LABOR MARKET CONSIDERATIONS IN FAIR EMPLOYMENT HIRING

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I. INTRODUCTION

By the passage of the Civil Rights Act in 1964, the U.S. Government banned discriminatory hiring and pay practices. The precise meaning and interpretation of the law has led to a number of complaints to the EEOC and much adjudication in the courts. Some of the main issues that have been subject to litigation are wage discrimination, hiring discrimination, and discrimination in initial job placement and promotions. While much of the economic literature focuses on wage discrimination,[1] explicit criteria for measuring other forms of discrimination remain to be developed. Of the previously noted areas of potential discriminatory labor practices, the most important one is the hiring process. Individuals excluded from desirable jobs for which they are qualified are often forced to accept less desirable ones where employment is unstable and/or opportunities for promotion are few. Moreover, discrimination induces an excess supply of labor in the less desirable jobs, which in turn lowers the wage rate for such jobs.[2]

Given the importance of hiring discrimination, this paper presents a model for estimating the fraction of a firm's labor pool that is black (or another minority). An essential part of the problem is delineating the labor market of relevance, as the courts themselves differ as to whether the city, Standard Metropolitan Statistical Area (SMSA) or state is the appropriate area from which a firm should draw its workers. Our objective is the development of a procedure for utilizing empirical data in a practical context to define the proper labor pool. The procedure does not define a specific geographic area as the labor market; rather it weights areas according to their proximity to place of employment. To illustrate how long-term fair employment guidelines can be formulated, the model is applied to a recent court case involving racial discrimination, Stamps vs. Detroit Edison. Possible refinements and extensions of the model are briefly discussed in the concluding section of the paper.

II. DELINEATING THE LABOR MARKET

In a variety of cases the courts have used the percent of blacks in the total population of a city, SMSA state or region as a basis for determining if particular firms have engaged in hiring discrimination.[3] Rather than using population as a basis for estimating fair employment standards, the more relevant subgroup is the pool of individuals who are potential candidates for employment, i.e., the labor force.[4] Thus, people under 16 and those who are not working or seeking work cannot realistically be considered potential employees. Besides the need to define the geographic area of a labor market, it is necessary to determine the pool of potential employees available to a specific firm.

Labor markets are officially defined in terms of criteria which are observable and subject to measurement. For example, SMSA's are defined in terms of population and inter-area commuting patterns of workers.[5] While defining a labor market in this manner has advantages for purposes of statistical description and for many analytical studies, it is inadequate for determining the labor pool of a particular firm, since a rational worker given two equal job opportunities would tend to choose the one with the smaller transit cost. Although it is difficult to obtain precise information concerning the influence of distance (and time) between job and home on individuals' choice of jobs, a recent BLS Job Finding Survey[6] found that "job seekers generally restricted their job search to a relatively short distance from their homes. About 4 out of 10 looked no farther than 10 miles, and another 3 out of 10 went up to 25 miles."

III. A PROBABILITY MODEL FOR ESTIMATING FAIR EMPLOYMENT STANDARDS

The preceding section indicates the need for a procedure which utilizes empirical data, both government and private, in a way that provides improved information concerning the proportion of a firm's work force that should be comprised of minority members. As noted, the kind of data that is needed pertains to the location of prospective workers vis-a-vis the location of a given firm. A probability model considering proximity of residence to job location is presented below.

Consider a plant whose workers come from K distinct residential areas, $A_1, \ldots, A_K$, ordered by increasing distance to the plant.[7] For each area, let

L_i be the area's total labor force

b_i be the fraction of minority members, say blacks, in the area's labor force.

Then the fraction of blacks in the entire labor market is $\Sigma b_i L_i / \Sigma L_i$. Let p_i be the probability that a resident of the i^{th} area applies to the firm. The probability that an applicant is black, $P(Bl)$, is given by

$$P(Bl) = \frac{\Sigma L_i p_i b_i}{\Sigma L_i p_i} = \sum \frac{(L_i p_i)}{\Sigma L_i p_i} \cdot b_i = \Sigma q_i b_i \quad (1)$$

where the denominator of the first term in (1) is the expected number of applicants to the plant from all areas and the numerator is the expected number of black applicants. Notice that

$$q_i = \frac{L_i p_i}{\Sigma L_i p_i} \quad (2)$$

is the fraction of a firm's labor pool residing in the i^{th} area and that its values form a

probability distribution.

Although one knows that the p_i's decreases as distance to work increases, it is difficult to estimate these values directly. Fortunately, one can estimate P(B1) by obtaining the labor forces, L_i, from Census data and the values of q_i from applicant data or labor force data. For our purposes applicant data is preferable since it reflects the preference of the local labor force in an area to work near home and, implicitly, the availability of transportation within the entire area. When applicant data is unavailable, the data on commuting patterns reported in the Census can be used; however, this data is available only for SMSA's and their largest sub-areas.

IV. APPLICATION TO THE DETROIT EDISON CASE

In 1973 the U.S. District Court[8] found the Detroit Edison Company guilty of racial discrimination, in part on the basis that while blacks form 41.3 percent of the resident labor force in Detroit and 17 percent of the SMSA labor force, only 8 percent of the utility's employees were black. In view of these statistics and the fact that 55 percent of the Company's work force is employed in the City of Detroit, the Court ordered that hiring for some specified departments and jobs be on the basis of three blacks for every two whites until 25 percent of these jobs were held by blacks. Moreover, the Court set a long-term goal of 30 percent for the fraction which blacks should comprise of the Company's total work force.[9]

Besides the 55 percent of the company's work force which is employed in the City of Detroit, another 20 percent are employed in the remainder of Wayne County, and yet another 10 percent outside of Wayne County but still in the Detroit SMSA. As 15 percent of the company's workers were employed outside the Detroit SMSA at the time the case was being adjudicated and three countries -- Lapeer, Livingston and St. Claire -- have since been included within the geographical boundaries of the Detroit SMSA, we assume that these additional workers resided in the three countries named.[10] The basic labor force data for the Detroit area are as shown in Table 1.

In order to estimate the fraction of blacks in the company's labor market area using our model, one needs the values of q_i, i.e., the fraction of the firm's labor pool residing in each sub-area. As applicant data were not available to us, we first approximate the q_i's by the fraction of jobs in each sub-area, i.e., .55, .20 and .25 (outside Wayne County). Equation (1) then yields the following estimate of the percent of blacks in the firm's labor pool:

(.55) (41.3) + (.20) (4.7) + (.25) (2.0) = 24.2 percent.

Using the figures on where the firm's workers are employed does not take commuting patterns into account. From the 1970 Census of Population it is possible to obtain data on commuter flows from place of residence to place of work.[11] The basic premise in using these data is that commuting patterns of employed workers reflect desires as to where individuals wish to work. Thus, if x percent of the workers living in area A commute to area B, we assume that x percent of the labor force in area A would be working or looking for work in area B. In Table 2 we summarize the relevant data pertaining to commuting patterns.

Table 1

CIVILIAN LABOR FORCE BY RESIDENCE FOR THE DETROIT AREA

Sub-Area	Total Labor Force	Black Labor Force	Percent Black
(1) Detroit City	604,675	294,647	41.3
(2) Wayne County (Excluding Detroit City)	457,310	21,518	4.7
(3) Detroit SMSA (Excluding Wayne County)	603,543	12,460	2.1
(4) Added Counties	84,662	1,014	1.2
(3) + (4) Outside Wayne County	688,205	13,474	2.0

Sources: U.S. Bureau of the Census, General Social and Economic Characteristics, Census of Population: 1970, Final Report PC(1)-C22, Michigan, Tables 85, 92, 121 and 126.

From Table 2, it is apparent that the commuting patterns of workers of both races are quite similar.[12]

Since the commuting data were reported only for the SMSA, for the calculations that follow, we restrict the labor force data to the SMSA. For convenience, the labor force data excluding Lapeer, Livingston, and St. Claire counties are reproduced in Table 3.

Given the data in Tables 2 and 3, we can calculate the number of blacks working or looking for work in the City of Detroit as follows:

(.677) (249,647) + (.234) (33,978) = 176,962 .

Similarly, the number of whites working or looking for work in the City of Detroit

(.656) (355,028) + (.240) (1,026,875) = 479,348 .

Thus, blacks form 27 percent of the City's available labor force of 656,310. In the remainder of the SMSA, i.e., outside of the City, blacks numbered 106,663 of those working or looking for work, whites 902,555, so blacks form 10.6 percent of the available non-City work force of 1,009,218. Since 55 percent of the employees of Detroit Edison work in the city, the estimate

(.55) (27.0) + (.45) (10.6) = 19.6 percent

is obtained as the share of blacks among the total work force available to Detroit Edison.

The reason for the difference between the two percentages, 24.2 and 19.6, is due to the fact that there are a greater number of white suburbanites commuting into the city than black City-residents commuting outside the City even

Table 2

COMMUTING PATTERNS OF WORKERS

	Blacks		Whites	
	Living Inside Detroit City	Living Outside Detroit (in SMSA)	Living Inside Detroit City	Living Outside Detroit (in SMSA)
Work in City	122,623	5,672	194,742	210,167
Work Outside City (in SMSA)	58,473	18,535	102,111	666,650
TOTAL	181,096	24,207	296,853	876,817
Probability person works in City	.677	.234	.656	.240
Probability person works outside City	.323	.766	.344	.760

Source: U.S. Bureau of the Census, Detailed Characteristics, Census of Population: 1970, Final Report PC(1)-D24, Michigan, Table 190.

Table 3

CIVILIAN LABOR FORCE BY RESIDENCE FOR THE DETROIT SMSA

Sub-Area	Total Labor Force	Black Labor Force	White Labor Force	Percent Black
Detroit City	604,675	249,647	355,028	41.3
SMSA (Excluding City)	1,060,853	33,978	1,026,875	3.2
TOTAL	1,665,528	283,625	1,381,903	17.0

Source: See Table 1.

though the probability of commuting between city and suburbs is the same for blacks and whites. Thus, the labor force available to the City is larger and "whiter" than its resident force. Nevertheless, the city labor force is blacker than the SMSA labor force and the concentration of Detroit Edison's employment in the city yields a higher theoretical percentage of black workers, 19.6, than in the SMSA as a whole, 17.0.

Some additional points are worth noting. The estimated proportion of blacks in the Detroit Edison labor pool is based on the commuting pattern of all workers. As most of the occupations in the departments cited as having few black employees were blue-collar occupations, the commuting pattern which is most relevant is that of blue-collar workers. Of the blue-collar work force available in the City, 30.6 percent were black. The analogous proportion for the available work force outside the City was 13.8 percent. Repeating the previous calculation yields an estimate

$$(.55)\ (30.6) + (.45)\ (13.8) = 23.0 \text{ percent}$$

instead of 19.6 percent.[13] The former figure reflects the fact that blue-collar workers are less likely to work at a distance from their place of residence than, say, professional workers, and since most of the firm's employment is inside the City, this increases the share of blacks in the labor pool.

V. CONCLUSION AND NEED FOR FURTHER REFINEMENTS

The approach developed in this article should be useful in setting long-term fair employment goals for the work force of a plant or firm. In the case discussed, the Court ruled that hiring discrimination was being practiced. Our results support the Court's decision although the fair employment goal set by the Court appears somewhat high. The setting of goals for a specific job requires careful definition of the qualified labor force[14] and consideration of the willingness of people in that occupation to travel long distances or actually move to a new job. The model presented in this paper is a step in this direction.

In estimating the fraction of a firm's labor pool which is comprised of minorities, the model takes account of the commuting patterns of an area's work force and the location of the firm within the area. It should be stressed that the approach presented here is applicable to the determination of long-term employment standards. For the purpose of setting short-term targets one should consider the unemployed as well as the expected flow of entrants into and withdrawals from the labor force. In any specific application special circumstances, e.g., the presence of a large military base or university, may also need to be taken into account.

FOOTNOTES

[1] A recent study by John Buckley, "Pay Differences between Men and Women in the Same Job," Monthly Labor Review, November 1971, suggests that the large pay differentials observed in studies of industry and occupational data diminish when single firm salary data for the identical job are analyzed.

[2] Thus, hiring discrimination can have indirect external labor market effects that are similar to the direct effects of wage discrimination in internal labor markets.

[3] The Supreme Court in the landmark Griggs vs. Duke Power case said blacks in North Carolina could apply to the firm. The Fifth Circuit used data for the entire South as well as Atlanta in U.S. vs. Georgia Power Co. and statewide data in Johnson vs. Goodyear. The Sixth Circuit in Afro-American Patrolman League vs. Duck used the population of the city of Toledo, while the Eight Circuit in Parkam vs. Southwestern Bell considered state (Arkansas) data. Recently a District Court used the counties in which a New York union had jurisdiction in Rios vs. Enterprise Steamfitters Local 638.

[4] Indeed, the Second Circuit used the labor force in the Rios case cited above when it altered the original "goals" set by the District Court.

[5] See "New SMSA Criteria" in Statistical Reporter, December 1971, pp. 97-99.

[6] See Special Labor Force Report (Summary), August 1974.

[7] Time may also be used as an index of proximity, but generally distance and time are positively related.

[8] The discussion of this case is limited to hiring issues; for further details, the reader is referred to "Significant Decisions in Labor Cases," Monthly Labor Review, Jan. 1974, pp. 70-72.

[9] In setting the goal of 30 percent, the Court also noted that 47 percent of the skilled unemployed in Detroit were black.

[10] Since only the fraction of blacks in an area enters into the calculations, and as all the suburban counties are predominantly white, a different choice of counties would not alter the conclusions.

[11] One reason why applicant flow data is preferred is that one can construct more detailed estimates of where applicants come from (e.g., by area of the city or by county) than the

overall Census data allows. Moreover, the applicant flow data will reflect the availability of transportation to the plant.

[12]This is consistent with the results of the Labor Department's job search survey cited in footnote 6.

[13]The data underlying the calculations for blue-collar workers are found in Tables 120 and 86 in the sources cited in Tables 2 and 3 in this paper, respectively.

[14]In some cases it may be necessary to use the educational level of current employees and to restrict the labor pool to those with the same educational level. This was done in the Rios case cited previously.

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