Are Suburban Firms More Likely to Discriminate Against African-Americans?

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Abstract

This paper assesses whether African-Americans are more likely to experience employment discrimination in the suburbs relative to the central city. We compare central city-suburban differences in racial hiring outcomes for firms where whites are in charge of hiring to the comparable difference for firms where blacks are in charge of hiring. Both suburban black and white employers hire fewer blacks than their central-city counterparts. This geographic gap among black employers is at least as large as that of white employers. Assuming no discrimination by black employers in any location, this implies that the probability of experiencing discrimination does not vary over space. Black firms, however, are substantially more likely to hire black workers regardless of location.

JEL Codes: J1, J15, J71

1. Introduction

The "spatial mismatch" hypothesis is frequently offered as an explanation for persistent racial differences in labor market outcomes. Mismatch proponents argue that racial housing segregation and the steady exodus of employers from central cities adversely affect the employment prospects of black workers. Policy recommendations offered to remedy mismatch include improving accessibility to suburban employment centers through residential mobility programs and public transportation.

A key assumption of this hypothesis is that the likelihood that blacks experience labor market discrimination is unrelated to firm locations. In other words, a firm chooses a location based on market access, freeway accessibility, or land prices rather than the desire (due to racial prejudice) to distance itself from workers of a particular racial group. This also implies that the preferences of potential coworkers and customers do not vary over space. If this assumption holds, improving physical accessibility may boost minority employment prospects. However, if more prejudiced employers purposefully locate far from minority neighborhoods or if the customers and workforce at distant locations prefer non-minority employees, suburban firms will be more likely to discriminate against minority workers. Hence, any benefits from improving accessibility may be offset by a greater propensity of suburban employers to discriminate against minorities.

In this paper, we present a test of the hypothesis that African-Americans are more likely to encounter employment discrimination in the suburbs relative to the central city. We use a difference-in-difference framework to isolate the portion of the suburban-central city difference in racial hiring outcomes attributable to spatial differences in the propensity to discriminate. Using firm-level data, we compare central-city suburban differences in racial hiring outcomes for firms where a white person is in charge of hiring (white employers, for short) to similar geographic differences in outcomes for firms where a black person is in charge of hiring (black employers). If we assume that black workers

do not experience discrimination at black firms, any central city-suburban difference in the propensity to hire black workers provides a benchmark estimate of the pure effects of spatial frictions. If the comparable geographic difference for white firms exceeds this benchmark, than white suburban firms engage in more discrimination than their central city counterparts.

We analyze three firm-level outcomes: the proportion of the workforce that is black, the probability that the last worker hired is black, and the proportion of job applicants that are black. We find similar geographic differences for black and white employers -- i.e., the lower tendency of suburban employers to hire black workers is at least as prevalent among black firms as it is among white firms. This implies that the probability that blacks experience discrimination does not vary over space. Black firms, however, are substantially more likely to hire black workers regardless of location. This difference is consistent with unobserved differences in the skill needs, recruitment efforts, or racial preferences of employers (black as well as white).

2. Accessibility and the Employment Prospects of Black Workers

Underlying the mismatch hypothesis is the notion that physical distance between the residences of minority workers and the location of employment opportunities impedes accessibility. Assuming that residential and firm locations are exogenous,[1] urban space limits accessibility in two ways. First, commute costs reduce net wages and, thus, the relative attractiveness of distant jobs. Barriers to reverse commuting that may render such costs prohibitive include low car-ownership rates among minority workers (Holzer et. al. [12]; Taylor & Ong [29]) and weak public transit links

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[1]To address endogenous residential location, many mismatch studies focus on the employment outcomes of youths living at home, noting that such youths have little say in the location decision.

between suburban and central city communities (Hughes & Sternberg [14]). Second, the flow of employment information through informal information networks may decay with distance. If employers use informal recruiting techniques such as interviewing walk-ins, taking referrals from current employees, and posting help-wanted signs, the probability of securing employment in a given neighborhood will be higher for residents than non-residents.

One line of research analyzes the effect of space on accessibility by estimating the relationship between distance from minority neighborhoods and minority employment shares. This research consistently finds strong negative relationships. Among the more recent studies,[2] Holzer and Ihlanfeldt [10] create a measure of a firm's proximity to blacks relative to its proximity to whites and find that in addition to a strong negative distance effect, the percentage black of a firm's non-college workforce declines with the firm's distance from public transit stops. Similarly, in an analysis of Atlanta fast-food establishments, Ihlanfeldt and Young [18] show that both the establishment's proximity to Atlanta's commuter rail system and distance from the central city have strong significant effects on the racial composition of a firm's workforce.

An alternative approach attempts to directly measure intra-metropolitan variation in accessibility and then estimates the effect of these "accessibility indices" on either neighborhood-level or individual employment outcomes. For example, Ellwood [6], Leonard [22], and O'Regan and Quigley [25] construct accessibility indices measuring proximity to employment levels and find small or negligible effects of accessibility on both tract-level youth employment rates (Ellwood [6], Leonard

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[2]Early efforts of this sort include the pioneering work of Kain [19] and Leonard [23]. Kain [19] presents evidence for the Chicago and Detroit metropolitan areas showing that the percentage of an area's workers that are black declines with distance from the edge of major black neighborhoods. Using establishment-level data for Chicago and Los Angeles, Leonard [23] finds comparable results for an establishment's black male share of blue collar employment.

[22]) and youth individual employment probabilities (O'Regan & Quigley [25]). Ihlanfeldt [15] and Ihlanfeldt and Sjoquist [16, 17] use the variation in average commute times for low-wage workers across residential areas to measure accessibility and find strong employment effects consistent with the mismatch hypothesis. Similarly, Raphael [26] constructs measures of spatial proximity to areas of high net employment growth and finds strong effects of spatial accessibility on neighborhood youth employment rates.

While there is a growing body of evidence indicating that space matters, the existing empirical mismatch research rests on two strong assumptions: (1) that racial segregation in housing is involuntarily imposed on African-Americans, and (2) that the flow of jobs from central city to suburban neighborhoods occurs for reasons that are independent of racial residential patterns. While there are reasons to believe that racial housing segregation is to some degree involuntary,[3] there is little evidence concerning the motivation behind firm relocations. Traditional explanations of employment decentralization are race neutral, stressing factors such as the shift in transportation modes from rail to truck and the consequent premium placed on freeway accessibility, land-price differentials, changes in production technologies, proximity to the majority workforce, and proximity to spatial concentrations of consumer dollars (Kasarda [20, 21]). If these explanations account for the rise of suburban employment centers, the relatively low minority employment shares in these areas would be due to "real" distance effects (e.g., higher commute costs, worse information).

On the other hand, firm relocations may be driven by a desire based in prejudice to avoid minority workers (Fernandez [7]). Such employers may choose the suburbs to avoid contact with

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[3]Yinger [31] presents audit study results showing considerable discrimination in housing markets. Massey and Denton [24] discuss the evolution of racial segregation in the U.S. Frey & Farley [8] show that blacks are considerably more segregated than other racial and ethnic groups.

minorities all together.[4] If this were the case, a black job applicant would be more likely to experience employment discrimination in the suburbs relative to the central city. Moreover, a suburban location may limit the hiring of blacks for reasons that are independent of employer prejudices. For instance, the preferences of white customers or employees might induce greater discrimination among suburban employers (Becker [3]). Furthermore, suburban employers might feel less subject to Equal Employment Opportunity (EEO) regulation (Bloch, [5]), or to informal pressure from local residents to hire more blacks. Having less frequent contact with black employees may also reinforce negative stereotypes of central-city blacks among suburban employers. All of these factors suggest that the negative effect of distance from minority neighborhoods on minority employment shares may reflect a differentially higher propensity to discriminate in the suburbs.

The conjecture of greater discrimination in the suburbs appears plausible and is indirectly supported by several empirical findings. In an analysis of Washington, DC, Stoll [28] finds central city-suburban employment rate difference that are greater for white youth than for black youth, suggesting that the benefits of a suburban location for minority youth are partially offset by greater discrimination in suburban youth labor markets. Raphael [27] finds similar results for the Oakland metropolitan area. Holzer and Reaser [13] find that the rate at which blacks are hired out of a firm's black applicant pool is relatively low for suburban firms. In an audit study of the DC area, where paired auditors of different races apply for the same jobs, Bendick et. al. [4] find considerable geographic differences in the net rate of discrimination experienced by the minority auditor.

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[4]To be sure, prejudiced employers locating far away from black workers validates the contention that accessibility matters in determining where blacks apply for jobs. Otherwise, there would be no benefit (in terms of racial hiring preferences) to choosing such locations. This, however, does not imply that improving accessibility to these firms would boost black employment rates since these firms may not increase the hiring of blacks in concert with an increase in black application rates.

The suspicion that discrimination against blacks is greater in the suburbs qualifies the implications of existing mismatch research. A greater propensity to discriminate in the suburbs, for whatever reason, would upwardly bias estimates of the importance of employment accessibility and overstate the potential impacts of policies designed to address mismatch. Below, we outline a simple test for gauging the extent to which racial discrimination is correlated with location.

3. Empirical Methodology and Data Description

We analyze the relationship between establishment location and establishment-level racial employment outcomes. Specifically, let %Black$_{ij}$ equal the percentage of a firm's workforce that is black at a firm located in area j (j=cc, s, for central city and suburb) where the person in charge of hiring is of race i (i=w, b, for white and black). Geographic differences in the propensity to hire blacks, overall and by the race of the individual in charge of hiring, are given by

$$\Delta\%Black_g = \%Black_{.,cc} - \%Black_{.,s}$$

$$\Delta\%Black_{g_w} = \%Black_{wcc} - \%Black_{ws} \qquad (1)$$

$$\Delta\%Black_{g_b} = \%Black_{bcc} - \%Black_{bs}.$$

Similarly, racial differences in the propensity to hire blacks, overall and by geographic area, are

$$\Delta\%Black_r = \%Black_{w,.} - \%Black_{b,.}$$

$$\Delta\%Black_{r_{cc}} = \%Black_{wcc} - \%Black_{bcc} \qquad (2)$$

$$\Delta\%Black_{r_s} = \%Black_{ws} - \%Black_{bs}.$$

Assuming that (1) the tendency among black employers to discriminate against, or in favor of, black

workers does not vary over space, (2) the true decay effect of distance from black neighborhoods on

%Black$_{ij}$ is similar for black and white firms, and (3) blacks are residentially concentrated in the city,

then an estimate of the portion of the geographic differential in %Black among white firms that is due

to differences in the propensity to discriminate is

$$\Delta \% Black = \Delta \% Black_{g_w} - \Delta \% Black_{g_b} = \Delta \% Black_{r_{cc}} - \Delta \% Black_{r_s}. \tag{3}$$

The difference-in-difference (DD) estimate in equation (3) implicitly assumes that there are

no other systematic differences in variables across the four types of firms that affect the demand for

black labor independently of the factors causing discrimination. Geographic differences may exist,

however, in the skill requirements of firms, industrial composition, or the possible discriminatory

tastes of a firm's customer base. To control for differences in other factors, alternative DD estimates

are obtained by estimating the equation

$$\% Black_i = \alpha_0 + \alpha_1 Black_i + \alpha_2 Suburb_i + \alpha_3 Black_i * Suburb_i + \beta X_i + \varepsilon_i, \tag{4}$$

where *Black$_i$* and *Suburb$_i$* are indicators for black or suburban firms, X_i is a vector of explanatory

variables, and ε_i is an error term. The coefficients α_1 represents the overall racial differential, α_2 gives

the geographic differential for white firms, the sum of α_2 and α_3 gives the geographic differential for

black firms, and the coefficient α_3 provides the DD estimate after controlling for variables in X_i. This

coefficient is directly comparable to the unadjusted estimate given by equation (3). We estimate

specifications of equation (4) that adjust for observable firm characteristics, firm skill needs and

qualification requirements, and a proxy for the extent of customer discrimination.

The critical assumption identifying the tests in equations (3) and (4) -- i.e, that discriminatory

treatment at black firms is unrelated to location -- requires further discussion. Several arguments suggest that discrimination against blacks should be less prevalent at firms where blacks have authority over hiring decisions. If blacks are less likely to discriminate against blacks than are whites, there will be less discrimination among black employers due to a causal relationship between the race of the person in charge of hiring and employment outcomes. Alternatively, the race of the hiring agent may in itself be endogenous to hiring practices at the firm -- i.e., unobservables causing blacks to be promoted to positions of authority may be correlated with those leading to high black hiring and employment rates. For example, firms with a predominantly black applicant pool may find that employing black hiring agents minimizes recruitment and screening costs. For our purposes, whether or not a causal relationship exists between the race of the hiring agent and employment outcomes is of secondary importance since we are primarily interested in identifying firms where racial hiring preferences play a minimal role in the location choice.

There are reasons to believe that black suburban employers are less likely to discriminate against black applicants than white suburban employers, and perhaps no more likely than black central city employers. Several studies indicate that minority suburban firms actively recruit minority workers. Bates [1, 2] provides evidence from a large 1987 survey of small businesses from 28 metropolitan areas that the black share of employment at black-owned firms is high for both firms located in predominantly minority and non-minority areas. For the latter group of firms, average black employment shares exceeds the black share of the resident population, a finding we are also able to reproduce in our data. In a descriptive case study of Detroit firms in the auto supply industry, Turner [30] presents comparative results from interviews with several black entrepreneurs, some with businesses located in the suburbs and some with businesses located in the cities. Turner finds that

suburban black employers make considerable efforts to employ blacks.

Nonetheless, there are several reasonable objections to our identifying assumption. To start, suburban black firms may themselves wish to avoid minority workers due to personal animus or prior beliefs concerning the competence of minority workers. Alternatively, minority suburban employers may have more conservative views concerning the extent of racial discrimination in modern labor markets and, hence, may be relatively less proactive in seeking out and hiring minority employees. A similar proposition is that inner-city black employers are more likely to discriminate against white workers. All of these factors would bias our DD estimates of differential discrimination towards zero.

This bias may be further compounded by pressures in predominantly white suburban areas against engaging in hiring practices that are either racially neutral or that favor black applicants. The most obvious example of such pressures would be those exerted through customer discrimination (Holzer and Ihlanfeldt [11]). More generally, however, there may simply be greater social pressures on black suburban employers to "act white."

With respect to the contention that the racial preferences of black suburban employers differ from those of black central city employers, a simple test of this argument would compare the beliefs of these two groups of firms. While we have been unable to find any such comparisons, one can compare the beliefs of suburban black residents to central city black residents using the National Opinion Research Center's General Social Survey (GSS). Such comparisons yield no evidence that blacks residing in the suburbs hold more conservative views than blacks residing in the central city.[5]

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[5]Several questions asked of black respondents permit a geographic comparison of beliefs. The 1982 survey asked black respondents whether they believed that "... a black person who has the same education and qualifications can get as a good a job as a white person..." and a similarly worded question concerning whether or not a black workers can make as much money. For black central city residents of the 100 largest SMSAs, 28 percent respond "Almost never" to the good-job question while the comparable

Moreover, these comparison fail to find a relatively greater degree of racial-consciousness among black central city residents. If these patterns for black respondents by place of residence extend to black employers by place of business, the GSS results support our identification assumption.

The contention regarding variation in other social pressures that may militate towards or against employment discrimination against blacks is more difficult to address. In an attempt to account for variation over space in other social pressures, we control for the racial composition of a firm's customer base to account for spatial differences in consumer discrimination. Concerning general pressures in suburban neighborhoods (or in urban neighborhoods for that matter) to conform, however, there are no variables in the current data set that can decisively control for such a possibility. Hence, in interpreting the results presented below, this caveat must be kept in mind.

We provide DD estimates corresponding to equation (3) and various specifications of equation (4) for three firm-level outcomes: the proportion of a firm's non-college workforce that is black, the probability that the last worker hired is black, and the percentage of a firm's applicant pool that is black. The first measure provides an overall description of the average hiring policies of the firm while the second measure provides a gauge of hiring decisions most likely to be made by the current person in charge of hiring. The percentage of applicants that are black provides information on the potential differences between firms in the supply of black workers.

In addition, we construct ratios of each employment outcome to application rates across firms,

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figure for suburban blacks is 50 percent. Similarly, in response to the question concerning the ability to earn as much money, 30 percent of black central city respondents answer "almost never" compared to 41 percent of suburban blacks. In a 1987 question, black respondents were asked to place themselves on a numeric scale according to their beliefs concerning the "...best way for blacks to improve their position," with "civil rights groups" receiving a score of 1 and "become better trained and more qualified" receiving a score of 7. Both suburban and central city black residents have average responses of approximately 5.2.

reflecting the demand for black applicants conditional on where they apply. The ratio of black new

hires to black application rates indicates the rate at which firms hire blacks out of the available black

applicant pool. On the other hand, if one makes the strong assumption that firm hiring practices are

in a steady state, the ratio of the black share of employment to black application rates reflects both

the firm's propensity to hire and retain black employees. From the regression equations for the

dependent variables, we also generate regression-adjusted ratios.[6]

We use data from the Multi-City Study of Urban Inequality. The employer survey was carried

out between June 1992 and May 1994 in the Atlanta, Boston, Detroit and Los Angeles metropolitan

areas and was administered to over 3,000 firms. The sample of firms comes from two sources: a

household survey conducted concurrently in the four metropolitan areas (providing approximately

30 percent of the firms) and a sample generated by Survey Sampling Incorporated (SSI). The SSI

sample is a random-stratified sample where the initial lists are stratified by establishment-size and

firms are sampled according to the proportion of metropolitan area employment accounted for by

their respective size categories. Hence, the SSI sample is representative of the set of firms faced by

a job seeker in any of the four metropolitan areas. We use sample weights in all tabulations and

model estimations to account for the non-representative portion of the sample from the household

surveys. The response rate for firms that passed the initial screening is 67 percent. Holzer [9]

provides detailed comparisons of response rates by industry, location, and establishment size and finds

no substantial differences in response rates across firms. In addition, Holzer [9] provides evidence

that the distribution of firms in the MCSUI sample within areas across industry and firm size are

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[6]Note, to the extent that the supply of black workers to the firm is endogenous to the firm's racial hiring preferences, these ratios will be biased towards one.

comparable to those found in the *County Business Patterns.*

Telephone surveys were conducted with the individual in charge of hiring and extensive information was recorded concerning background firm characteristics, hiring and screening behavior, skill demands and requirements, and several race-based employment outcomes. We restrict the sample to records with complete information and to records where either a black person or a white person is in charge of hiring. We impose the second restriction to present a clean test for a geographic difference in the propensity to discriminate among white employers (the majority of firms). Imposing the restriction does not noticeably alter the results presented below.

4. Results

In this section we first present estimates of the differentials in equations (1) through (4) for the three outcome and two ratios discussed above using a simple central city/suburban dichotomy to characterize the proximity of firms to black residential areas. We define central city firms as those with mailing addresses in the primary central cities of the four MSAs.[7] Next, we use a more precise measure of firm location based on the relative proximity of the census tract in which the firm is located to black and white workers. This second specification provides a useful robustness check to the simple two-by-two comparisons implied by equations (1) through (4).

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[7]Our definition of central city closely parallels the municipal boundaries used by the census bureau for Atlanta, Boston and Detroit. For Los Angeles our central city definition places the San Fernando Valley in the suburbs and places the predominantly minority areas in East Los Angeles in the city. We also estimated models using (1) the municipal boundaries for all cities and (2) our central city definition for LA and Detroit and municipal boundaries for Atlanta and Boston. The results using these alternative geographic definitions are qualitatively similar to what we present below and are available upon request.

A. Using the Central City/Suburban Dichotomy to Characterize Firm Location

Table 1 presents several sets of calculations for the three establishment-level outcomes. First, the table presents mean values of the outcomes for all firms, by location (i.e., central city, suburb), by race of the person in charge of hiring, and by location interacted with the race of the hiring agent. In addition, the table gives inter-locational differences within firm racial groups, inter-racial differences within location, and DD calculations.[8]

Before discussing the DD estimates, a brief discussion of the overall mean differences by location and race --i.e., $\Delta\%Black_g$ and $\Delta\%Black_r$-- is necessary. For all outcomes, black firms have considerably higher mean values than white firms. These differences by race are highly significant for the sample as a whole and within each location. Hence, irrespective of location, race does not appear to be a neutral factor in the hiring and application outcomes observed in the data.

The inter-racial suburban differences are particularly important to the analysis here. Confirming the findings of Bates [1, 2], black firms in suburban locations employ and accept applications from blacks at a rate considerably higher than the black share of the resident population.[9] While the percent black in the census tract of the average black suburban employer in our sample is 5.3 percent, 35 percent of the non-college employees at these firms are black, 31 percent of the most recent hires at these firms are black workers, and 50 percent of the applicant pool are black job

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[8]While the results presented in Table 1 use the sample of firms pooled for the four MSAs, we also computed similar calculations for each MSA individually. For the most part, the patterns for individuals MSAs are similar. These results are available upon request.

[9]The distribution of black shares of employment presented by Bates [1, 2] indicate higher proportions black than the numbers presented in Table 1. The divergence between our result and those of Bates is most likely attributable to the fact that Bates focuses on black-owned firms while in our sample any firm with a black person in charge of hiring is designated a black firm.

Table 1

Means and DD Calculations for Various Firm-Level Employment Outcomes by Location and the Race of the Person in Charge of Hiring

	Proportion of Non-College Employees that are Black			
	All Firms	Central City	Suburb	Difference
All Firms	.180 (.005)	.331 (.013)	.133 (.005)	.198 (.011)
White person in charge of hiring	.159 (.005)	.282 (.013)	.125 (.005)	.157 (.011)
Black person in charge of hiring	.516 (.024)	.676 (.027)	.353 (.033)	.323 (.042)
Difference	-.357 (.021)	-.394 (.035)	-.227 (.025)	-.166 (.040)
	Probability that the Last Non-College Employee Hired is Black			
	All Firms	Central City	Suburb	Difference
All Firms	.203 (.008)	.355 (.009)	.153 (.009)	.202 (.018)
White person in charge of hiring	.183 (.008)	.309 (.020)	.145 (.009)	.164 (.019)
Black person in charge of hiring	.489 (.035)	.661 (.046)	.316 (.049)	.344 (.067)
Difference	-.305 (.033)	-.351 (.053)	-.171 (.042)	-.180 (.065)
	Proportion of Applicants that are Black			
	All Firms	Central City	Suburb	Difference
All Firms	.306 (.009)	.482 (.019)	.249 (.009)	.233 (.019)
White person in charge of hiring	.282 (.009)	.439 (.020)	.236 (.009)	.203 (.019)
Black person in charge of hiring	.624 (.034)	.750 (.045)	.505 (.049)	.245 (.066)
Difference	-.341 (.032)	-.311 (.054)	-.269 (.042)	-.042 (.064)
Standard errors are in parentheses. All figures are weighted.				

seekers. In addition, for all three outcomes, black suburban employers have higher mean values than white central city firms. Hence, these basic calculations provide at least some support for our key identifying assumption. Furthermore, the relatively high percentage of black applicants to black suburban firms, and the relatively low percentage to white central-city firms, suggest that physical distance per se and related factors (such as transportation) may matter much less in determining

where black workers apply for jobs than information flows or the perceptions of fair treatment.

Concerning the overall central city-suburban differences, these are sizable and significant for all outcomes, though generally smaller than the differences by race. Looking within employer racial groups, the central city-suburban differences for black firms are actually greater than those for white firms for all three outcomes, yielding negative DD estimates corresponding to equation (3). All of the locational differences for black and white firms are significant at one percent. The largest disparities between the black and white geographic differences (and the ones yielding significant and negative DD estimates) occur for the proportion of non-college employees that are black and the last-hire outcomes. Hence, subject to the qualifications concerning the identifying assumption, the results from the DD calculations in Table 1 suggests that white suburban firms are no more likely to discriminate than central-city white firms.

When computed as a percentage of the central city base, the locational percentage changes for white and black employers are nearly identical for the two hiring outcomes and slightly larger for white employers for the proportion of applicants that are black. For the proportion of non-college employees that are black and the probability that the most recent hire is black, both suburban black and white employers have mean values equal to approximately half that of their central-city counterparts. For the proportion-of-applicants measure, black suburban employers have mean application rates that are approximately 30 percent lower than that of central city black employers, while the comparable figure for white suburban firms is 46 percent.

Table 2 uses the mean values in the first three columns of Table 1 to calculate ratios of each employment outcome to the mean black application rates. The first panel presents the ratio of the black share of non-college employment to the black application rate while the second panel gives the

Table 2
Ratios of Black Hiring Outcomes to Black Application Rates

	Proportion of Non-College Employees that are Black Divided by the Proportion of Applicants that are Black			
	All Firms	Central City	Suburb	Difference
All Firms	.622 (.016)	.715 (.024)	.565 (.020)	.150 (.031)
White person in charge of hiring	.587 (.017)	.662 (.028)	.547 (.020)	.115 (.035)
Black person in charge of hiring	.837 (.036)	.904 (.041)	.739 (.064)	.166 (.076)
Difference	-.250 (.040)	-.242 (.050)	-.191 (.067)	-.051 (.084)
	Proportion of Recent Hires that are Black Divided by the Proportion of Applicants that are Black			
	All Firms	Central City	Suburb	Difference
All Firms	.704 (.028)	.770 (.038)	.661 (.039)	.109 (.054)
White person in charge of hiring	.684 (.032)	.735 (.045)	.655 (.043)	.080 (.062)
Black person in charge of hiring	.822 (.047)	.900 (.060)	.719 (.076)	.181 (.096)
Difference	-.138 (.057)	-.165 (.075)	-.064 (.087)	-.101 (.114)

Standard errors are in parentheses. Ratios are computed from averages of the numerator and denominator using a sample that is restricted to observations containing information for both variables. Due to this additional restriction, the ratios presented here differ slightly from those implied by the mean values given in Table 1.

ratio of the proportion of recent hires that are black to black application rates. The differences and the DD figures are actual differences in the ratios presented in Table 2 rather than ratios of the corresponding figures in Table 1. These ratios can be interpreted as the relative demand for black workers at the firm, conditional on the supply and quality of black applicants.[10]

[10]We calculate standard errors for these ratios using the formula for the standard error of the ratio of two variables. Specifically, for two random variables, X and Y, the standard error of the estimator $R=\underline{X}/\underline{Y}$, is approximately equal to $[(1/(n\,\underline{X}^2))(R^2 s^2_x + s^2_y - 2Rs_{xy})]^{1/2}$, where n is the sample size, $\underline{X}$ and $\underline{Y}$ are the sample averages for X and Y, s^2_x and s^2_y are the sample variances, and s_{xy} is the sample covariance. In our regression-adjusted ratio estimates, we use the residuals from the respective regressions to estimate the sample variances and covariance needed to calculate comparable standard errors.

Similar to the findings of Holzer [9], the two ratios are lower in the suburbs than in the central city, indicating a relatively lower propensity among suburban firms to hire blacks out of the pool of black workers that seek employment in suburban firms. In addition, these ratios are higher at firms where blacks are in charge of hiring. Within firms grouped by the race of the hiring agent, however, we find central city-suburban differences among black employers that are either equivalent to, or larger than, those observed among white employers. The racial differences are considerably larger in the city than in the suburbs. Again, the negative (and sometimes significant) DD estimates do not suggest that white employers in the suburbs discriminate more than those in the central city.

While results in Table 2 confirm the findings in Table 1, the ratios do show that black suburban employers are less likely to employ black applicants conditional on supply than are central-city black employers. This pattern is somewhat counterintuitive. If anything, relative skills among black suburban applicants are likely to be higher than among black central-city applicants, given that educational attainment is positively correlated with suburban residences and commute distances among blacks (Holzer [9]). Perhaps the relatively low ratios observed for black (as well as white) suburban employers are due to concerns about potential problems of absenteeism or turnover related to transportation difficulties. Alternatively, there may be discriminatory differences in preferences between suburban and central-city employers of either race, for reasons noted above. The latter would violate the identifying assumption behind our DD estimates, though we cannot be sure with these data that this interpretation is correct. At a minimum, the results from Tables 1 and 2 imply that there are both race and location effects that limit the employment of black applicants in the suburbs.

Thus far we have not accounted for possible differences by region and firm racial group in factors that may affect the demand for black labor. Appendix Table A1 provides means for a host

of firm characteristics by the race of the hiring agent and geographic location. The table lists several groups of variables: basic firm descriptive statistics (size, industry, and location), indicators of the respondent's position within the firm, indicators of the daily job tasks and job qualifications demanded of the last hire, and indicators of whether the firm uses affirmative action in hiring. The table also presents information on the proportion of the firm's customers that are black and the relative distance of the firm from the black community (discussed in detail below). There are some notable differences both inter-racially and, within firm racial group, across locations. Black firms are somewhat larger on average than white firms, have a higher proportion of their workforce unionized, report that a higher proportion of their customers are black, and are more likely to use affirmative action in hiring and recruiting than white firms. Among black firms, respondents in suburban firms are less likely to be owners and more likely to be managers or supervisors than black city-firm respondents.

To adjust for these factors, we estimate equation (4) incorporating these firm characteristics and skill needs variables. Table 3 presents estimation results for the probability that the last workers hired is black and the black share of the applicant pool using four specifications of equation (4). The first specification controls for the firm characteristics, daily job tasks, job qualifications, and affirmative action variables listed in Table A1. Next, the proportion of customers that are black is added. The third specification adds three dummy variables indicating position within the firm ("other" is the omitted category), while the fourth specification adds interactions between these dummy variables and the dummy indicating a black respondent. Recall from equation (4), the DD coefficient comparable to the calculation in Table 1 is given by the coefficient on the interaction between the black respondent and suburban location dummies. All models are estimated using simple OLS

Table 3
Linear Regressions Estimates of the Differential Effects of Space on Firm-Level Employment Outcomes

Variables	Probability that the Last Non-College Employee Hired is Black				Proportion of Applicants that are Black			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Suburbs	-.133 (.019)	-.086 (.023)	-.086 (.022)	-.084 (.023)	-.151 (.020)	-.106 (.019)	-.103 (.019)	-.102 (.019)
Black Respondent	.296 (.046)	.218 (.050)	.217 (.051)	.519 (.104)	.273 (.045)	.156 (.042)	.168 (.043)	.278 (.085)
Suburbs*Black Respondent	-.159 (.064)	-.115 (.068)	-.113 (.069)	-.045 (.071)	-.034 (.062)	.016 (.057)	.001 (.057)	.057 (.060)
Proportion of Customers Black	-	.608 (.047)	.616 (.048)	.611 (.048)	-	.756 (.039)	.749 (.039)	.749 (.039)
Owner	-	-	.074 (.036)	.094 (.037)	-	-	.034 (.030)	.034 (.031)
Manager/Supervisor	-	-	.035 (.031)	.065 (.032)	-	-	.059 (.026)	.073 (.027)
Pers. Dept. Official	-	-	.036 (.035)	.067 (.036)	-	-	.052 (.029)	.069 (.031)
Owner*Black Respondent	-	-	-	-.244 (.138)	-	-	-	.033 (.109)
Manager/Supervisor* Black Respondent	-	-	-	-.427 (.118)	-	-	-	-.210 (.097)
Pers. Dept. Official* Black Respondent	-	-	-	-.374 (.118)	-	-	-	-.179 (.097)
R^2	.171	.260	.262	.269	.261	.441	.443	.448
N	2,264	1,598	1,598	1,598	1,579	1,341	1,341	1,341

Standard errors are in parentheses. All regressions include a constant term and all of the firm characteristics and indicators of skills needs and job requirements listed in Appendix Table A1 (excepting the relative distance measure).

regressions.[11] We do not include corresponding model estimations for the black share of employment due to the fact that the skill and qualification demands variables correspond to the last job filled and the recent batch of applicants and hence cannot be used to analyze black employment shares.[12]

Starting with the probability that the last worker hired is black, all of the DD coefficients are either negative or near zero. For the first three specifications in columns (1) through (3), the DD estimates are significant at five percent. The substantial inter-racial and locational probability differentials observed in Table 1 remain and are significant in all specifications, though adjusting for the factors in Table A1 reduces the overall racial and locational differentials by approximately one third.[13] As for the proportion of applicants that are black, the coefficient on the suburb/black respondent interaction terms are all insignificant, and is negative for the first specification in column (5). Hence, these results are largely consistent with the various calculations based on the summary

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[11]The models for the black-hire probability were also estimated using probits rather than linear probability models. This does not affect the results. In addition, the black-applicants equations were estimated using Tobit models due to the large number of zeros among white firms. This also does not affect the main results of the paper.

[12]We did estimate equations for this variable corresponding to the four specification but withholding the skill and qualification demand variables. For all four specifications, the point estimate of the difference-in-difference calculation was near zero and statistically insignificant.

[13]In addition to a greater propensity to discriminate in the suburbs, the overall geographic differential in the hiring and applications outcomes may be driven in part by the different racial compositions of suburban and central city employers. In other words, in addition to being more likely to encounter discrimination at suburban firms among white employers, black job seekers are also less likely to encounter a black employer in the suburbs given the concentration of black employers in the central city. To gauge the extent to which this compositional effect explains the overall geographic differences observed in the data, we estimated models corresponding to those in Table 3 where we first estimate each regression omitting and then including the respondent's race. Such an exercise indicates that approximately 10 to 20 percent of the overall geographic differences in the two outcomes can be explained by the differentials racial compositions of central-city and suburban employers.

statistics in Table 1.[14]

Concerning the other coefficient estimates, similar to the findings of Holzer and Ihlanfeldt [10, 11], the proportion of customers that are black has strong and highly significant effects for both outcomes and in all specifications. Concerning the respondent's position within the firm, there is an interesting pattern in the model that interacts the race of the respondent with the position within the firm dummies. For black firms, we observe an ordering of effects on the two dependent variables that may roughly correspond to conjectures concerning the respondent's influence within the firm. For example, for both outcomes black owners have stronger positive effects on the dependent variables than either black manager/supervisors or black personnel department officials. For white firms in these specification we do not observe any consistent patterns by position within the firm.

The results from Table 3 can be used to compute hiring-to-application ratios that hold constant the control variables in each model. Table 4 presents these calculations.[15] The table presents four sets of ratios corresponding to the four specifications from Table 3. Similar to the unadjusted ratios in Table 2, the ratio of black new hires to application rates is lower overall in the suburbs than in the central city and higher among black employers than white employers. Adjusting for observable variables, however, slightly narrows the overall locational difference for specifications (1) through (3). Geographic differences within firm racial groups are also present in the ratios after controlling

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[14]We also estimated equations including triple interactions between position within the firm, location and respondent's race. Such a specification permits black employers to behave differently by position and location. All difference-in-difference calculations from these models remained insignificant, yet with considerably inflated standard errors.

[15]Again, we do not include regression-adjusted ratios for the black share of employment due to the fact that the skill and qualification demands variables correspond only to the last job filled and the recent batch of applicants.

Table 4
Ratios of the Proportion of Recent Hires that are Black to the Proportion of Applicants that are Black Holding Constant Firm Characteristics, Skill Demand and Qualifications, Racial Composition of Customer, and Respondent's Position Within the Firm

	Specification (1)			
	All Firms	Central City	Suburb	Difference
All Firms	.704 (.029)	.750 (.020)	.678 (.034)	.072 (.039)
White person in charge of hiring	.689 (.031)	.716 (.022)	.677 (.035)	.038 (.041)
Black person in charge of hiring	.796 (.016)	.881 (.014)	.691 (.018)	.190 (.023)
Difference	-.107 (.035)	-.165 (.026)	-.013 (.040)	-.152 (.047)
	Specification (2)			
	All Firms	Central City	Suburb	Difference
All Firms	.686 (.030)	.743 (.023)	.658 (.033)	.085 (.041)
White person in charge of hiring	.670 (.032)	.701 (.025)	.656 (.034)	.046 (.042)
Black person in charge of hiring	.804 (.020)	.913 (.018)	.681 (.021)	.233 (.028)
Difference	-.135 (.037)	-.212 (.031)	-.025 (.040)	-.187 (.050)
	Specification (3)			
	All Firms	Central City	Suburb	Difference
All Firms	.686 (.030)	.743 (.023)	.658 (.033)	.085 (.041)
White person in charge of hiring	.670 (.032)	.704 (.025)	.656 (.034)	.049 (.042)
Black person in charge of hiring	.799 (.019)	.897 (.018)	.685 (.021)	.212 (.028)
Difference	-.129 (.037)	-.193 (.031)	-.030 (.040)	-.163 (.050)
	Specification (4)			
	All Firms	Central City	Suburb	Difference
All Firms	.686 (.030)	.767 (.023)	.645 (.033)	.122 (.041)
White person in charge of hiring	.671 (.032)	.704 (.025)	.657 (.034)	.047 (.042)
Black person in charge of hiring	.795 (.020)	.887 (.019)	.701 (.020)	.186 (.028)
Difference	-.125 (.037)	-.183 (.031)	-.044 (.040)	-.139 (.050)

The ratios are calculated from model results corresponding to the specifications in Table 3 where the sample is constrained to observations with information for both dependent variables needed to construct the ratios. Standard errors are in parentheses.

for firm characteristics, with the locational differences widening slightly for black firms and narrowing slightly for white firms. In all specifications, the locational difference for black firms exceeds considerably that for white firms and, consequently, all of the DD calculations are large and negative.

B. An Alternative Characterization of Firm Proximity to Black Workers

The geographic coding scheme that classifies firm location as either suburban or central city implicitly assumes that within region black and white employers are of equal distance, on average, from potential black employees. Given the existence of racial segregation within suburban communities and the possibility that black suburbanization simply reflects the extension of existing black neighborhoods across central city boundaries, this spatial assumption is overly restrictive and may bias the results. To probe the robustness of our results to changes in geographic coding schemes, here we abandon the simple central city/suburban dichotomy and employ a continuous measure of relative proximity following Holzer and Ihlanfeldt [10].

Table 5 presents estimation results comparable to the models presented in Table 3 where a variables measuring the firm's relative distance to blacks in the metropolitan area is substituted for the suburban dummy variable. The relative distance variables is computed as follows. For each firm, a weighted average of the distance in miles between the firm's census tract and all other census tracts in the metropolitan area is computed using the tract count of black residents as weights. This conceptually provides the average distance between the firm and black residents in the metropolitan area. Next, a similar distance measure is calculated for proximity to whites. The relative distance measure used in the models is the distance to blacks divided by the distance to whites. In addition, following Holzer and Ihlanfeldt [10] we include four dummy variables indicating the firm's proximity to the nearest public transit stop. Table 5 suppresses the output for the position within the firm dummies since the results do not differ from those of Table 3.

Table 5
Linear Regressions Estimates of the Differential Effects of the Relative Distance to the Black Population on Firm-Level Employment Outcomes

Variables	Probability that the Last Non-College Employee Hired is Black				Proportion of Applicants that are Black			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Black Respondent	.603 (.129)	.296 (.139)	.295 (.140)	.578 (.164)	.318 (.122)	.074 (.116)	.089 (.117)	.174 (.137)
Relative Distance	-.307 (.049)	-.224 (.057)	-.219 (.057)	-.217 (.057)	-.456 (.048)	-.271 (.047)	-.265 (.048)	-.260 (.048)
Black Respondent* Relative Distance	-.588 (.186)	-.181 (.201)	-.180 (.201)	-.097 (.203)	-.138 (.177)	.128 (.171)	.107 (.171)	.186 (.172)
Distance to Transit 0 miles	.086 (.022)	.066 (.025)	.066 (.024)	.065 (.024)	.119 (.021)	.094 (.021)	.092 (.021)	.094 (.020)
0<miles<=.25	.082 (.024)	.054 (.027)	.055 (.028)	.053 (.027)	.086 (.024)	.078 (.023)	.076 (.023)	.077 (.023)
.25<miles<=.5	.031 (.034)	.044 (.040)	.046 (.040)	.042 (.040)	.078 (.034)	.097 (.034)	.096 (.034)	.097 (.034)
.5<miles<=1	.020 (.037)	.003 (.043)	.005 (.043)	.006 (.043)	-.029 (.036)	-.034 (.035)	-.037 (.035)	-.037 (.035)
Proportion of Customers Black	-	.549 (.051)	.557 (.052)	.554 (.051)	-	.698 (.042)	.695 (.042)	.696 (.042)
Position Dummies	No	No	Yes	Yes	No	No	Yes	Yes
Position Dummies*Black Respondent	No	No	No	Yes	No	No	No	Yes
R^2	2,054	1,476	1,476	1,476	1,418	1,216	1,216	1,216
N	.194	.275	.276	.284	.327	.468	.470	.474

Standard errors are in parentheses. All regressions include a constant term and all of the firm characteristics and indicators of skills needs and job requirements listed in Appendix Table 1A.

For the probability of a black recent-hire, the relative distance variable has a strong negative and significant effect in all specifications. Similar to the findings of Holzer and Ihlanfeldt [10], we also observe that proximity to public transit exerts significant and substantial effects on the probability of a recent black hire.[16] Concerning the interaction term, in all four specifications the point estimates are negative with a significant negative effect in specification (1). Hence, these results indicate that for black employers the probability that the last workers hired is black declines with distance at a relatively faster rate than for white employers. For the proportion of applicants that are black, we also observe strong negative and significant effects of distance. In addition, none of the interaction terms between the respondent's race and relative distance are significant. However, three of the point estimates are positive and, for the last specification (regression 8), nearly large enough to offset the base distance effect.

While there is no exact corollary to the recent-hires-to-applicants ratios presented in Tables 2 and 4, the parameter estimates in Table 5 do indicate that the ratio of black new hires to applicants declines at a faster rate with distance for black employers than for white employers. This can be seen by computing the distance effects by race (the coefficient on relative distance for white and the sum of the coefficient on distance and the interaction term for blacks) for each outcome and then taking the ratio. For white employers, the probability of a recent black hire declines at a slower rate than the decline in applicants indicating that the ratio of new hires to applicants increases with distance. For black employers, on the other hand, the probability of a recent black hire decreases at a faster rate than the proportion of applicants that are black, thus indicating ratios that decline with the relative distance from the black community. Hence, using a continuous measure of a firm's proximity to

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[16]Notably, the coefficients on the transit dummies decline uniformly in distance for all four specifications.

blacks rather than the central city/suburban dichotomy does not affect the results.

5. Conclusions

Our results indicate several strong patterns. In both the unadjusted difference-in-difference calculations and the multi-variate regressions, we find differences in employment outcomes between black employers in the central city and those in the suburbs that are comparable to, or even larger than, the geographic differences for white firms. On the surface, these results suggest that white suburban firms are no more discriminatory than white central city firms, and that much of the mean difference in racial hiring and application outcomes among white firms may be attributed to spatial frictions. However, the lower tendency of black suburban employers to hire from their pool of black applicants, relative to black central-city employers, requires further study. Whether suburban employers of either race have legitimate concerns about central-city applicants, or whether both have discriminatory preferences relative to their central-city counterparts, remains unclear. Nonetheless, whatever the factors are that drive the low relative representation of black workers among the applicants to, and employees of, suburban firms, they appear to operate in a similar fashion among both black and white employers.

Irrespective of geographic differences, race does not appear to be a neutral factor in hiring decisions. For our sample in general and within region, firms with black hiring agents have a higher percentage of their workforce that is black, are more likely to have recently hired a black applicant, and receive a much greater proportion of their applications from black job seekers. Thus, both the race and the location of the employer are clearly important factors in determining firm-level outcomes. Furthermore, the relatively high percentage of black applicants to black suburban firms, and the relatively low percentage to white central-city firms, suggest that physical distance may

matter much less in determining where black workers apply for jobs than information flows or the perceptions of fair treatment.

An important limitation to the current analysis is the inability to detect whether suburban firms choose suburban locations to maximize access to a self-selected, relatively high-skilled work force. If more able workers migrate to the suburbs and if firms value physical proximity to such employees, the existing central-city labor force may not perform well in suburban job markets even with improved physical accessibility due to skill deficiencies. Future research should attempt to evaluate this and other hypotheses concerning self-selection bias in mismatch research. A finer understanding of these issues will provide information important to designing, and choosing among, alternative policy tools.

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Table A1
Means of Firm Characteristics by Race of Person in Charge of Hiring and Firm Location

Variables	Black Respondents			White Respondents		
	All	Central City	Suburb	All	Central City	Suburb
Relative Distance to the Black Population[a]	.66	.58	.75	.77	.64	.82
Proportion of Customers Black	.37	.46	.28	.18	.24	.16
Firm Characteristics						
1-19 employees	.28	.31	.24	.32	.29	.34
20-99 employees	.26	.22	.31	.34	.31	.34
100-499 employees	.28	.27	.29	.25	.27	.24
500-999 employees	.05	.04	.06	.04	.04	.04
1,000+ employees	.13	.16	.10	.05	.09	.04
Union	.26	.30	.21	.19	.20	.18
Mining	.00	.01	-	.00	.00	.00
Construction	-	-	-	.03	.02	.03
Manufacturing	.09	.06	.14	.22	.14	.24
T.C.U.	.06	.06	.06	.05	.07	.05
Wholesale Trade	.03	.01	.04	.08	.07	.08
Retail Trade	.21	.22	.20	.17	.14	.18
FIRE	.08	.07	.09	.10	.14	.09
Services	.45	.50	.40	.31	.39	.29
Atlanta	.39	.47	.32	.26	.44	.20
Boston	.08	.10	.06	.26	.19	.28
Los Angeles	.29	.14	.44	.21	.21	.21
Detroit	.24	.29	.19	.27	.16	.30
Daily Job Tasks						
Customer Contact	.68	.75	.60	.57	.60	.57
Phone conversation	.64	.67	.61	.52	.58	.50
Reading	.59	.66	.52	.55	.57	.54
Writing	.40	.44	.34	.29	.29	.29
Math/computations	.59	.60	.58	.66	.64	.67
Computer work	.61	.58	.63	.51	.56	.49

Job Qualifications that are Either Absolutely Necessary or Strongly Preferred						
A high school diploma	.82	.84	.79	.71	.75	.70
Recent work experience	.73	.68	.78	.68	.74	.67
Specific experience	.61	.58	.65	.60	.65	.59
References	.79	.74	.85	.72	.74	.71
Vocational education	.47	.45	.49	.37	.37	.36
Use Affirmative Action in Recruiting	.64	.62	.66	.53	.54	.52
Use Affirmative Action in Hiring	.43	.44	.43	.37	.39	.37
Respondent's Position Within the Firm						
Owner	.14	.19	.08	.15	.12	.16
Manager/Supervisor	.35	.27	.44	.45	.49	.44
Personnel Dept. Official	.40	.37	.42	.29	.30	.29
Other	.11	.17	.06	.11	.09	.11
N	209	115	94	2,383	595	1,788

All figures are weighted.
a. Relative distance is the average distance in miles to black metropolitan residents divided by the average distance to white metropolitan residents.