses of a national sample of personnel officers or other executives responsible for hiring decisions when they are dealing with job candidates who differ by race and sex. Three broad employment equity-related questions are addressed: Does a job candidate's race influence employers' job placement decisions?

Do human capital and labor market variables influence occupational outcomes differently for blacks and whites? What role does affirmative action play in reducing racial inequities in labor market outcomes?

Survey Sample and Survey Procedures

Our sample of firms was obtained from data provided by employees who had at least a high school diploma and were in their mid-twenties. In 1972, 20,000 high school seniors in a nationally representative sample of public and private secondary schools were surveyed. This survey, called the National Longitudinal Study of the High School Class of 1972 (NLS-72), repeatedly resurveyed these same students after graduation to develop a longitudinal portrait of their post-high school careers. Our Johns Hopkins University Survey of American Employers (SAE) constructed a sample of firms by selecting all black and Hispanic NLS-72 respondents and a sample of the remaining respondents and recording the type of jobs they held and the names o their employers in the third follow-up survey (in 1976, four years after they finished high school) and the fourth follow-up survey (in 1979, seven years after high school). The survey sample is thus a group of firms which employed a national sample of American 22-year-old high school graduates in 1976 and 25-year-old high school or college graduates in 1979. The employers range in size from the very largest corporations to a variety of small businesses.

Each employer was contacted by telephone to obtain the name of the person who would be typically responsible for hiring employees

holding positions like those held by the respondents of the National Longitudinal Study. The employer was not told that an employee of the firm had been surveyed. If the NLS respondent was employed in a branch office of a national or international firm, that branch office was contacted, so for most large corporations a variety of different personnel officers in different locations around the United States were surveyed. In cases where the employer was a service station, grocery store, or other very small business, it was often the owner who made employing decisions.

The person responsible for employment was surveyed with a mailed questionnaire in the summer of 1983 that asked a variety of questions about how the firm went about recruiting and employing personnel, including questions about a hypothetical hiring situation presented in a vignette. The original sample consisted of 5493 employers. Of these, 1912 (34%) returned their mail questionnaires. The present study is limited to analyses of a subsample of nonminority-owned firms (n=1101) who completed the vignette portion of the mailed questionnaire and who provided sufficient usable information on the demography of their workforce. (An additional 41% cases from the original sample were interviewed by telephone or completed a shorter mailed questionnaire after failing to complete the questionnaire initially sent to them. Those respondents are not included in this analysis, because the vignette items of particular interest to us were omitted from the shorter mail questionnaire and the telephone survey).

Our analyses compare how personnel officers in nonminority-owned

firms react to black and white high school graduates and how they react to black and white college graduates. However, no single respondent was asked to directly compare black and white college graduate applicants or black and white high school graduate applicants. Instead, job placement information was gathered through a technique called the randomized vignette questionnaire (Nosanchuk, 1972, Rossi et al., 1974, Alexander and Becker, 1978; Cook, 1979).

The mail questionnaire primarily asked questions about the ways in which employers recruit and hire employees for a particular "sample job;" namely the position held by the (NLS) respondent who had worked for this firm. Later in the questionnaire, we switched to a different series of questions, which comprise the vignette, as follows:

A TYPICAL HIRING EXPERIENCE

> Earlier, we asked about one particular sample job which may not be a typical job in your organization. In this section, we would like to ask you about a job position of your own choosing. Consider the following person, who has just been hired by your organization:
>
> Mr. William Foster was a walk-in applicant. He is a high school graduate who attended an inner-city high school. He is 27-years old and white. Now please suggest a typical position in which this person might be employed and answer the following questions about how he was hired for this position.

The client was then asked for 21 brief responses about the kind of position this person might hold and what the process to hire him might have entailed.

In fact, this hiring scenario is one of 40 different scenarios.

Other respondents were offered a different description of Mr. William Foster (or a Ms. Mary Foster). Vignettes varied along six dimensions:

SEX: female (0) vs. male (1);

RACE: black (0) vs. white (1);

SOURCE: walk-in (0) vs. someone recommended by another employee (1);

EDUCATIONAL LEVEL: high school (0) vs. college (1);

and for high school graduates only

AGE: 19-years (0) vs. 27-years old (1);

QUALITY OF HIGH SCHOOL: an "inner-city high school" (0) vs. a "suburban school with a good reputation" (1).

Figure 1 shows the 40 possible vignettes generated by this design.

Figure 1 about here

Because the vignettes were randomly assigned to employers, the employers who received any one version of the vignette are no different (except for random errors of sampling) from those who received any other version. None of the respondents were aware that their responses would be compared to other employers who received a different vignette, so there is no reason to believe that they would be sensitive to the issue of racial discrimination in job placement.

On its face, the questionnaire was not about equity issues but about how firms make personnel decisions in general.

In this report we rank occupations in two ways. We use the conventional Socioeconomic Index (SEI), but are aware that this scale assigns much higher rankings to women's occupations than to men's occupations, despite the fact that women's earnings are generally much less then men's. Following a convention used by some others, we call this "prestige." We also use a second and more appropriate two-facet ranking based simply on the average annual wages of all employees in the nation who hold that particular occupation. One facet of the ranking is based on the wages of male occupants of these jobs, the other based on women's wages. We call this ranking simply "status." The status measure seems to show clearer and more easily interpreted effects than does the prestige index.

Status estimates were derived for each occupation assigned to vignette job candidates based on 1980 U.S. Census statistics reflecting average annual earnings of all male or female workers in detailed census job categories. Prestige scores for each occupation were assigned using a socioeconomic index (SEI), a scale from 0 to 100 based upon the mean income and the mean educational attainment of persons holding these positions. Each occupation assigned by employers was also coded to reflect its racial (percent black) and gender (percent female) composition, also based on 1980 U. S. Census national statistics.

In addition, several firm level variables obtained in other parts of the questionnaire were included as controls in this analysis: Firms were catagorized on the relative size of their workforce, sector (public or private), and region (South or North). A firm's commitment to affirmative action was measured with a summated index based on personnel officers responses to three Likert-type items reflecting their company's equal employment policies: "We believe that employers in this city have a social responsibility to make strong efforts to provide employment to blacks and other minority groups"; "We have tried to go out of our way to hire black and other minority groups whenever possible"; and "We refer to a written Affirmative Action Plan to guide the recruitment and hiring of minority group workers at this place of work."

Table 1 shows the characteristics -- status, prestige, racial and gender composition -- of occupations assigned by employers according to the type of vignette they received -- whether the vignette described a white or black male or female and whether the person was a college graduate or a high school graduate.

Table 1 about here

Do Employers Assign Blacks to Less Rewarding Jobs?

Table 2 presents the results of regression analysis examining the effect of the vignette job candidate's race on job status and job prestige separately for male and female high school and college

graduates. The upper panel of Table 2 shows that among high school graduates, race is a significant determinant of male job status (b=.12). Female job status (b=-.03) and job prestige among both sexes (b=.02 and b=-.08 for males and females respectively) are not statistically significant differences by race among high school graduates.

Table 2 about here

For high school males, the jobs assigned to black vignette employees pay a lower median annual wage than jobs assigned to white vignette employees. This statistically significant net $1009 difference in status associated with differential job assignment by employers holds even after taking into account the impact of other important correlates of earnings including age, high school reputation, internal employee recommendations, employment sector, firm size and region. In fact, the only factors in our model for high school males more strongly correlated with status than race (b=.12) are age (b=.18) and firm size (b=.14): older male high school graduat.s are assigned to jobs paving about $1501 more in wages than jobs assigned to 19-year-old high school males and high school males in small firms are assigned to jobs earning about $304 more than their counterparts in large firms. These findings are consistent with our expectations. We would expect to find a higher job status return among older workers who are likely to have more labor market experience and possess greater stability and maturity

in work habits and attitudes. In regard to firm size, it is reasonable to expect that larger firms simply have a greater number of openings at the bottom in lower status jobs usually open to male high school graduates.

We also find for high school graduates that, for job prestige, firm size is negatively significant for males; and firm sector and high school location are positively significant factors for females. Suburban female high school graduates and female high school graduates in public sector firms are assigned higher prestige jobs. These findings seem reasonable: we might expect that suburban female high school graduates might be viewed by employers as potentially more skilled and better trained job applicants than their inner-city counterparts, and a higher proportion of white collar jobs are located in the public sector.

The lower panel of Table 2 shows that among college graduates, race is found to be a significant determinant of female job status (b=.14). Among college females, the jobs assigned to black vignette employees pay less in median annual wages than the jobs assigned to white vignette employees. This net $786 difference is statistically significant and holds even after controlling for the effect of internal employee recommendations, employment sector, firm size and region. The net effect of race on college female income is exceeded only by the effect of firm size (b=.26): female college graduates in larger firms earn roughly $375 more than their counterparts in smaller firms.

We find that race does not appear to be a major factor in determining the race or gender type of job assignment except among female college graduates, for whom race of the hypothetical vignette candidate was a significant factor when considering race-typing in job assignment (b=-.16). As shown in the first column of the bottom panel of Table 3, employers place black females in jobs which on the average have a higher concentration of black incumbents than the jobs in which white females are placed. Among college males this relationship is trivial and nonsignificant.

Race has no direct effect on gender-typing in job placement of either male (b=.03) or female (b=-.01) college graduates. Moreover, no other factors (internal employee recommendations, employment sector, firm size, region) are significantly related to the gender composition of jobs assigned to college graduates. In fact, the entire set of variables accounts only for a small amount (2 percent) of the variance in percent female of jobs assigned to either college males or females.

Among both male and female high school graduates, race is unrelated to either the percent black or the percent female of the jobs to which the hypothetical vignette candidates were assigned by this national sample of employers.

In contrast, firm characteristics do appear to significantly influence race- and gender-typing of job assignment. Both high school and college males and females employed in the private sector are likely to be assigned to jobs with fewer blacks than are public sector empolyees. High school females and males in large firms are

Male job status (b=-.07) and job prestige among both sexes (b=-.05 and b=.11 for males and females respectively) are not statistically significant race differences among college graduates.

We also find that college males who are recommended by current employees are assigned to jobs averaging five and two-thirds points higher in prestige than their counterparts without recommendations. Such internal employee recommendations only seem to matter at the top -- for college jobs. For high school jobs, employers may perceive such recommendations as attempts to help an unemployed relative or friend find work, whereas for college trained jobs recommendations may be viewed as reasonably valid indicators of an applicant's ability to effectively perform the job. We also note in the bottom right panel that male college jobs in the South carry higher prestige. This rather suprising finding may reflect macro-level shifts of high-tech industries and financial centers to the South, leaving the North with declining blue-collar industries.

Do Employers Assign Whites and Blacks to Different Jobs?

Table 3 presents the results of our regression analysis examining race-typing and gender-typing of job assignments in the vignette experiment. The general question is whether minorities or women are steered toward same-race or same-sex occupations.

Table 3 about here

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more likely to be assigned to jobs with higher proportions of blacks than are their counterparts in small firms. In general, these relationships between the structural characteristics of firms and firm racial demography are consistent with existing theoretical and empirical literature noting higher demographic concentrations of black workers in the public sector than in the private sector and in larger firms than in smaller firms. These patterns are typically attributed to factors such as more egalitarian and formalized employment practices in the public sector and greater interest and responsiveness to equity concerns among public sector employers. A similar rationale exists in regard to firm size: larger firms are characterized by more formalized, if not centralized, employment practices and perhaps greater discretionary resources to commit to equal employment programs (Szafaran, 1982; Braddock, 1984)

Suburban high school males are somewhat more likely to be assigned jobs with higher female representation than inner-city high school males. This may reflect the fact that suburban male graduates are more likely to be placed in office rather than factory jobs. This interpretation is consistent with the data in Table 2 showing that male suburban high school graduates are assigned to jobs roughly three and two-thirds points higher in prestige than are male inner-city high school graduates.

Considering the findings in Tables 2 and 3 jointly, it might be argued that black female college graduates in this experiment earn less than white female college graduates, in part, because employers seem to steer them into racially isolated -- traditionally black --

occupations. Racial steering, however, does not explain why black male high school graduates are assigned to jobs which pay less in median wages than jobs assigned to white male high school graduates. We can only speculate that other unmeasured factors -- such as negative racial stereotypes (statistical discrimination) -- may operate more strongly to the disadvantage of black male high school graduates. We will discuss the issue of statistical discrimination in greater detail later in the paper.

- Do Personal Credentials and Employer Characteristics Operate Differently for Blacks and Whites?

If race serves as a negative or "aversive signal" to employers or if personnel officials exercise a "taste for discrimination" in the hiring process, as the preceeding analyses suggest in some instances, it may be beneficial for black applicants to provide extra information about themselves -- good references, school credentials or previous experience -- to employers in order to receive equal consideration for good jobs. We expect that extra sources of information provided by the applicant may be more important for blacks than for whites. For example, additional information about the applicant's age, the reputation of the applicant's school or whether the applicant is known and recommended by a current employee of the firm may counterbalance negative racial stereotypes. Knowledge that an applicant is 27-years old instead of 19-years old may suggest to an employer that the older job candidate may have more labor market experience or that the older candidate possesses greater maturity and stability, either of which could

influence productivity. Similarly, a job candidate recommended by a current employee is likely to be considered a better risk than a candidate for whom work or character evaluations are unknown. And knowledge that the job candidate graduated from a suburban school with a good reputation rather than an inner-city school is likely to signal to employers that the quality of education was better in the suburban school, and for blacks it may also suggest to employers that the job candidates are likely to be more experienced in functioning in interracial situations. We expect that such specific information to broaden the basis of employer evaluations will typically be more beneficial to blacks than whites. In this section we test this hypothesis by assessing the influence of three types of information on job placement decisions.

Tables 4 and 5 show the relative effect of personal credentials and employer characteristics on job placement outcomes for blacks and whites, separately for females (Table 4) and males (Table 5).

Table 4 about here

Considering females first, we see in Table 4 that the entire set of variables accounts for only a small fraction of the variance in job status among black and white high school females (5 percent and 2 percent). Among black high school females, age is the only statistically significant factor, with 27-year-olds being assigned to jobs paying an average of $623 more in annual income than jobs

assigned to their 19-year-old counterparts. Among white high school females, however, neither personal credentials nor employer characteristics contribute significantly to job status determination. From a human capital perspective, this finding suggests that employers may attribute to older black females either greater stability/maturity or more extensive labor force experience, which they value and reward with higher status jobs. Such a view appears consistent with traditional patterns of higher labor force participation rates among black women than among white women.

Among college graduates, the model accounts for three times more of the variance in white female job status (Multiple R2 = .19) than in black female job status (Multiple R2 = .06). Firm size influences white college female job status, with larger firms paying roughly $508 more than smaller firms. The corresponding large firm income advantage to black female college graduates is only $172, however.

For job prestige, employment sector is the only important factor among white female high school graduates; public sector employees hold jobs roughly eight and one-half prestige points higher than private sector employees. This difference is nearly twice as great as that among black females. And, among black female high school graduates, firm size is the strongest determinant of job prestige in our model; black high school females in larger firms hold positions roughly one and one-half points lower in prestige than jobs held by their counterparts in smaller firms. Neither of the individual predictors contributes significantly to job prestige for either

blacks or whites among college females.

For job racial composition, the model has stronger explanatory power for black females (Multiple R2 = .21 and .09 for high school and college graduates respectively) than for white females (Multiple R2 = .03 for both high schoool and college graduates). Among black female high school graduates, younger women and those who attended inner-city schools, worked in the public sector, or worked for large firms are more likely to be assigned to jobs with higher concentrations of other black incumbents. Among white female high school graduates, the only significant predictor of assignment to jobs with higher proportions of black workers is public sector employment. Similarly, public sector employment is the major determinant of black female college graduates' assignment to jobs with high black representation.

For job gender composition, firm size is the only significant correlate of the sexual makeup of the jobs assigned to women: white female college graduates in large firms are less likely than their counterparts in small firms to be assigned to jobs with higher concentrations of other females. Considering the overall pattern of results for female college graduates it might be argued that the wage advantage held by white women is, in part, a consequence of large firms assigning them to less traditionally female jobs than those assigned to black women.

Table 5 about here

Table 5 shows that our model is better in accounting for job status among white males (Multiple R2 = .10 and .07 for high school and college graduates, respectively) than among black males (Multiple R2 = .03 for both high school and college graduates). Among white high school males, age and firm size are the major explanatory variables; older white males and those employed in smaller firms are assigned to higher paying jobs. Here the race differences are rather striking. Employers assign 27-year-old white male high school graduates jobs paying roughly $2000 more in annual wages than the jobs that are assigned to 19-year-old white male high school graduates. In contrast, similarly qualified 27-year-old black male high school graduates are assigned to jobs paying only about $800 more in annual wages than jobs assigned to their 19-year-old counterparts. This pattern contrasts with that observed among high school females (Table 4) where age was more highly rewarded among blacks than among whites. Apparently, employers assume that older black high school males are less likely than white high school males to have accumulated highly valued labor market experience -- an assumption that could be based on traditionally higher unemployment rates among young black males than among young white males at all educational levels. Nevertheless, negative attributions based on either perceived or actual subgroup norms can form the basis for statistical discrimination in employment decisions and lead to potentially unfair treatment in job placement.

We also find that white male high school graduates in smaller firms earn roughly $500 more than their white male counterparts in larger firms, while black male high school graduates in larger

versus smaller firms earn about $125 more. This racial differential in returns to age and employment in large firms may, in part, explain why on the average black male high school graduates are placed in lower paying jobs than their white counterparts.

For job prestige among male high school graduates, school reputation is the major predictor for blacks; among whites, employment sector and firm size are the most significant factors. Black male graduates of suburban high shcools are assigned jobs averaging nearly six and one-half prestige points (B=6.45) higher than those of black male graduates of inner city schools. However, the corresponding suburban advantage to white male high school graduates is just one and one-quarter points (B=1.27). Moreover, white male high school graduates in public sector jobs are assigned to positions which average nearly seven and one-half points (B=-7.45) higher than jobs assigned to their white male counterparts in the private sector. In contrast, the employment sector difference for black male high school graduates, is nonsignificant and much smaller, favoring private sector workers by only about one-half point (B=.58) on the prestige scale. White male high school graduates also receive a one and one-half point (B=-1.47) prestige advantage from employment in small firms, while the corresponding advantage to black high school males in small firms is nonsignificant -- roughly one-half point.

For job racial composition, the only significant predictors of occupational integration are firm size among white male high school graduates and employment sector among black male college graduates.

White male high school graduates in large firms are more likely to be assigned to jobs held by more blacks in the nation than are white male high school graduates in small firms. Black male college graduates employed in the public sector are likely to be placed in jobs more often held by blacks than their black male counterparts located in private sector jobs.

For job gender composition, the right panel of Table 5 shows that none of the variables exert a significant influence for either black or white male high school or college graduates.

Do Employer Affirmative Policies Counterbalance The Impact of Race on Labor Market Outcomes?

The analyses presented above show that racial considerations play a part in channeling black high school males and black college females into lower paying and (in the case of black college females) racially segregated occupations. We now examine how employers' affirmative action policies might mediate the impact of race on labor market outcomes.

Table 6 presents the results of regression analyses estimating the impact of a stronger commitment to affirmative action (race equity) on job status, job prestige, job racial composition and job gender composition by sex and education level. The results are direct or net effects of stronger employer commitment to affirmative action on labor market outcomes, controlling for the job candidate's age, school reputation, internal employee recommendations, public v. private sector employment, region and firm size. Unstandardized

(metric) regression coefficients are presented to facilitate comparisons across race groups.

Table 6 about here

These results suggest that a stronger commitment by employers to affirmative action accounts for a modest but significant increment ($206) in the annual wage status of jobs assigned to black male high school graduates. A similar pattern is also observed for job prestige. Stronger employer commitment to affirmative action results in a one prestige point increment for black male high school graduates. Although the effect of strong affirmative action policies on job status and job prestige is positive for the other groups its effect is statistically significantly among black male high school graduates only. These results suggest that strong employer affirmative action policies may serve to offset some of the negative impact of race on wages for black male high school graduates who, as the data in Table 2 suggest, appear to be most adversely affected by employer discrimination in job placement.

These findings further suggest that while affirmative action policies may help ameolierate racial inequities by promoting the placement of blacks in jobs with higher pay and prestige levels, it is not a zero-sum game. White workers also receive higher, though not statistically significant, pay and prestige increments as a result of strong employer commitment to affirmative action.

Regarding the race and gender composition of job placement, it appears that employers with strong affirmative action policies are more likely to assign white female college graduates to more gender balanced (e.g., less female dominated) jobs than are employers without such policies. A strikingly similar pattern also operates for black female college graduates, although this difference is significant at a lower statistical level ($p<.10$).

Discussion

The vignette experiment it is not a study of the actual employment of real people. It is an experiment that assesses the predispositions and behavioral orientations of one central figure involved in the employment process -- the personnel officer responsible for hiring. Our analyses are limited to white personnel officers working in firms whose employees are mostly white.

When a personnel officer is presented with a vignette describing a particular candidate, told that his firm has employed that person, and asked what sort of position that person is likely to be hired in, we can interpret his or her response in either of two ways. It can be viewed as his/her perception of what the firm is likely to have done. If most of the black male high school graduates employed had been hired for semi-skilled positions and most white applicants hired for skilled positions, his/her decision to assign a low status occupation if presented with a black vingette and a higher status position if presented a white vingette is probably an objective reporting of the likely reality. Let us call this the perceptual interpretation. Alternately we can view the response as indicating

a snap personal judgment, an "affective response." If, confronted with the words black male high school graduate, the respondent instinctively thinks "semi-skilled" then we have identified a stereotyped emotional response.

If we view the assignment of low status positions to blacks by the respondent as a perceptual response, an objective reporting of the experience of a firm, we do not know whether it is a report of occupational discrimination on the part of the firm or a report of the results of a fair hiring system which tends to place less-qualified blacks into lower status positions. There may or may not be discrimination present. If we view the assignment of blacks to low status positions in the questionaire as an affective response, then this must be viewed as a prejudiced act. If the personnel officer instinctively stereotypes black candidates as suitable only for low status positions, this is likely to lead to the creation of a process of occupational discrimination in the firm because the personnel officer is one of the important actors in the hiring and job placement process. Whether this reflects a personal distaste for blacks ("old fashioned prejudice") or what Thurow (1975) called "statistical discrimination" -- using the color of the respondent as a source of information based on actual or putative correlations between race and job-related skills and attitudes -- makes no difference to the individual who is being responded to only as a member of a racial minority group.

We believe the questionnaire triggered an affective response more than a perceptual response. In fact, it is highly unlikely that the

firms have been routinely placing black male college graduates into higher status positions than white male college graduates. Thus the (nonsignificant) reverse discrimination pattern observed for black male college graduates is probably wishful thinking -- a desire to put blacks into higher positions because this will be a "good thing to do". Or, it may reflect an objective response to prevailing market forces -- black male college graduates are in short supply relative to white male college graduates thus the small numbers in the pool are able to command premium wages, at least at the point of job entry. But it that response is affective rather than perceptual, then should we not assume that the other responses to the questionnaire are also affective? Future analyses can test this by looking at personal characteristics of the respondents to see if they are associated in predictable ways with the amount of discrimination revealed.

The clearest case of occupational discrimination revealed here is among 27-year-old male high school graduates. Table 2 shows white males being assigned higher status jobs -- occupations which typically pay $1,009 more in annual salary. Combining data in Table 2 with Table 5, which shows the effect of age on black and white status separately, we find that the mean difference in status for a 19-year-old high school graduate is about $383 while the difference for 27-year-olds is $1,634. Because the design is randomized, these numbers are very close to those shown in Table 1, which gives simple differences, without controls, of $330 and $1,651. Table 1 also shows that the standard deviation of the status of 27-year-old white males is much higher than for black males: $5486 versus $2807.

Apparently there are a number of cases where employers, confronted with a 27-year-old white male applicant, assumed that the candidate would have been hired for a very high status skilled position.

Evidence of race discrimination does not appear when we use the Socioeconomic Index of job prestige. Table 2 shows white males being assigned to positions a non-significant three-quarters of a point higher in SEI than black male high school graduates. Table 5 shows that the SEI gap is actually smaller for 27-year-olds than for younger blacks. Table 5 also shows little indication that employers are affected by the other information provided. Being recommended by another employee of the firm benefits whites more than blacks. Interestingly enough, the data suggest (although the differences are not significant) that blacks fare better in the South than in the North. The status gap for all high school graduates is $899 greater in the North than it is in the South. School desegregation -- attending suburban desegregated schools -- is helpful to black males; graduates of suburban schools have positions that are significantly higher in prestige. Table 5 also shows that black male graduates of suburban schools are placed in jobs which have more female occupants, suggesting that desegregated schooling encourages the employer to find an office position rather than a position in the plant for the candidate. Suburban high school attendance shows an opposite effect for white males; white male suburban high school graduates (Table 5) receive $346 less than white inner-city high school graduates. Although this difference is not statistically significant it implies that employers may have "reservations" about the qualifications or character of white

suburban males who possess only high school credentials when their group norms suggest high rates of college attendance.

The fact that 19-year-old black candidates receive positions whose status is only $383 lower than that given to white 19-year-olds is not necessarily an indication that there is no discrimination at this level. It may be that black salaries are no lower than they are simply because white 19-year-olds are offered the worse jobs in the firm, and blacks cannot be given even lower jobs.

However, the critical issue for 19-year-olds is the decision to hire, more than the type of position in which they are placed after hiring. Given the very high unemployment rate of black teenagers, especially males, it may well be that the major source of occupational discrimination in this age group is simply the refusal to hire blacks. Given the wording of the questionaire, we cannot determine how likely it is that the personnel officer would have viewed the black high school graduate applicant as unemployable and hired the 19-year-old white applicant instead.

It seems reasonable that the greatest amount of discrimination in job placement should occur with older high school graduates. The high status positions for male high school graduates are in the skilled trades, positions which have traditionally not been open to blacks. Firms need skilled reliable workers in these positions, for they represent the backbone of the production staff. They also represent positions where there is often a great deal of on-the-job training invested in each candidate. Here the fear that older black

high school males may be unstable or unreliable employees potentially encourages statistical discrimination on the part of white employers.

In contrast, there seems to be very little discrimination against black female hig school graduates. Table 1 shows black 19-year-olds being assigned positions whose status is $338 lower than that of whites but black 27-year-olds being given positions $443 higher. Neither difference is significant. (Table 2 and 4 can be used to estimate the status differences net of other factors at $358 and $456.) Because neither difference in status is significant, the correct interpretation is that there is no evidence of discrimination for or against black women high school graduates. However, Table 4 shows a significant impact of age on job status for black women and no age effect at all for white women. Age is more important for black women because references from previous employers are considered more valuable for black high school graduate women than for whites (Crain, 1984, Table 3). Thus having a history of work is more valuable for black women than for white women. Employers may be accustomed to hiring white women who have no labor force experience because of childrearing. This may explain why empoloyers do not assign a higher status position to older white candidates; they may assume that they have no more experience and are no more likely to remain with the firm than are their 19-year-old counterparts.

Why should there be no discrimination in the hiring of black women high school graduates while there is considerable

discrimination in the hiring of black men high school graduates? One reason is that some of the problems white employers associate with blacks are male problems -- problems of criminal behavior or aggression, for example. A second reason is that employers may feel that the hiring of women can be done more objectively (with typing tests, for example), so that the interviewer has less need to rely on statistical discrimination. They may also assume that white and black women can work together more comfortably than can white and black men. Finally, it may be that sex segregation in occupations and sexist attitudes in the firm may lead personnel officers to place less value in the hiring decisions of women. Typists are interchangeable parts, supposedly requiring little investment in training and having high turnover. All these explanations are only speculative and require more research.

Although the race effects for male college graduates observed in Table 2 are not statistically significant, trends in the data demonstrate what appears to be reverse discrimination in this case: black male college graduates are offered higher level positions. Male college graduates are a seemingly reasonable place for reverse discrimination to appear; if firm is anxious for its affirmative action to succeed, it should be looking for candidates to fill visible and high-status postions, and these are typically held by male college graduates. And as already noted, black male college graduates are in short supply. We should stress that the evidence in this report may indicate a predisposition to discriminate for or against blacks, it cannot be taken as firm evidence that employers practice either discrimination or reverse dicrimination. And in any

case, we must stress that this study has not observed any statistically significant finding of reverse discrimination, although statistically significant indications of potential direct discrimination against black male high school graduates and black female college graduates have been noted.

The final and most provocative finding is evidence of a propensity to discriminate against black women college graduates. The data show black women college graduates having lower status positions, with average salaries $700-800 lower than white women college graduates. Their positions also have higher concentrations of black incumbents: black women college graduates are assigned to low paying jobs which have traditionally been held by blacks. Black and white women compete, both qualifying for minority status. Despite the two-for-one argument so often associated with opportunities for black women, an employer presented with a white woman may see this as an opportunity to move a minority (woman) candidate into a low- or middle-management position previously held by a white male; he has no additional incentive to bring a black woman into that position, so there is nothing to offset any resistance to doing so. White personnel officers may practice statistical discrimination, feeling the black female college graduate to be less talented than a white; or they may worry that breaking down barriers by bringing women into traditionally male positions may be more difficult if there is a race as well as a sex barrier to overcome; or they may be under greater pressure from white female interest groups than black interest groups. The problem may be more serious in large organizations; the strong

relationship between firm size and the status of white women college graduates (the Beta is .38 in Table 4) suggests that large organizations are agressively searching for white women to fill higher-status positions. The correlation is much lower for black women, suggesting that large employers are a major source of what seems to be occupational discrimination. There is also a slight tendency for the problem to be more serious in the South, although the data are not significant; Table 4 indicates that the status of white women college graduates is lower in the North, and that this is less true for blacks, so that the racial gap is smaller in the North. (Table 5 shows a similar pattern for males, so that reverse discrimination among male college graduates may be greater in the North; again, the data are not significant.)

It is widely assumed that black women have an advantage in the labor market compared to black men. This may be true only for high school graduates, however. The data here indicate that in the eyes of personnel officers, the advantages among college graduates go to white women and to a positive but nonsignificant degree to black men.

References

Alexander, C. and H. Becker "The use of vignettes in survey research." Public Opinion Quarterly 42: 93-104, 1978.

Ashenfelter, O. "Racial discrimilnation and trade unions." Journal of Political Economy 80: 462-463, 1972.

Braddock, Jomills H. II. Institutional Discrimination: A Study of Managerial Recruitment in Professional Football. National Footbal League Players Association, Washington, DC, 1980.

Cain, Glen C. "The economics of discrimination: Part I" Focus 7(2): 1-11, Institute for Research on Povert , University of Wisconsin, 1984.

Cain, Glen C. "The economics of discrimination: Part I" Focus 7(3): 11-17, Institute for Research on Poverty, University of Wisconsin, 1984.

Cook, Fay L. Who Should Be Helped ? Beverly Hills, CA: Sage, 1979.

Crain, Robert L. "The quality of American high school graduates: What personnel officers say and do about it." Report No. 354, Center for Social Organization of Schools, Johns Hopkins University, 1984.

Darity, W. and S. Meyers. "Changes in black-white income inequality, 1968-1978: Adecade of progress?" Review of Black Political Economy 10:358, 1980.

Duncan, O. D. "Inheritance of poverty or inheritance of race?" On Understanding Poverty. New York: Basic Books. 85-110, 1969.

Griliches, A. and W. M. Mason. Education, income and ability. Pp. 285-316 in A. S. Goldberger and O. D. Duncan (eds.) Structural Equations Models in the Social Sciences. New York: Seminar Press, 1973.

Jencks, C., M. Smith, H. Aeland, M. Bone, D. Cohen, H. Gintis, B. Heyns and S. Michelson. Inequality. New York: Basic

Books, 1972.

McPartland, J. and R. Crain. Racial discrimination, segregation and processes of social mobility. Pp. 97-125 in V. Covello (ed.) Poverty and Public Policy. Boston: G. K. Hall, 1980.

Masters, S. H. Black-White Income Differentials. New York: Academic Press, 1975.

Nosanchuk, Terry A. The vignette as an experimental approach to the study of social status. Social Science Research 1: 107-120, 1972.

Porter, J. N. Race, socialization and mobility in educational and early occupational attainment. American Sociological Review 39: 303-316, 1974.

Siegel, P. On the cost of being a Negro. Pp. 727-743 in E. Laumann, P. Siegel and R. Hodge (eds.), The Logic of Social Hierarchies. Chicago: Markham, 1965.

Szafran, Robert F. What kinds of firms hire and promote women and blacks? A review of the literature. Sociological Quarterly 2[illegible]: 171-190, 1982.

Thurow, Lester C. Generating Inequality. New York: Basic Books, 1975.

Weiss, L. and J. G. Williamson. Black education, earnings and interregional migration. American Economic Review. 62: 372-383, 1972.

Welch, Finis. Black-white differences in returns to schooling. American Economic Review 63: 893-907, 1973.

Wright, Erik O. Race, class and income inequality. American Journal of Sociology 83: 1368-97, 1978.

Figure 1: The 40 Vignettes in the Employer Questionnaire

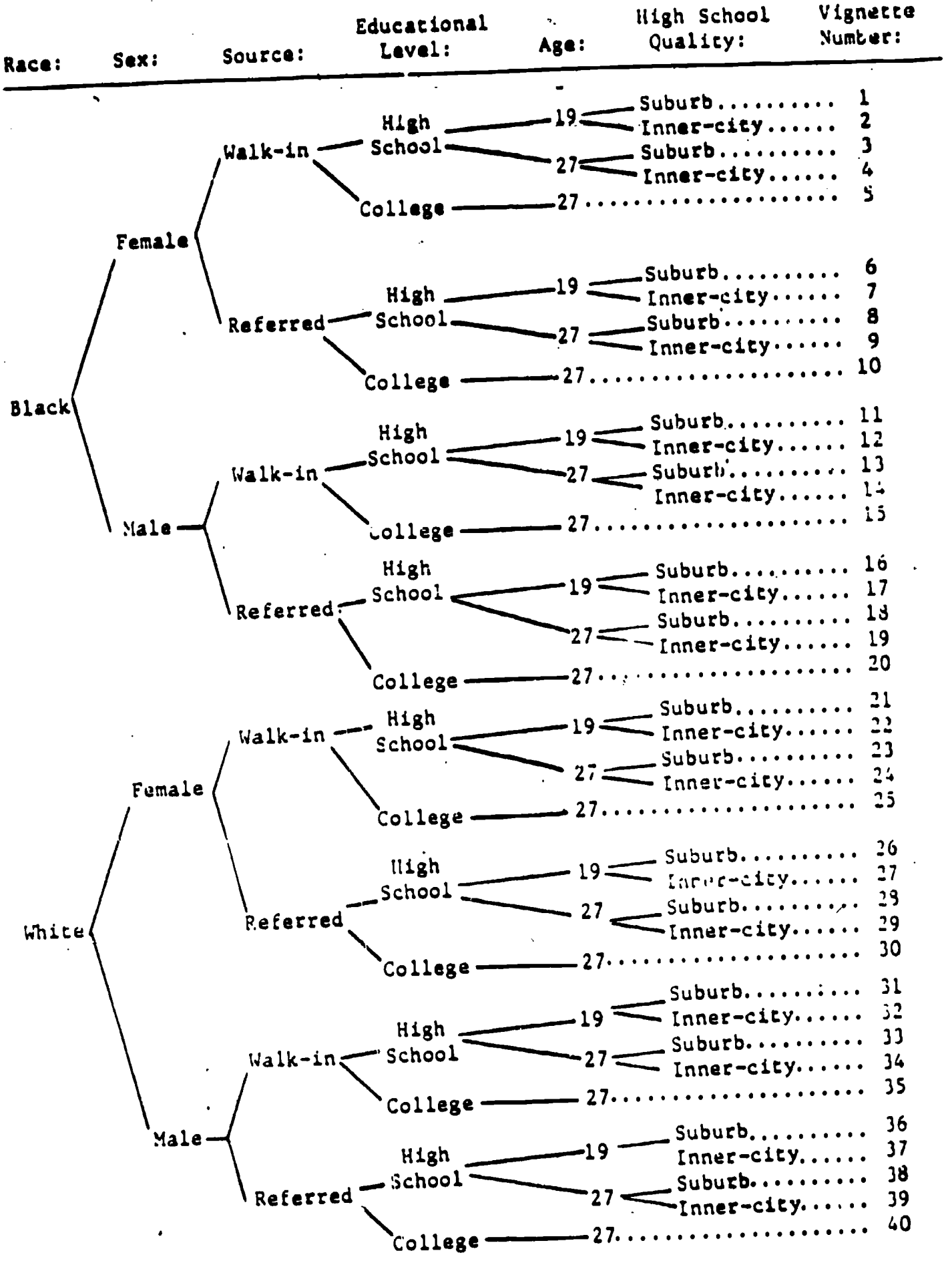

Table 1

Characteristics of Jobs Assigned to Vignette Candidates by Race, Age, Sex and Education Level

Age and Education	Job Status	Job Prestige	Job Percent Black	Job Percent Female	N
HIGH SCHOOL					
19 Year-Olds					
Black Males	11,389.13 (3,457.98)	29.94 (16.97)	14.25 (6.45)	46.90 (31.46)	97
White Males	11,718.70 (3,991.48)	30.50 (17.81)	14.20 (6.20)	45.41 (30.34)	92
Black Females	7,164.97 (1,970.62)	42.79 (16.95)	12.49 (5.33)	70.74 (27.86)	88
White Females	7,503.43 (1,729.37)	42.39 (16.81)	11.72 (5.07)	71.68 (29.31)	93
27 Year-Olds					
Black Males	12,214.53 (2,806.95)	34.58 (18.13)	12.68 (5.54)	48.46 (33.34)	81
White Males	13,865.53 (5,485.80)	35.27 (20.39)	13.02 (7.62)	44.65 (29.10)	91
Black Females	7,824.94 (1,834.27)	45.70 (16.51)	10.41 (6.01)	69.60 (29.61)	95
White Females	7,382.26 (1,854.08)	41.77 (16.27)	12.15 (5.16)	71.83 (26.23)	102
COLLEGE					
27 Year-Olds					
Black Males	18,594.91 (5,538.54)	60.50 (17.97)	8.14 (4.98)	42.72 (23.22)	100
White Males	18,239.00 (5,230.75)	59.46 (17.85)	7.18 (4.05)	42.47 (25.46)	79
Black Females	9,749.12 (2,381.24)	54.97 (19.20)	9.31 (5.36)	56.57 (28.06)	89
White Females	10,501.46 (2,717.37)	58.67 (17.30)	7.60 (4.87)	56.27 (29.05)	94
					1101

Standard Deviations in Parentheses

Table 2

Prestige and Status of Jobs Assigned to Vignette Candidates by Non-Minority Employers by Sex and Education of Vignette Job Candidates

Education	Job Status: Females ($\bar{X}$ = 7472.72)			Job Status: Males ($\bar{X}$ = 12292.57)			Job Prestige: Females ($\bar{X}$ = 43.15)			Job Prestige: Males ($\bar{X}$ = 32.49)		
	b	B	F	b	B	F	b	B	F	b	B	F
HIGH SCHOOL												
Race	-.03	-99.21	.27	.12	1009.25	5.54*	-.08	-2.64	2.44	.02	.76	.16
School	.09	325.58	2.90	.00	-37.39	.01	.12	3.88	5.28*	.10	3.67	3.50
Age	.07	250.56	1.71	.18	1501.10	12.26***	.02	.77	.21	.13	4.70	5.99*
Recommended	-.09	-341.58	3.17	-.01	-62.44	.02	-.07	-2.28	1.81	-.04	-1.64	.71
Firm Sector	-.06	-228.70	1.13	-.05	-436.85	.72	-.18	-6.68	12.30***	-.09	-3.83	2.77
Firm Size	.01	9.87	.04	-.14	-304.27	7.51**	-.05	-.38	.77	-.11	-.99	3.95*
Region	.00	6.81	.00	.02	170.71	.15	.02	.84	.23	-.01	-.35	.03
Multiple R^2		.03			.07			.06			.04	
COLLEGE		($\bar{X}$ = 10145.30)			($\bar{X}$ = 18437.83)			($\bar{X}$ = 56.87)			($\bar{X}$ = 60.04)	
Race	.14	786.31	3.89*	-.07	-764.88	.84	.11	3.96	2.17	-.05	-1.74	.41
Recommended	.10	562.90	1.98	.11	1166.16	2.11	.08	3.06	1.28	.16	5.67	4.64*
Firm Sector	-.05	-357.44	.53	.10	1247.39	1.91	-.14	-6.19	3.51	-.09	-3.54	1.44
Firm Size	.26	375.28	12.76***	.12	329.01	2.42	.04	.37	.27	.10	.94	1.85
Region	-.11	-631.67	2.47	-.12	-1307.73	2.39	-.05	-1.94	.51	-.16	-5.68	4.21*
Multiple R^2		.11			.05			.04			.07	

* $p < .05$
** $p < .01$
*** $p < .001$

CODES: Race (white=1)
School (suburban=1)
Age (27 year-old=1)
Firm Sector (private=1)
Firm Size (1-9=1; 10-19=2; 20-49=3; 50-99=4; 100-249=5; 250-999=6; 1000 +=7)
Region (nonsouth=1)

Table 3

Racial and Gender Composition of Jobs Assigned to Vignette Candidates by Non-Minority Employers by Sex and Education of Vignette Job Candidates

Education	Job Percent Black						Job Percent Female					
	Females ($\bar{X}$ = 11.69)			Males ($\bar{X}$ = 13.57)			Females ($\bar{X}$ = 70.98)			Males ($\bar{X}$ = 46.30)		
HIGH SCHOOL	b	B	F	b	B	F	b	B	F	b	B	F
Race	.02	.002	.17	.00	.000	.00	.02	.009	.10	-.04	-.025	.58
School	-.07	-.008	1.97	-.01	-.002	.07	.05	.026	.80	.11	.066	3.96*
Age	-.07	-.007	1.85	-.10	-.013	3.65	-.01	-.003	.01	.01	.003	.01
Recommended	.08	.009	2.49	-.01	-.001	.02	-.06	-.031	1.12	-.06	-.039	1.35
Firm Sector	-.17	-.020	11.02***	-.12	-.018	5.22*	-.06	-.039	1.43	-.02	-.013	.10
Firm Size	.19	.005	13.79***	.17	.006	10.16**	.04	.006	.58	.04	.006	.58
Region	-.05	-.006	1.19	.04	.006	.61	-.04	-.024	.61	-.02	-.010	.08
Multiple R^2		.09			.06			.02			.02	
COLLEGE		($\bar{X}$ = 8.43)			($\bar{X}$ = 7.22)			($\bar{X}$ = 56.42)			($\bar{X}$ = 42.62)	
Race	-.16	-.017	4.86*	-.06	-.006	.63	-.01	-.006	.02	.03	.013	.11
Recommended	-.05	-.005	.49	-.13	-.012	3.29	-.02	-.013	.09	-.02	-.008	.05
Firm Sector	-.19	-.023	6.38*	-.27	-.028	13.63***	.04	.024	.22	-.01	-.002	.00
Firm Size	-.03	-.001	.21	.06	.001	.64	-.12	-.017	2.33	.00	.000	.00
Region	-.04	-.004	.30	.10	.010	1.97	.05	.031	.53	.15	.075	3.80
Multiple R^2		.07			.12			.02			.02	

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* $p < .05$
** $p < .01$
*** $p < .001$

CODES: Race (white=1)
School (suburban=1)
Age (27 year-old=1)
Firm Sector (private=1)
Firm Size (1-9=1; 10-19=2; 20-49=3; 50-99=4; 100-249=5; 250-999=6; 1000 +=7)
Region (nonsouth=1)

Table 4

Regression Results Predicting Female Vignette Candidates Job Status, Job Prestige, Job Racial Composition and Job Gender Composition by Race and Education Level

	Job Status				Job Prestige				Job Percent Black				Job Percent Female			
	Blacks		Whites		Blacks		Whites		Blacks		Whites		Blacks		Whites	
Education																
HIGH SCHOOL	b	B	b	B	b	B	b	B	b	B	b	B	b	B	b	B
School	.10	338.17	.06	222.67	.12	3.83	.11	3.70	-.14	-.016*	.02	.002	.02	.013	.07	.038
Age	.16	623.39*	-.03	-91.12	.05	1.68	-.01	-2.24	-.16	-.018*	.04	.004	-.02	-.014	.01	.008
Recommended	-.11	-408.81	-.07	-245.97	-.07	-2.36	-.07	-2.27	.08	.009	.06	.007	-.04	-.025	-.07	-.040
Firm Sector	.01	44.77	-.11	-409.54	-.11	-4.42	-.24	-8.43***	-.20	-.027**	-.15	-.016*	-.04	-.026	-.09	-.051
Firm Size	.01	7.50	.02	21.76	-.19	-1.61*	.10	.82	.31	.009***	.04	.001	-.01	-.002	.09	.012
Region	-.04	-170.86	.04	158.93	.02	.58	.03	1.14	-.07	-.008	-.04	-.004	-.04	-.023	-.04	-.025
Multiple R^2	.05		.02		.07		.09		.21		.03		.01		.03	
COLLEGE																
Recommended	.20	1159.32	.01	79.15	.18	7.04	-.01	-2.69	-.01	-.001	-.08	-.008	.10	.057	-.16	-.090
Firm Sector	-.06	-436.48	-.06	-429.41***	-.13	-5.71	-.18	-7.55	-.28	-.036*	-.09	-.010	.14	.090	-.09	-.065
Firm Size	.11	171.80	.38	507.61	-.13	-1.40	.17	1.44	-.13	-.004	.03	.001	.06	.010	-.23	-.032*
Region	-.07	-389.52	-.13	-725.78	.04	1.54	-.11	-3.75	.03	.003	-.09	-.009	-.14	-.076	.19	.112
Multiple R^2	.06		.19		.05		.09		.09		.03		.05		.12	

* $p < .05$
** $p < .01$
*** $p < .001$

CODES: Race (white=1)
School (suburban=1)
Age (27 year-old=1)
Firm Sector (private=1)
Firm Size (1-9 1; 10-19 2; 20-49 3; 50-99-4; 100-249 5; 250-999 6; 1000 +-7)
Region (nonsouth=1)

Table 5

Regression Results Predicting Male Vignette Candidates Job Status, Job Prestige, Job Racial Composition and Job Gender Composition by Race and Education Level

	Job Status				Job Prestige				Job Percent Black				Job Percent Female			
	Blacks		Whites		Blacks		Whites		Blacks		Whites		Blacks		Whites	
Education																
HIGH SCHOOL	b	B	b	B	b	B	b	B	b	B	b	B	b	B	b	B
School	.06	352.70	-.04	-345.79	.18	6.45*	.03	1.27	.00	.000	-.02	-.003	.14	.091	.07	.042
Age	.13	818.38	.21	2069.14**	.13	4.75	.11	4.33	-.13	-.015	-.09	-.012	.03	.017	-.02	-.009
Recommended	-.06	-381.91	.04	413.90	-.10	-3.57	.01	.30	.09	.011	-.09	-.013	-.05	-.035	-.08	-.046
Firm Sector	.03	253.90	-.08	-875.10	.01	.58	-.17	-7.45*	-.11	-.015	-.13	-.020	-.03	-.020	-.01	-.008
Firm Size	-.08	-127.61	-.20	-508.39**	-.06	-.55	-.15	-1.47*	.11	.002	.23	.008*	.03	.005	.06	.009
Region	-.04	-268.04	.06	630.74	-.01	-.53	.00	-.01	.02	.003	.04	.005	.01	.009	-.05	-.028
Multiple R^2	.03		.10		.06		.06		.06		.09		.03		.02	
COLLEGE																
Recommended	.06	685.01	.16	1678.09	.14	4.95	.21	7.47	-.17	-.017	-.05	-.004	.03	.014	-.04	-.021
Firm Sector	.11	1283.74	.11	1428.79	-.13	-5.07	-.01	-.22	-.28	-.029**	-.22	-.021	-.03	-.012	.04	.023
Firm Size	.13	361.84	.09	271.49	.15	1.30	.03	.26	.11	.003	-.04	-.001	.13	.015	-.17	-.024
Region	-.08	-917.43	-.15	1534.17	-.15	-5.96	-.15	-5.15	.08	.009	.16	.013	.09	.048	.17	.088
Multiple R^2	.03		.07		.08		.07		.15		.07		.03		.07	

* $p < .05$
** $p < .01$
*** $p < .001$

CODES: Race (white=1)
School (suburban=1)
Age (27 year-old=1)
Firm Sector (private=1)
Firm Size (1-9=1; 10-19=2; 20-49=3; 50-99=4; 100-349=5; 350-999=6; 1000 +=7)
Region (nonsouth=1)

Table 6

Effects of Firms' Affirmative Action Policies on Job Status, Prestige, Racial Composition and Job Gender Composition by Vignette Candidates Race, Sex and Educational Level

Education	Females		Males	
	Blacks (N=199)	Whites (N=209)	Blacks (N=196)	Whites (N=197)
HIGH SCHOOL				
Job Status	69.17 (50.89)	85.03 (45.30)	205.51* (85.89)	115.00 (127.81)
Job Prestige	.21 (.44)	.39 (.42)	.96* (.47)	.50 (.51)
Job % Black	.001 (.001)	.002 (.001)	.001 (.002)	-.002 (.002)
Job % Female	.004 (.008)	-.001 (.007)	.006 (.009)	.004 (.008)
COLLEGE	(N=97)	(N=102)	(N=108)	(N=84)
Job Status	192.94 (118.61)	114.67 (92.84)	254.97 (207.10)	286.96 (212.71)
Job Prestige	1.19 (.79)	.46 (.63)	.96 (.65)	.80 (.73)
Job % Black	.000 (.002)	.000 (.002)	.002 (.002)	-.002 (.002)
Job % Female	-.020 (.012)	-.021* (.010)	.007 (.009)	-.006 (.010)

[a]Controlling for: age, school reputation, recommendations, public-private employee, firm size and region

[b]Values reported are metric coefficients (standard errors in parentheses)

*Metric coefficient at least twice its standard error

School Desegregation and Black Occupational Attainments: Results from a Long-term Experiment

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School Desegregation and Black Occupational Attainment.

Results from a Long-Term Experiment

Robert L. Crain and Jack Strauss

Abstract

This study reports on a long-term study of the effects of racial desegregation of schools, based on the tracing of students initially involved in a randomized desegregation experiment. In our research we identified the students involved in the original 1966 experiment and in the randomly sampled control group, added the names of other students who were desegregated between 1968 and 1971, identified control groups for those students and traced all the students (and their parents) in 1983, when they had all had time to finish secondary school. We have followed every student in the experiment, including those who quit the desegregated schools and returned to the central city and those who were selected for desegregation but refused to participate. Doing this provides an unusually rigorous research design. Some 700 parents and/or students were located and interviewed.

The principal finding of this report is that the desegregated students obtained different types of employment than did the students in the control group. The desegregated students are working in occupations which are less commonly held by blacks--men are salesmen rather than postmen, women secretaries rather than nurses aides. In general, those who experienced desegregated schooling are more likely to be working in white-collar and professional jobs in the private sector,

while those from segregated schools are more likely to be working in government and in blue-collar jobs.

For men this is mainly because desegregated students have a greater amount of education; but for females, the effect of desegregation is quite strong even when educational attainment is controlled. Desegregated students report that they aspired to these types of jobs when they were in high school, and this seems to be the main way desegregation affected their occupations.

Introduction

Most research done in the past two decades on the effects of desegregation has focused on short-term outcomes, particularly achievement test scores. and indicates that black test scores rise after desegregation (Crain and Mahard, 1978, 1983). But we do not know how important this result is. Performance on standardized tests should be viewed only as possibly an indicator of quality of education; high scores should be valued only if they genuinely reflect a superior education and can be shown to lead to a happier or more successful adult life. Research focused on student attitudes measured by psychological scales is also difficult to interpret because we do not know what the relationship is between a concept such as self-esteem or locus of control and actual behavior in later life.

However, a recent series of research studies focus on important adult behaviors of graduates of desegregated schools (Braddock, Crain and McPartland, 1984). The most important of these are studies of the perpetuation of segregation--the way in which segregated schooling leads to segregated work, segregated post-secondary schooling, and segregated housing. For example, graduates of segregated elementary and secondary schools tend to attend segregated colleges (Braddock, 1980; Braddock and McPartland, 1982). When they attend desegregated colleges they get lower grades (Braddock and Dawkins, 1983) and are more likely to drop out (Crain and Weisman, 1972; Crain and Mahard, 1978).

Research has also shown that black graduates of desegregated schools tend to have desegregated associations in later life (Braddock

and McPartland, 1983; Crain and Weisman, 1972). School desegregation seems to lead to better employment (Green, 1981). It appears that desegregation in adulthood enables blacks to use biracial social networks to obtain better employment (Crain, 1970; Dawkins and Braddock, 1985; McPartland and Braddock, 1981). Some research on desegregated black students indicates that they set their aspirations higher (Dawkins, 1983). Several studies show that their aspirations are more coherently related to their skills and educational background (Hoelter, 1982; Wilson, 1979; Falk, 1978; Gable, Thompson, and Iwanicki, 1982). Research has also shown that black graduates of desegregated schools are more likely to find themselves in desegregated employment--working with white co-workers and not uncomfortable when they are placed under a white supervisor (Braddock, 1983; Braddock and McPartland, 1983; Braddock, Mcpartland and Trent, 1984).

The methodology of evaluation has changed radically in the past two decades. Two decades ago, simple longitudinal, pre-test/post-test designs were state of the art; today there are many references pointing out potential bias in this type of design (an often cited one is Cook and Campbell, 1979), and frequent calls for randomized experiments. The research reported here is part of this new wave of studies on long-term effects. It looks not at test scores, but at occupational attainment, using an experimental design.

A parallel report analyzing these same data (Crain, Hawes, Mille and Peichert, 1985) finds that desegregated schooling increases the likelihood of high school graduation and increases the number of years of college obtained by desegregated male blacks. Desegregation leads

to more positive attitudes about race relations on the part of males, a hi⁄er rate of social integration and preference for de⁻ngregated housing on the part of both males and females, a lower rate of early childbirth among females and less difficulty with police among males. These findings are consistent with other literature; Crain and Weisman (1972) obtained similar results from a non-experimental study.

Research Method

Our research is designed to take advantage of an early experimental evaluation of desegregation. In 1966, a group of students were desegregated in early elementary school using a randomized experimental design--two groups were selected randomly, one to attend desegregated schools, the other to remain in segregated schools. The students were nearly all non-hispanic American blacks; a few were of Puerto Rican or West Indian ancestry. (A small number of whites were dropped from our research.) Because nearly all the subjects were black, we will usually refer to the subjects as blacks rather than minority. The main goal of this research was to simply follow up that original 1966 study locating the students after they had time to graduate from high school to see what differences in their lives as young adults could be attributed to desegregation.

The desegregation plan--Project Concern in Hartford, CT,--began in 1966 by selecting a random sample of students from four inner-city elementary schools and permitting them to transfer to suburban schools while a second random sample was preserved as a control group. We supplemented the sample by also including all students who were desegregated in that program in 1968 through 1971. Most of these stu-

dents were randomly sampled, but a control group was not drawn at that time; we attempted to construct a control group based on the same random sampling scheme as was used to select Project Concern participants in 1968 and 1969. We also found that some students entered the program as volunteers, which implies a self-selection bias; we located a group of students who attempted to volunteer for the program in 1968 and used them as a control group for comparison to the volunteers. Thus, we have three substudies; a 1966 experimental design, a 1968-69 experimental design, and a study of voluntary desegregation.

We searched school records and undertook a very large tracing effort to locate these various groups of students in 1982. There are a number of problems: the 1966 experiment's records are partly missing, the control group we randomly selected for comparison to the students randomly sampled in 1968 has lower family income than it should, considerable attrition occurred and a number of students could not be located. Despite these problems we are convinced that this is the strongest research design available in the United States today for a study of the long-term effects of desegregation.

The 1966 Experiment Substudy

Project Concern began in 1966, when, at the request of the State Department of Education, five suburban school districts agreed to accept 266 minority students from low income schools in Hartford. The students were selected from the four elementary schools which had the largest number of Title I eligible students. The sending area superficially resembles other big city low income areas; it is segregated and has much rental housing and subsidized housing.

The project was viewed as a demonstration, with the decision to continue based on an evaluation done at the end of two years. Two random samples of students were selected, one to attend suburban schools and a second as a control group. The Hartford public school district chose to select 12 entire classrooms to be sent to the suburbs because this would have the least impact on the sending school, and loaned the 12 teachers (who would otherwise be displaced) to the suburban schools to provide additional support for the transferring students. A meeting of community leaders was held and a lottery was used to select 12 "treatment" and 12 "control" classrooms from the four minority schools which had been designated as sufficiently poor to merit Title I assistance. The classrooms ranged from entering kindergarten students through students beginning the 5th grade in the Fall of 1966.

In an experiment it is very important that as many of the students as possible who are selected for a particular treatment receive that treatment to minimize bias in the study results. To encourage as many students as possible to attend suburban schools, a group of teacher's aides visited homes to persuade parents to enroll their children. Only 12 students were not signed up for the program. (This process is described in Mahan, 1968).

Students were pretested upon entering the program in Fall, 1966, with both intelligence and achievement tests and retested in the Spring and Fall of 1967 and finally in the Spring of 1968. Mahan found no important differences in the spring 1967 testing of the two groups of students, but found the Project Concern students to be not-

iceably ahead of the control group by Spring 1968. The difference was limited to those students who began desegregation in the lower grades. Students who entered the suburban schools in kindergarten or first grade showed considerably higher test score gains than their control group. In contrast the students who began desegregation in the fourth and fifth grade showed relatively little gain and in some cases losses in achievement.

The 1968-1969 Experiment Substudy

In addition to the 266 students in the 1966-1968 experiment, we added every student who entered Project Concern in 1968, every student who entered in 1st grade or higher in 1969, and every student who entered in 2nd grade or higher in 1970 or 3rd grade or higher in 1971. (We also dropped everyone born after 1963, to eliminate students who would be too young for a reasonable evaluation of post-high school outcomes in 1982.)

Although the evaluation was finished in 1968, the policy of random sampling students from the low income schools to attend Project Concern was continued. In 1968 and 1969, Project Concern staff visited the schools and randomly selected first, second, and third graders. Letters were mailed to the parents of selected students and an effort was made to visit the parents in their home, but in many cases families were not home, did not answer the door, or school district addresses were out of date. The acceptance rate in 1969-69 was 50%, much lower than in 1966, probably because less time and money had been invested in contacting parents. Fortunately, Project Concern preserved all the records of the recruitment effort in 1968-69, including

the names of all the students who could not be contacted or whose parents refused to enter them into the program after being asked. We used all students who had been selected, whether they agreed to go into the program or not, in order to preserve the randomness of the original selection. If desegregation had any effect it would raise the average of the entire group of selected students, including the refusers.

We constructed a control group, using the files of the sending elementary schools to draw random samples of the students present in 1968 and 1969 who were not selected for Project Concern. However, compared to the students selected in 1968-69 for Project Concern, our random sample contained more students of lower socioeconomic status.

The Volunteer Substudy

In 1970 and 1971 the district sent letters to parents telling them that their child had been selected and encouraging them to participate, but did not send staff to visit homes. About a quarter of the parents agreed to participate. Preserving the randomness of the original sample would have required including three students who had never participated in P oject Concern with each student who did, obviously making an effect of Project Concern difficult to detect. We decided not to do this, but to instead treat the randomly sampled 1970-71 students who entered the program as volunteers.

We also found a number of other students for whom there was no record of their being randomly chosen. Although there was no systematic effort to allow families to volunteer for the program there were

times when some Hartford public schools had severe overcrowding problems and encouraged students to participate in Project Concern. We combined these volunteer students with those students who were selected in 1970 and 1971; they are similar from the viewpoint of the research method in that neither could be considered randomly sampled. We had a ready-made control group, since the Project Concern office had preserved a folder of telephone messages from parents who had called the program in 1968 and 1969 attempting to enroll their children in the project. We did not include those attempted volunteers whose families were able to put them into desegregated schools by enrolling them in Catholic schools or by moving to the suburbs.

A more complete description of the field work appears in Crain, Hawes, Miller and Piechert, 1985).

Results

The young adults who participated in the Project Concern desegregation program hold different types of occupations as a result. We will present the data in two ways; first, in the form of simple comparisons of desegregated and segregated students; then in more complex analyses which take advantage of the experimental design to produce results which test the findings rigorously.

There is little evidence in this survey that unemployment is markedly lower for the participants in the desegregation program. At the time of our survey males who were desegregated were considerably more likely to be in college full time. However, those who participated in the program and were not in college did not have low unem-

ployment rates. In this paper we limit our analysis to those students who were not in college and who had held a permanent job at some time. This is about 60% of the total sample.

Occupational data was obtained either from the young adults surveyed or in some cases where that respondent could not be located, from his or her parents. We ask about the present or last full-time or part-time occupation, excluding summer jobs of persons in college. For each occupation, we coded the racial mix of that occupation in the national labor force.

The sample was stratified and respondents who graduated from the central city schools were undersampled since they outnumbered those who finished in suburban schools. A stratified sample is less "efficient" than a simple random sample. For example, either respondent or parent surveys were obtained on 117 females who were in the control group. However, because of differential weighting of the students in this group, the sample has the value of a simple random sample of only 87 students. This is called the "effective n" and is given in the tables of this report. Nearly all Project Concern participants were sampled, so that this group generally has a weight of one and its effective sample size is almost the same as the actual sample. For the control groups, the effective sample is always smaller than the actual sample, by a factor of one-third for females and one-sixth for males.

The simplest comparison is between (1) those young adults who participated in Project Concern and attended only desegregated schools (either Project Concern schools, private schools, other public subur-

ban high schools, or the regional vocational school) excluding all those who dropped out of the program and returned to central city schools to finish their education; and (2) those who were selected for the control group, excluding those who "dropped out" of the city schools by attending the regional vocational high school, private schools, or whose families moved to the suburbs. Table 1 shows that when these two groups are compared, Project Concern participants tended to be in occupations which nationally have a smaller black percentage. The 5% difference for females is particularly large, but the difference for males is also statistically significant.

It is unlikely that respondents chose their occupation consciously aware of its national racial composition. However, Project Concern participants did choose different types of employment and this appears to explain why their occupations are less typically held by blacks. We divided occupations into twelve categories. First, government and public service were assigned to one category. In general, we classified an occupation as government-public service if the employee worked for a health, education or welfare organization, without distinguishing, for example, between public and privately owned hospitals. The private sector jobs were divided into 6 categories: white collar; sales; entertainment; blue collar; service; and labor.

Four of these seven categories were further subdivided. White collar was divided into three tiers: professional-managerial, and higher and lower non-professional. Public service, blue-collar and service occupations were also divided into higher and lower tiers. For service the higher status positions were those with scores of four or

more on the Directory of Occupational Titles Specific Vocational Preparation (SVP) scale (Cain and Trieman, 1981). For public service, and for white- and blue-collar jobs, the higher occupations were those with SVP scores of 5 or more.

Table 2 shows the distribution of Project Concern participants and control group members in the twelve occupational categories. The twelve occupational categories are ranked by the national percentage black of the category, ranging from sales, the whitest occupation, to lower public service, the one with the largest black percentage nationally. The four whitest occupational categories-- sales, private sector professional-managerial, entertainment and higher private sector white-collar positions--are held by only 8% of the male control group but 23% of the male Project Concern participants; the difference for females is also large. In general, the table shows that Project Concern participants, both male and female, are more likely to hold positions in sales, higher white-collar occupations and in service. The control group is over-represented in labor and blue-collar public service positions, especially in the lower strata.

The tendency for Project Concern participants to be located in sales and white-collar positions rather than blue collar positions is shown in Table 3, in which the occupations are divided according to their primary identification in the six-category Holland system. Project Concern participants are over-represented in the enterprising category, reflecting the over-representation we saw in sales in Table 2; females are heavily over-represented in the conventional category, which covers much of office positions, and both male and female Pro-

ject Concern participants are under-represented in the social category (which contains much government service and health, education and welfare positions) and realistic category, which includes factory positions.

The last piece of data describing the types of occupations held comes from the respondents themselves. In the survey they were asked how good they thought their chances for promotion were and also about the race of their co-workers. Table 4 shows that Project Concern participant females (but not males) were more likely to say they worked in a mostly white group, and both male and female participants described their chances for promotion as being good.

If Project Concern participants are right in describing their chances of promotion as being good, they may have forgone immediate rewards of salary and prestige in favor of higher future benefits. Project Concern participants do not have higher incomes than control group members, are not in occupations which have higher socioeconomic indices, nor are they in occupations which nationally have higher average incomes for either males or females. They may, however, be in occupations where the chance for promotion into higher-paying occupations is better, but we have no data for occupations on promotion chances, so we cannot independently verify that Project Concern participants have chosen occupations which will provide promising careers.

Analysis of the experimental design

Any analysis is valid only if we assume that we are comparing subjects who differ on the independent variable (in this case degree of

desegregation), but do not differ significantly on other variables which might produce spurious effects. In the typical research study one has little in the way of guarantee that this is the case. This is most obvious in a typical voluntary desegregation study. There is the possibility that students who volunteered for desegregated schooling come from higher income families. They may also be more highly motivated, or come from families which have generally provided more help to their children's schooling. They may be students who are more talented in school work or they may be the less talented students--
-those who have done badly in a segregated school, so that their parents searched for desegregation as a device to rescue their children's education. Finally, the students who are voluntarily desegregated may be those for whom the logistics are more manageable --those from two parent households, or those who live relatively close to the receiving schools. Ever when we are studying students who were assigned to desegregated schools, we can't be sure that disinterested students did not drop out, and highly motivated families "sneak" into the program.

Thus instead of the ideal situation where the desegregated students differ from the segregated students only in the fact of their desegregation, in the usual research design segregated and desegregaued students may differ on a variety of dimensions and some of these differences may be known to the researcher.

Typically the best technique available to deal with this problem is statistical matching--using analysis of covariance or multiple regression to adjust the scores of each group up or down to compensate for

differences in pretest scores or background factors. But the techniques for adjustment are themselves biased, typically underadjusting the data so that control variable differences persist in a concealed fashion in the final result (see Cook and Campbell, 1979, 295-300). If students in desegregated schools are superior in family background, a regression or covariance analysis would still show desegregated students learning more after adjustment for pretest differences even if this were not really the case.

All the data presented in Tables 1 through 4 can be assumed to be biased by self-selection. In comparing those students who entered Project Concern and remained in the program until they finished schooling to a control group of students who remain in the Hartford public schools, we are comparing two groups which may be self-selected in terms of family income or motivation. But the Project Concern experimental design gives us an opportunity to use a much stronger analysis method. We can compare two groups of students who are more strictly comparable--every student who was initially offered the opportunity to enter Project Concern and a randomly sampled control group of students who were never offered the opportunity. By comparing everyone who was ever offered the opportunity in Project Concern with everyone in the control group who never received such an offer, we will largely eliminate any bias due to self-selection.

Thus our "treatment" group includes those students who never participated in Project Concern, while the control group includes some students who were not given the opportunity to attend Project Concern schools but attended Catholic schools or schools in the suburbs

because their families moved there.

Although this procedure understates the effects of desegregation, the comparison is extremely useful. If desegregation had no effect at all, we should find that the high number of Project Concern participants selecting certain occupations is completely offset by a very low level of selection of these occupations by those respondents who refused to enter Project Concern or who dropped out of the program. The net effect would be that all students who were offered the opportunity to participate in the program should have no greater predisposition to be in (for example) enterprising occupations than would all the members of the control group (when those who were able to attend private or suburban schools are included). If desegregation has a beneficial effect, this comparison should show a modest difference remaining after adding all the students who initially refused to enter the program and all the students who "dropped out" of the control group by moving to the suburbs or entering private schools. If there is no such difference this suggests that the effects shown in the preceding tables are spurious.

We refer to this type of analysis as "Experimental Assignment Analysis"; Cook and Campbell (1979, p. 363) refer to it as "attrition from treatment but not from measurement."

In our experimental assignment, the respondents can be grouped into seven categories. The original 1966 experiment contained a (1) randomly selected treatment group who attended Project Concern schools and (2) a randomly selected control group. In 1968 and 1969, students were again selected for attendance at Project Concern schools using

random assignment. The selected students fall into two groups. One group (3) entered Project Concern; another group (4), a nearly equal number of students, never entered the program, either because the school district was unable to contact them or because their parents refused to allow them to enroll. We searched old school records and drew (5) a random sample of students from the same grades to use as a control group. Finally, (6) a group of students whom we are treating as volunteers for the program are compared to (7) a group of students whose parents attempted unsuccessfully to enroll them in the program.

Using these seven categories we arrived at one surprising result; Project Concern did not reduce unemployment. Among respondents who are not now enrolled in college, Project Concern participants (excluding dropouts and those who never entered the program among those initially offered the opportunity) have a low unemployment rate compared to those who were in the control group and remained in the Hartford public schools. However, what appears to be a positive fect of desegregation is merely selection bias. When program dropouts are added to the Project Concern group and control group "dropouts" whose families moved to the suburbs or who enrolled in private schools are included in the control group, the unemployment rates of the two groups do not differ.

Table 5 tests the hypothesis that Project Concern affected occupational distributions, using the experimental assignment method. Table 2 indicated that Project Concern participants were more likely to enter white-collar, professional, sales and service occupations in the private sector, while control group members were more likely to enter

public service positions and blue-collar and laboring positions. Table 2 showed 61% of the Project Concern participants entering private sector, professional, white-collar and service positions (categories 1, 2, 4, 7, 8, and 10 in that table) compared to 42% of the control group, a 19% difference. For females the percentages were 86% and 61%, a 25% difference. Table 5 shows the same percentages when subjects are grouped according to their initial experimental assignment. The first and third lines of the table show the percentages taken from a cross-tabulation; the second and fourth lines show percentages derived from a regression equation which controls on family background, age, and second grade achievement test scores. The family background variables are the education of the responding parents (usually the mothers); whether the families owned their home; number of siblings; a scale based on the presence of an encyclopedia, a daily newspaper, and a typewriter at home; and the respondents' report of whether they lived with two parents when they were 14.

Although 62% of male Project Concern participants are in private sector white-collar and service occupations, the first line of Table 5 shows a smaller percentage in these occupations of all those students initially assigned to the program. This is to be expected, since those students who refused assignment or dropped out of the program have received a much weaker desegregation treatment and therefore should look more like the control group. When they are added to the Project Concern participants the differences between the control group and the Project Concern group should decline. This is the case. Only 45% of the students assigned to Project Concern in the 1966 experiment are in private sector white-collar and service occupations, for exam-

ple.

The important question here is whether any differences remain between those students initially assigned to Project Concern and those initially assigned to the control group. If no differences remain, we must assume that all the results in Table 2 are due to self-selection. If the group assigned to Project Concern continues to differ from the control group, then self-selection bias is probably not a sufficient counter-explanation for the results found in Table 2.

For men, Project Concern differences remain for both the 1966 experiment and the volunteer group, but not for the students assigned to the program in 1968-1969. The differences are 13% for the 1966 experiment and 16% for the volunteer group. The second line of the table shows differences between those assigned to Project Concern and those assigned to the control group once social class factors, age and second grade achievment scores are controlled. Introducing the controls reduces the Project Concern-control group differences further, to only seven percent in the 1966 experiment and eight percent in the volunteer group and to minus three percent for the 1968-1969 group. Much of the apparent effect of desegregation on type of occupation held shown in Table 2 for males is really the result of self-selection bias.

For females, very strong effects of desegregation on type of occupation remain after self-selection bias is removed. The third line of Table 5 shows 30% difference favoring the experimental group in the 1966 experiment and a 22% difference favoring volunteers who entered the program in comparison to those who attempted to enter and were

unable to. For the 1968-1969 program, those students who refused entry to the program are no more likely to hold private sector white-collar and service positions than are those in the control group, but those who accepted their initial assignment are 15% more likely to be in private sector white-collar and service occupations. When multiple regression is used to control on family background, age and second grade achievement test scores, these differences decrease only slightly--to 28% for the 1966 group, 23% for the volunteers, and 13% for the 1968-1969 group. This is very convincing evidence that the apparent effects of desegregation on occupational type for females in Table 2 are not the result of self-selection or differences in the background of students, but must be attributed to attending desegregated schools.

Further evidence of a sex interaction appears in Table 6. In that Table, we compare Project Concern participants and control group members (excluding dropouts) in six regression equations which analyze the impact of Project Concern participation, education, age and a family background scale separately on three occupational variables: national percentage black of the occupation held by the respondent; the number of respondents who are in the four least-black groups of occupations, private sector higher white collar and professional, sales and entertainment; and the percentage of respondents who are in private sector professional, sales, white-collar and service occupations, the variable used in Table 5. The family background scales were constructed by regressing each occupation variable on the family background variables (parents' education, home ownership, number of siblings, items in the home, presence of two parents) for the control groups only, and using the regression coefficients to compute a single

scale of family background. Separate regression equations were used to construct family background scales which are specific for each of the sex regression equations shown in the table. For males, the apparent effect of participating in Project Concern is much weaker than either family background factors or education. For females the opposite is true: Project Concern participation is the strongest predictor in two of the three equations and stronger than family background in the third.

For females, we see from Tables 5 and 6 that Project Concern participation tends to move female workers into occupations which are traditionally not held by blacks, into the higher status private sector white-collar occupations and into both high- and low-status private sector white-collar and service occupations. This result cannot be attributed to self-selection and it cannot be attributed to the fact that women participating in Project Concern have slightly more educational attainment than those in the control group. For males the story is more complex. Desegregation enhances the educational attainment of males in this study; those effects are quite strong (Crain, Hawes, Miller and Peichert, 1985). The higher educational attainment in turn pushes males toward whiter occupations and toward private sector white-collar positions. Since the effects of Project Concern on occupational type are weak once self-selection is controlled in Table 5, the evidence suggests that desegregation does not have much effect on the type of occupation held by males except indirectly through educational attainment.

Interpreting the male data is complicated by the youthfulness of

the population. The Project Concern participants were more likely than control group males to be in college at the time of the survey, and college students are missing from this analysis, so strong desegregation effects on occupational type could appear in the future. It may also be the case that the employment market for black males is such that there are more restrictions on opportunity which prevent desegregated black males from moving into positions in the way that desegregated black females have. This problem will require analysis of older graduates of desegregated schools, either with a different data set, or perhaps from a follow-up survey of this population.

Job Search Techniques

Table 7 reports three factors which one might expect to explain the occupational differences between Project Concern and control group participants. The first line reports the percentage of respondents who say that they left another position to take this one rather than being unemployed between jobs. Both male and female Project Concern participants were more likely to quit another job rather than waiting until they were unemployed to find a better position. This implies a more aggressive career management strategy. The second line reports the percentage of respondents who said that they had specific training or experience which qualified them for their present position. For females, Project Concern participants report a higher level of training and experience than does the control group, but there are no differences for males. Finally, the third line indicates that of all respondents who reported using some personal contact to learn about the opening or to be sponsored for the position, Project Concern par-

ticipants, especially females, used whites as contacts more than did members of the control group. However, the percentages seem low, given that the Hartford metropolitan area labor force is heavily white. Apparently even the Project Concern participants operate in a social network which is predominantly black.

Analysis of the data showed that persons with more training and experience and persons who changed jobs without a period of unemployment have better positions and that persons who use white contacts wind up in occupations with more white employees in them, but none of the differences in Table 7 are large enough to explain more than a fraction of the large difference in occupations between female Project Concern participants and their control group.

Occupational Choice

Respondents were asked to indicate the occupations they would like to have five years from now and the occupations they aspired to when they were high school age. Table 8 shows the pattern of aspirations that respondents report having had when they were in high school, and the occupations they would like to have five years from now. This table includes respondents who are now full-time college students. The 12 categories of Table 2 are collapsed to 7 here, by combining low and high positions in all categories and excluding laboring, which none aspired to.

The table suggests that some of the differences in present occupations are due to differences in the preferences that students held before they completed school. Both men and women who participated in

Project Concern report that they had less desire to enter public service occupations and more interest in sales. Males recall a higher desire to enter professional positions, lack of interest in blue-collar positions and a slight preference for service positions, all consistent with the sorts of occupations that Project Concern males moved into.

Present aspirations of males and females show the same pattern. Project Concern participants of both sexes show a preference for sales. Males show a preference for professional work and a lack of interest in blue-collar work; women Project Concern participants show a disinterest in public service work. Of course, we should expect social inertia to prompt many people to aspire to positions similar to positions they presently have; but this wouldn't explain why Project Concern males had professional aspirations in high school. In addition, male Project Concern participants are employed in public service nearly as much as the control group, but have shown in the past and still show today a disinterest in public service as a career.

Interpretation

There seem to be two reasonable explanations for the pattern we have seen here. The first is that Project Concern participants, because of their experience in integrated schools, are more confident about their ability to work in predominantly white settings. Factories and government employment are traditional havens for blacks--positions where there is less concern about the possibility of being rejected because of color. Desegregated students, being less fearful of discrimination (Crain, Hawes, Miller and Peichert, 1985) are more

willing to try their hand at jobs which require considerable interaction with whites. Sales and to some degree service positions are good examples of this. Although the sample size is too small to analyze individual occupations, a pattern does appear. Control group participants are overrepresented in health and welfare occupations, and as janitors, and men are particularly likely to be mailmen. Women are overrepresented as data entry clerks but underrepresented in most other office occupations. Project Concern women appear as secretaries, clerks, bank tellers, and in office positions with insurance companies. Both men and women from Project Concern schools are likely to be waiters and waitresses and employed in a variety of sales positions.

The second hypothesis, which cannot be tested with these data, is that black alumni of desegregated schools are more likely to be hired in positions which involve "meeting the public"—meaning in this case the white public. Presumably 12 years in suburban schools should impact on pronunciation and the use of black grammar; and simply having the name of a middle-class suburban school on one's resume should affect at least some personnel officers in white-controlled firms. (Evidence of this appears in Crain, 1984.)

Summary and Conclusions

Black students who attended desegregated schools wind up in different kinds of jobs than those who attended segregated schools. In this case, the segregated and desegregated students entered the same metropolitan labor market after finishing school. But the desegregated students worked in firms which had more white employees and

worked in occupations which nationally are more often held by whites. They are more optimistic about their chance for promotion, and perhaps they should be, since they are more likely to be working in private industry rather than in government, more likely to be in white-collar and professional sales occupations. The results of this study are particularly trustworthy, since they are based on a sixteen-year followup of a randomized experiment.

The mechanisms for male and female students seem slightly different. A separately published analysis of the same experiment indicates that male students from desegregated schools are considerably more likely to attend college and complete more years of college schooling than males who went to segregated schools. Our data here show that male students recall having held higher aspirations for employment when they were in high school, particularly aspiring to professional positions more often. This may explain their desire to go to college, and their college attendance probably explains why those who are now in the labor force are more likely to be in sales, good white-collar positions, and even in some service positions and much less likely to be working as laborers or in semi-skilled factory work.

For females, educational attainment is less important. The analysis of the educational data indicate that females' educational attainment is not greatly effected by desegregation. However, the female graduates of desegregated schools, even though they do not have more education than graduates of segregated schools have considerably better jobs. We suspect that one reason is that they are better trained;

at least they are more likely to report that they have the position they have because they have the training for it. They also report using more white contacts to locate jobs and as references when applying for them. The result is that women from desegregated schools are twice as likely to be in professional sales and higher-status white-collar positions and to be in working in service positions in the private sector. They are only one-third as likely to be working in any government positions and only half as likely to be in blue-collar occupations.

Although the data touched on this point only indirectly, it seems a reasonable interpretation that black graduates of desegregated schools hold better jobs because they are more confident in their relations with whites. Analysis of these data (Crain, Hawes, Miller, and Piechert 1985) found not only that black male graduates of desegregated schools had more years of schooling as a result, but that both males and females had more contact with whites socially, were more likely to live in integrated neighborhoods, and perceived less discrimination in their dealings with white institutions and employers. All this should make it easier for them to think in terms of obtaining a position in a white work environment, in a occupation normally held by whites. We also think that employers will be more likely to hire black workers who hold their credential of a high school diploma from a suburban school, since this is tangible evidence to the employer that the student has had experience in working with whites.

Other research on desegregation has found positive effects of desegregation in short-term outcomes, such as achievement test scores

or student attitudes. This study concludes that those short-term changes in student attitudes have a long-term effect in adulthood.

References

Braddock, J. H., R. L. Crain and J. M. McPartland, "A Long Term View of School Desegregation: Some Recent Studies of Graduates as Adults" Phi Delta Kappan, 66(4):259-264, 1984.

Braddock, J. H., "The Perpetuation of Segregation across Levels of Education: A Behavioral Assessment of the Contact Hypothesis. Sociology of Education, Vol. 53, July 1980, pp. 178-186.

Braddock, J. H., "College race and black occupational attainment." Center for Social Organization of Schools, Johns Hopkins University, Baltimore, Maryland, 1983.

Braddock, J. H., and M. P. Dawkins, "Predicting Black Achievement in Higher Education." Journal of Negro Education, Vol. 50, NO. 3, 1983, pp. 319-327.

Braddock, J. H. and J. M. McPartland, "Assessing School Desegregation Effects: New Directions in Research." In R. Corwin (ed.) Research in Sociology of Education and Socialization, Vol. 3, 1982, JAI, Greenwich, CT, pp. 259-282.

Braddock, J. H. and J. M. McPartland, "More evidence on social-psychological processes that perpetuate minority segregation: The relationship of school desegregation and employment segregation." Center for Social Organization of Schools, Report No. 338, Johns hopkins University, Baltimore, Maryland, 1983.

Braddock, J. H., J. M. McPartland and W. Trent, "Desegregated Schools and Desegregated Work Environments," Center for Social Organization of Schools, Johns hopkins University, Baltimore, Maryland, 1984.

Cain, P. S. and D. J. Treiman, "The Dictionary of Occupational Titles as a Source of Occupational Data," American Journal of Sociology Vol. 46, 3, 1981, 253-278.

Cook, T. C. and D. T. Campbell. Quasi Experimentation: Design and Analysis for Field Settings, Rand McNally, Chicago, 1979.

Crain, R.L., The Quality of American High School Graduates: What Personnel Officers Say and Do About it. Center for Social Organization of Schools, Report No. 354, May 1984. Crain, R. L., "School

integration and occupational achievement of Negroes." American Journal of Sociology 75, 1970, pp. 593-606.

Crain, R. L., J. A. Hawes, R. L. Miller and J. A. Peichert, Finding Niches: Desegregated Students 16 Years Later, report R3243-NIE, The Rand Corporation, 1985.

Crain, R. L. and R. E. Mahard, "School Racial Composition and Black College Attendance and Achievement Test Performance," Sociology of Education, Vol. 51, 1978, pp. 81-101.

Crain, R. L. and R. E. Mahard, "The Influence of High School Racial Composition on the College Attendance and Achievement Scores of Black Students, (A report to the National Center for Education Statistics, U.S. Government Printing Office, Washington, DC, 1978.

Crain, R. L. and R. E. Mahard, "Desegregation and Black Achievement: A Review of the Research," Law and Contemporary Problems, Vol. 43, No. 3, Summer 1978.

Crain, R. L. and R. E. Mahard, "The Effect of Research Methodology on Desegregation-Achievement Studies: A Meta-analysis" American Journal of Sociology 88(5):839-854, 1983.

Crain, R. L. and C. Weisman, Discrimination, Personality and Achievement. (New York: Seminar Press), 1972.

Dawkins, M. P. "Black Students' Occupational Expectations: A National Study of the Impact of School Desegregation, Urban Education, Vol. 18, 1983, pp. 81-113.

Dawkins, R. L. and J. H. Braddock, "School Desegregation and the use of social networks to locate desegregated employment. "Center for Social Organization of Schools, Johns Hopkins University, 1985.

Epps, E. G., "The Impact of School Desegregation on the Self-Evaluation and Achievement Orientation of Minority Children," Law and Contemporary Problems, Vol. 42, 1978, pp. 57-76.

Falk, W. W., "Mobility Attitudes of Segregated and Desegregated Black Youths, Journal of Negro Education, Vol. 35, 1978, pp. 132-142 an Vol. 3, 1978, pp. 175-179.

Gable, R. K. and E. F. Iwanicki, Project Concern Evaluation 1980-81, Hartford Public Schools, Hartford, CT, 1982.

Gable, R. K., D. L. Thompson, and E. F. Iwanicki, The Effect of Voluntary School Desegregation on Occupational Outcomes. Read at American Educational Research Association annual meeting, New York, 1982.

Green, K. "Integration and attainment: Preliminary results from a national longitudinal study of the impact of school desegregation." Paper presented at the American Educational Research Association, 1981;

Hoelter, J. W., "Segregation and Rationality in Black Status Aspiration Processes," Sociology of Education, Vol. 55, 1982, pp. 31-39.

Mahan, T. W. Project Concern: A Two-Year Evaluation, Hartford Public Schools, Hartford, CT, 1968.

McPartland, J. M. and J. H. Braddock, "Going to college and getting a good job: The impact of desegregation." In W. Hawley (Ed.), Effective School Desegregation. (New York: Sage), 1981

Wilson, K. L., "The Effects of Integration and Class on Black Educational Attainment, Sociology of Education, Vol. 52, 1979, pp. 84-98.

Table 1: Mean percentage black of occupations held by Project Concern Participants and Control Group members

	Males		Females	
	Project Concern Participants	Control Group	Project Concern Participants	Control Group
mean percent black of occupations held[a]	12.9%	14.5%*	10.4%	15.3%**
(effective n)	(49)	(103)	(72)	(70)

[a] percentages are computed for workers of same sex across the U.S.

* p < .05, one-tailed

** p < .01, one-tailed

Table 2: Occupations held by Project Concern Participants and Control Group Members

Occupations[a]	Males		Females	
	Project Concern Participants	Control Group	Project Concern Participants	Control Group
Under 10% Black:				
1. Sales	10.5%*	2.3%	4.0%	2.3%
2. Professional/ Managers	1.8%	2.4%	4.0%	0.0%
3. Entertainment	1.8%	1.2%	0.0%	2.3%
4. High White Collar	8.8%*	2.3%	25.8%*	15.2%
	22.9%*	8.2%	33.8%*	19.8%
Over 10% Black:				
5. High Blue Collar	10.5%	12.7%	6.1%	6.3%
6. High Public Service	3.5%	4.8%	5.1%	9.2%
7. Low Service	17.5%	10.9%	18.2%*	8.4%
8. High Service	7.0%	6.5%	7.4%	3.7%
9. Low Blue Collar	7.0%	15.4%*	0.0%	6.1%
10. Low White Collar	15.8%	18.0%	26.3%	31.3%
11. Labor	10.5%	18.7%	1.0%	0.5%
12. Low Public Service	5.3%	4.8%	2.0%	14.8%*
	77.1%	91.8%	66.1%	80.0%
(effective n)	(57)	(121)	(94)	(85)

[a] Occupations ranked by national racial composition, sexes combined.

* $p < .05$, one-tailed

Table 3: Holland codes of occupations held by Project Concern Participants and Control Group Members

	Males		Females	
Holland Category:	Project Concern Participants	Control Group	Project Concern Participants	Control Group
Realistic	51.8%	59.5%	12.1%	25.0%*
Investigative	1.8%	2.0%	0.0%	0.0%
Artistic	1.8%	0.7%	0.0%	2.6%
Social	8.9%	15.5%	13.9%	31.4%**
Enterprising	28.6%*	13.0%	14.9%*	6.4%
Conventional	7.1%	9.3%	59.1%**	34.6%
TOTAL	100.0%	100.0%	100.0%	100.0%
(effective n)	(56)	(105)	(85)	(75)

* $p < .05$, one-tailed
** $p < .01$, one-tailed

Table 4: How Project Concern Participants and Control Group Members describe their employment

	Males		Females	
	Project Concern Participants	Control Group	Project Concern Participants	Control Group
Co-workers mostly white	48.9%	45.8%	72.4%*	58.1%
Chances for promotion good	65.1%*	47.8%	48.9%*	39.3%
(effective n)	(46)	(87)	(76)	(71)

* $p < .05$, one-tailed

Table 5: Percentage of students in Private Sector White Collar or Service occupations by Experimental Assignment

(Percent in private white collar or service)

	Experimental Assignment						
	1966 Experiment		1968-69 Random Assignment			Volunteers	
	exper.	control	exper.	refused	control	exper.	control
Males:							
uncontrolled	44.7%	31.9%	44.1%	45.6%	43.4%	66.0%	49.4%
controlled*	45.3%	38.3%	39.4%	39.9%	42.4%	60.1%	51.8%
Females							
uncontrolled	79.6%	49.6%	81.3%	66.0%	66.5%	91.0%	68.8%
controlled*	80.4%	52.7%	80.7%	65.8%	67.4%	86.1%	63.0%

*Regression equations controls were mother's education, presence of encyclopedia, newspaper and typewriter in childhood home, number of siblings, parental homeownership, two parents present at age 14, and age of respondent.

Note: private white-collar or service includes 6 categories from the list shown in table 2: Sales professional, and high and low white-collar and service.

Table 6: Effect of desegregation, age, family background and educational attainment on three measures of occupational outcome

	% black of occupation		% in high white collar, sales, entertainment[a]		% in private, white collar, service	
	r	β	r	β	r	β
Males						
Project Concern Participation	-.094	-.036	.132	.072	.109	.082
Education	-.185	-.162**	.270	.242**	.131	.159**
Family Background	.183	.157**	.175	.119*	.134	.161**
Age	-.007	.005	-.006	-.031	-.175	-.204**
multiple r		.175		.310		.300
Females						
Project Concern Participation	-.263	-.267**	.122	.114*	.254	.288**
Education	-.117	-.090	.166	.146*	-.224	-.216**
Family Background	.154	.185**	.044	.074	.203	.138**
Age	.054	-.018	.058	.05	-.169	-.035
multiple r		.399		.212		.329

[a] these categories of occupations are less than 10% black

[b] see table 5 for category descriptions

*$p < .05$, one-tailed

**$p < .01$, one-tailed

Table 7: How Project Concern Participants and Control Group Members describe obtaining their present or (last) position

	Males		Females	
	Project Concern Participants	Control Group	Project Concern Participants	Control Group
% who left another job to take this one	46.8%*	31.1%*	44.6%	36.9%
% who had training or experience for position	47.8%	45.1%	77.4%*	63.0%
% white of personal contacts used to find position	22.7%	17.7%	31.0%	22.7%
(effective n)	(46)	(87)	(76)	(71)

* $p < .05$, one-tailed

Table 8:
Present and High School Aspirations of Project Concern Participants and Control Group Members, by Sex

	Females				Males			
	Present Aspirations		High School Aspirations		Present Aspirations		High School Aspirations	
	Project Concern Participants	Control Group	Project Concern Participants	Control Group	Project Concern Participants	Control Group	Project Concern Participants	Control Group
Low Percent Black Occupations:								
Sales	4.0	1.5	1.9	0	4.9	1.5	1.8	0
Professional	24.0	21.3	19.9	19.0	41.0*	24.8	31.6*	16.5
Entertainment	10.0	4.3	14.0	6.8	9	9.7	12.3	18.7
White Collar	36.5	31.6	26.5	28.8	9.8	15.3	10.5	11.4
TOTAL	74.5	58.7	62.3	54.6	65.5	51.3	56.2	46.6
High Percent Black Occupations:								
Blue Collar	4.0	2.8	3.7	3.8	13.1*	25.1	28.1	33.0
Service	3.5	7.9	10.7	10.0	3.3	4.2	7.1	3.8
Public Service	18.0*	30.5	23.3	31.6	18.1	19.4	8.8	16.5
TOTAL	25.5	41.2	37.7	45.4	34.5	48.7	44.0	53.3
(effective n)	(90)	(85)	(96)	(88)	(61)	(107)	(57)	(91)

* $p < .05$, one-tailed