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THE INTERACTION OF RESIDENTIAL SEGREGATION AND EMPLOYMENT DISCRIMINATION

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ABSTRACT

This paper seeks to disentangle the impact of residential segregation from that of employment discrimination in determining black employment share. The major finding is that distance of a workplace from the main ghetto is one of the strongest and most significant determinants of both changes over time and levels of the racial composition of the workforce. This paper presents evidence of more heterogeneous micro labor supply within SMSA's than has usually been recognized for policy purposes.

Comparing Chicago with Los Angeles, we find that distance from the ghetto has a stronger impact in Chicago, and that this effect increased during the late 1970's. In contrast, residential segregation is relatively less important in determining workplace demographics in Los Angeles, despite its rudimentary public transit system and prototypical job dispersion. In both cities, residential segregation strongly influences black employment patterns and limits the efficacy of efforts to integrate the workplace.

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I. Introduction

The burning ghettos of twenty years ago focused attention on the plight of the poor urban black. The violence and disorder of that time generated interest in peaceful means of accommodation and integration. Among these may be numbered affirmative action in employment, residential desegregation, and improved urban transportation. While attention has since lapsed, the problems of that day have not gone away. In an early and controversial study, John Kain demonstrated that blacks may have greater difficulty in finding jobs because of the geographical isolation of black ghettos from jobs. Poor urban transportation systems may translate residential segregation into employment segregation and unemployment. Indeed, part of the recent unprecedented unemployment rates among blacks has been attributed to the suburbanization of employment: as jobs have moved out of the central city, blacks have been unable to follow because of residential segregation compounded by inadequate transportation.[1].

Taking black and white residential patterns as given, this paper seeks to determine how much of the level and change over time in racial employment patterns across establishments can be explained by distance from concentrations of black population. This study extends Kain's analysis to a dynamic framework by studying the change over time in black employment in establishments as a function of distance from the ghetto. These effects are then compared between a highly segregated city with radial transport corridors and extensive mass transit - Chicago, and a relatively integrated city with a grid transport structure and minimal public transit - Los Angeles. This is the first such analysis of a Western U.S. city. Given the ongoing migration to cities of the South and West, and the continuing suburbanization of major cities, Los Angeles can be thought of as the city of the future. Given residential segregation, few observers of this situation would expect employment opportunities for blacks to improve as jobs continue to disperse.

This paper presents evidence that black employment patterns are strongly influenced by residential patterns, demonstrating the importance of detailed analyses of localized labor markets within a city. In contrast to some recent studies emphasizing the fluid and mobile nature of urban labor markets where distance between job and home counts for little, this study finds evidence of very differently colored labor markets within a few miles of each other. We also examine the impact of affirmative action in promoting black male employment when fine geographic effects are controlled for.

There are only a handful of establishment level datasets with geographic detail. Among these few, perhaps only one also contains information on the racial composition of the workforce. This study geo-coded Equal Employment Opportunity establishment level demographic data, and breaks new ground in using such data to address the question of the importance of distance between work and residence on black employment. In so doing, we reverse the usual assumptions inherent in monocentric models of employment. Rather than modeling the distribution of residential location about monocentric employment, we allow employment to be dispersed. We take advantage of detailed employer characteristics to help separate demand from supply effects.

The local labor market is a concept that that has not only been routinely accepted by economists in theory, but has also been embedded by courts in practice in the enforcement of equal opportunity law and affirmative action regulation. Yet the courts' and regulators' views of local labor markets rarely reach levels of detail less coarse than an entire undifferentiated city or SMSA. Differences across establishments in the same SMSA and industry are commonly taken as prima facie evidence of employment discrimination, under the assumption that all such establishments face the same labor supply. If employment patterns across firms within an SMSA are significantly affected by variations in labor supply schedules caused in part by

residential segregation, then we must ask as a matter of law and public policy how much of the burden should be placed on the employer to undo the effect of residential segregation? If all, then we place a considerable tax on employers in segregated cities that is not necessarily related to employment discrimination. If none, then we create a great incentive for discriminating employers to move to the suburbs. This paper exploits the fine geographic detail of a unique establishment level data set and presents evidence of far more heterogeneous micro labor markets within SMSAs than has usually been recognized for legal or policy purposes.

The second section of this paper reviews Kain's work and that of a few of his subsequent critics. The third section develops a model of an urban labor market taking residential location as given. The fourth section discusses our results, comparing the level and changes in black employment share across establishments in Chicago and Los Angeles in the late 1970s. The fifth presents our conclusions, chief among which is that residential segregation severely limits employment integration.

II. The Kain Controversy: Residential Segregation and Spatial Mismatch

John Kain's work was the first to link discrimination in the housing market to the distribution and level of non-white employment in urban areas. Kain used data on place of work and place of residence obtained from the Detroit Area Traffic Study of 1952, and the Chicago Area Traffic Study of 1956 to test three hypotheses: First, residential segregation affects the geographic distribution of black employment. Second, residential segregation increases black unemployment, and third, the post-war suburbanization of employment has hindered black employment. The central tests in this work are regressions for each city of the percent black employed across workplace zones on the percent black resident in each workplace zone and on distance from the major black ghetto. Kain's major finding is that blacks' share of employment is significantly higher in heavily black neighborhoods and close to the major ghetto. One interpretation of this result is that residential segregation causes

employment segregation. From this it follows that the underrepresentation of blacks in employment may overstate employment discrimination, and that the suburbanization of employment will tend to reduce black employment opportunities and increase black unemployment.

Kain's work attracted much criticism on both empirical and theoretical grounds. Offner and Saks reanalyzed the Chicago data and found that the original results were sensitive to specification. In particular, Offner and Saks found evidence of tipping behavior: black employment share increases at an increasing rate as black residential share increases. One possible policy interpretation of this result is that residential integration might decrease employment opportunities for blacks. While this point provoked further controversy, for our purposes here it is important to bear in mind that Offner and Saks' results agree with Kain's in showing that black employment share decreases with distance from the major ghetto.

Once stated, this result seems obvious. But does it then follow that black unemployment can be partly blamed on the physical inaccessibility of jobs? Some recent work by Ellwood has argued that, surprisingly, the answer may be no. Examining youth unemployment in Chicago during the 1970's, Ellwood finds that distance and travel time from potential jobs cannot account for much of black unemployment, suggesting that, in some sense, there may be "enough" jobs for blacks near the ghetto. Hence the Ellwood aphorism: "The problem isn't space. It's race.". Nevertheless, this may be true at the same time that black access to jobs beyond the ghetto is constrained.

In another recent paper using a national CPS sample, Price and Mills [1983] reach a similar conclusion. They find that only 6 percent of the black-white earnings differential can be explained by the greater concentration of blacks in the central city, while at least 15 percent is due to employment discrimination.

Adding support to this view, Meyer [1981, p. 231.] reviews a number of studies of

transit demonstration projects funded by the federal government in the aftermath of the Watts riots to test the hypothesis that improved bus service to outlying employment centers would reduce inner-city unemployment. He concludes that "there was little evidence that many jobs were found because of the new bus service... When compared with racial discrimination or lack of skills and education, employment decentralization and inadequate or expensive public transportation appeared to be relatively minor causes of unemployment (or underemployment) among low-income central-city residents." Taken together, these studies present us with an apparent paradox: spatial considerations can explain a good deal about where blacks work, but they do not appear to have much to say about whether blacks work or about their earnings if they do work.

The theoretical criticism of Kain's work, which Kain himself notes, is that his results are consistent with a world in which blacks are chosing the optimal place to live. The issue is essentially one of simultaneity and reverse causation. If there were no residential discrimination, but strong and pervasive employment discrimination, blacks might find it advantageous to live near establishments that would employ them. While this is unlikely to be the dominant trend, it would make improvements in urban transport and efforts at residential integration largely beside the point in ameliorating the employment problems of urban blacks.

It is difficult to give this argument much credence. First, there is an abundance of independent evidence demonstrating the strength of residential discrimination and segregation[2]. If anything, one lesson from the history of federal efforts to integrate neighborhoods and workplaces over the last two decades is that it is far easier to get whites and blacks to work side by side than it is to get them to live side by side. Secondly, tastes for discrimination are not uniform. While a neighborhood may tip, it is difficult to believe that the reason so few blacks live in the suburbs is because all suburban employees discriminate against them. After all, if there were no residential

discrimination, all it would take to integrate a neighborhood would be one enlightened employer. Third, given that housing, on a quality adjusted basis, is more expensive in the central city (Kain and Quigley), why should all the non-discriminating firms cluster around the central city when they could presumably offer their black workers lower wages elsewhere? Fourth, only a small and decreasing fraction of blacks report a desire to live in all black neighborhoods[3].

Finally, a recent paper by Kain and Zax reminds us again of the importance of residential segregation. In a carefully structured case-study, they find that when an integrated firm moves from the central-city to the suburbs, black employees are significantly less likely than whites to follow and keep their jobs. This is interpreted as strong evidence of a constraint on black residential choice. Similarly, working from a sophisticated theoretical base, Straszheim finds a positive wage gradient with lower wages in the central city, for low education black workers but not for whites, and concludes that this is persuasive evidence in support of Kain's view that residential segregation reduces employment opportunities for blacks.

In this paper we take residential patterns as given. In the following section, we develop a simple model for testing the impact of residential segregation on employment segregation.

III. A Model of an Urban Labor Market

This section develops a model of an urban labor market to analyze the proportion of black workers within establishments at various distances from a central ghetto. For tractability, we assume immobile residences and a monocentric black residential population. We relax the usual assumption of monocentric employment and allow firms to be dispersed over the urban area.

Since residential location is fixed, there are no housing prices in the model. The employee's problem is then to maximize utility conditional on location as a function of wages (W) and commuting costs (C):

$$\max U = U(W, C) \tag{1}$$

with $U_1 > 0$, $U_{11} < 0$, $U_2 < 0$, $U_{22} < 0$.

For smooth geographic wage distributions and smooth commuting costs, black employment will be clustered about the ghetto. Further from the ghetto, blacks would require higher wages to compensate then for increased commuting costs, so:

$$W^s = \lambda\ DGHETTO \tag{2}$$

where W^s is the supply wage of blacks, DGHETTO is distance from the ghetto, and $\lambda > 0$. This in itself will cause the geographic distribution of black employment to resemble the distribution of residence.

The firm's demand for black labor is given by:

$$PB = \beta_1\ G - \beta_2\ D + \beta_3\ T - \beta_4\ W \tag{3}$$

where PB is the proportion of blacks demanded, G is affirmative action pressure, D is a Beckerian taste for discrimination, T is skill requirement, and W is the wage[4]. Substituting equation 2 into equation 3 gives the reduced form equilibrium equation:

$$PB = \beta_1\ G - \beta_2\ D + \beta_3\ T - \beta_4\ \lambda\ DGHETTO \tag{4}$$

This reduced form is our basic estimating equation. We shall also estimate it in growth form. We are interested in determining the magnitude of the effect of distance from the ghetto on both the level and growth of black employment share within establishments[5].

IV. A Comparison of Chicago and Los Angeles

Los-Angeles and Chicago differ in terms of residential segregation, Chicago being among the most highly segregated major American cities, and Los Angeles being relatively more integrated. In 1970 the Taeuber index of segregation between whites and non-whites, where one is perfectly segregated and zero is perfectly integrated, was 88.8 in Chicago and 78.4 in Los Angeles, and had fallen in both cities since 1960[6]. But even the most integrated cities in America are still essentially segregated. The Watts riots of 1965 demonstrated that blacks in Los Angeles, as in other cities, felt disen-

franchised and disenchanted. The McCone Commission report on the causes of the riot recognized the problems faced by blacks in finding and holding a job, and pointed out that "the inadequate and costly transportation currently existing throughout the Los Angeles area seriously restricts the residents of the disadvantaged areas such as South Central Los Angeles." While the Census of Population and Housing reports that 33% of all employed blacks use public transit to get to work in the Chicago SMSA in 1980, the comparable figure for the Los Angeles SMSA is only 13%. This knife cuts both ways however. If jobs disperse faster than public transit can keep up, reliance on the aid of public transit can become a burden. Along these lines it is worth noting that while the use of public transit overall increased very slightly in Los Angeles between 1970 and 1980, it fell markedly in Chicago from 23% to 18%. Have the changes since 1965 made any difference in terms of employment?

Table 1 compares employment to population ratios (EPRs) from Census data in 1970 and 1980 for blacks and whites in the cities and the remainder of the SMSAs of Chicago and Los Angeles. These EPRs are always lower for blacks than for whites, lower in the city than the suburbs, and lowest of all for city blacks in Chicago in 1980. In fact while black EPRs are rising in the suburbs, they are falling in the city, and falling the fastest in the city of Chicago. While Black EPRs in Chicago are almost identical to those in Los Angeles in 1970, the two areas differ considerably by 1980. In particular, the EPR of Chicago city blacks falls more than that of any other group, including Chicago city whites, and it falls while suburban EPRs are rising for both blacks and whites.

Empirical Strategy

We estimate the impact of distance from the ghetto on the level of black employment share across establishments in Chicago and Los Angeles in the late 1970s by using log-odds regressions of the following form:

$$\log\left(\frac{PB}{1-PB}\right) = X\beta + \varepsilon \qquad (5)$$

where X is a vector of establishment characteristics including distance from the ghetto[7]. We also estimate the impact of distance on the change in employment share over time by estimating a variant of equation 5 that includes past employment share as an independent variable. The strategy here is to let the regression tell us what a mile of distance means in each city in each year. This is the advantage of using miles rather than a direct measure of travel time, and of using distance from central ghetto rather than distance from the nearest concentration of blacks. The key concept is that the effect of distance from ghetto will yield an independent summary measure of both the extent of residential segregation in each city and of the usefulness of its transportation system in moving blacks to jobs. For example, imagine two different cases in which distance from the ghetto would have no impact on establishment demographics. The first would be a city that was effectively integrated residentially. The second would be a segregated city with an excellent transportation network that brings ghetto and jobs close together. In either case, we would expect a distance to ghetto variable to play an insignificant role in explaining percent black in workplaces.

The interesting tests in the following tables are then of two types: a comparison across cities, and a comparison within each city over time. One might expect distance from ghetto to play a stronger role in determining workplace percent black in Chicago than in Los Angeles because Chicago is more segregated residentially. Distance from the central ghetto should be a less meaningful measure of the supply of black workers in relatively integrated Los Angeles than in residentially segregated Chicago. Since there is little reason to expect discriminating employers to sort themselves geographically more strongly in one city than in the other, the major countervailing force is the transport system. The point is simple: a good urban transport system can undo the effect of residential segregation on employment segregation by literally spanning the miles and figuratively bringing the jobs closer to the ghetto. If the Chicago transport system were better than Los Angeles's at bringing jobs closer to blacks, then distance

to ghetto might have a stronger impact in Los Angeles than in Chicago, even though Los Angeles is more residentially integrated. Given the conclusions of the McCone Commission Report on the inadequacy of mass transit in Los Angeles, this is a possibility with important implications for policy.

Comparing each city with itself in an earlier year allows us to summarize changes over time in the extent of residential segregation and the effectiveness of urban transport systems. As blacks are brought closer to jobs, either by residential integration or by transportation improvements, the impact of distance from ghetto on workplace demographics should weaken.

Sample Characteristics

For this study I assembled a longitudinal sample of establishment level data in 1974 and 1980 starting with EEO-1 reports provided by the OFCCP's Division of Program Analysis. These in turn were matched against OFCCP internal administrative records to identify establishments which had undergone a compliance review in the intervening years. EEO data on establishment demographics in the intervening years was not available, so no fine dynamic tests can be made. Details of this sample are discussed in other work. The sample includes establishments in all of the private sector, although sectors typified by establishments with fewer than 100 employees are underrepresented. Other work compares white-collar with blue-collar workers, and male with female. Here we focus in detail on patterns for male blue-collar workers.

Distance from the ghetto is measured as miles from the center of the establishment's zip code zone to the border of the central black ghetto in each city, where contiguous zones with twenty percent or more black residential population are included within the ghetto. In Los Angeles, this is the contiguous area stretching across a sixteen mile long oblong in South Central Los Angeles, whose best known neighborhood is Watts. In Chicago, the ghetto has two lobes: one stretches 7.5 miles due West from Grant Park, the other runs sixteen miles South from the park. For this

study, the Chicago sample includes establishments within Cook, DuPage, and Lake Counties in Illinois; an area sixty-six miles across at its longest. The Los Angeles sample includes establishments in Los Angeles and Orange Counties in California; an area whose extremes are seventy-six miles apart. The greater dispersion of establishments in Los Angeles than in Chicago may be seen in Table 2, which defines the variables used in the regressions that follow and gives summary statistics for each. The longitudinal samples include 1911 Chicago establishments and 2389 Los Angeles establishments in all industries. The major employment sectors in Los Angeles and their respective shares of sample establishments are retail trade 34%, manufacturing 33% and services 14%. In Chicago the respective shares are 25%, 36% and 13%. The average establishment in Los Angeles is about 1.3 miles further than its Chicago counterpart from the respective ghetto boundary. The standard error of the mean in both cases is about .16, so as expected Chicago employment is significantly more concentrated[8]. The contrast in local economic conditions in each city is evident in the fact that the average rate of growth of blue-collar employment between 1974 and 1980 was twice as great in Los Angeles as in Chicago. It is worth noting that among blue-collar occupations there is no consistent evidence in this sample of a spatial mismatch in skills, or that establishments with skill-intensive jobs sort themselves into the suburbs. Before proceeding, it is also useful to note that blacks' employment share has started at a higher level and grown faster in Chicago than in in Los Angeles. Hispanics have played a much larger role in Los Angeles, reflected here in the much sharper drop in white male share.

Cross-Tabulations by Geographic Zone

Table 3 presents some of the basic results of this paper in cross-tabulations of employment data in each city in each year by geographic zone. We classify the establishments in each city into three geographic zones, show the change over time in employment in each zone, and ask how employment opportunities for blacks might be

affected by changes in the dispersion of total employment across zones. The ghetto includes all establishments in zones that have at least 20 percent black population. The border includes all establishments within 5 miles of the edge of the ghetto, and the suburb lies beyond that. The greater suburbanization of employment in Los Angeles is immediately apparent in the greater proportion of establishments and employment lying outside the ghetto. This employment suburbanization increased in both cities, although it is partially offset in Los Angeles by an increase in ghetto employment in the wake of the discovery of downtown Los Angeles[9]. In both cities, establishment size falls with distance from the central city- perhaps the central city is no longer the incubator. It is also interesting to note that Chicago establishments are roughly twice the size of their Los Angeles counterparts in every zone. It is important to realize that employment is growing in every zone in Los Angeles, and growing fastest in the ghetto. In contrast, employment is falling in every zone in Chicago, except in the suburbs. In other words, the only new jobs created in the Chicago sample are in suburban establishments.

Racial residential patterns are clearly reflected in racial employment patterns. The proportion of all black employees who are employed in the ghetto is higher in Chicago, and more importantly has increased between 1974 and 1980 in both cities. It is also important to realize that in both cities blacks' share of employment falls dramatically with distance from the ghetto. By no means do these employment patterns reveal a homogeneous labor market, or one in which distance between ghetto and workplace is inconsequential for black employment.

Consider the implications of Table 3 for the impact of employment decentralization on blacks. A simple decomposition identity is:

$$PB = \sum PB_i S_i \qquad (6)$$

where PB is the aggregate proportion of blacks among employees, PB_i is the black proportion of employment within geographic zone i, and S_i is zone i's share of total

employment.

We may then use equation 7 to roughly ask two questions. First, what would we expect black employment to be in Chicago in 1980 if the geographic distribution of employment had not changed since 1974. If the ghetto and border areas had maintained their 1974 share of jobs, we would expect aggregate black male employment share to be .168 in 1980, or 47,551 jobs. This is greater than the actual share of .167 in 1974, and of .165 in 1980. It equals an increase of .05% over actual 1974 jobs, and of 2.05 % over 1980. To carry this rough simulation a step further, the second question is what would black employment be in Chicago in 1980 if employment were as dispersed as in Los Angeles in 1980. In this case, black male employment share would fall to .161, or 45,691 jobs, a 4 % decline from the actual 1974 base,

even though it is only 1.3 miles further from the ghetto border to the average establishment in Los Angeles than in Chicago. Analogously, if Los Angeles employment did not shift geographically between 1974 and 1980, the imputed black male employment share is .0872, while if Los Angeles employment were as concentrated as Chicago's in 1980, imputed black male employment share increases to .0905. These are both greater than the actual black male shares of .0780 in 1974 and .0865 in 1980. The greater dispersion of employment in Los Angeles than in Chicago, and the dispersion over time of jobs to the suburbs would seem to work to the detriment of blacks. In Los Angeles, this effect outweighs the contemporaneous growth of ghetto employment. Of course these are only rough simulations, and are only partial equilibrium in nature. Obviously, as jobs move to the suburbs we would expect some blacks to follow over time either by moving or commuting. These calculations are presented as rough indications of expected demand changes facing blacks that set the stage for the more detailed analysis in the following sections.

The Impact of Distance From the Ghetto in Los Angeles and Chicago

Table 4 presents estimates of the reduced form equations comparing Los Angeles and Chicago in the effect of distance in miles from the ghetto on the change in workplace demographics between 1974 and 1980. These are log-odds estimates, weighted by establishment size in 1974, of black males' and white males' shares of blue-collar employment regressed on 1974 share, distance from the ghetto, distance squared, and a vector of other establishment characteristics including contractor and review status, size, growth rate, and proportion of craft workers among the blue-collar workers.

Table 4 shows three interesting patterns. First, distance from the ghetto is the single strongest and most significant determinant of changes over time in black males' employment share. Residential segregation is clearly and strongly carried over into increasing employment segregation over time in both cities. The further the distance from the ghetto, the greater the loss of black employment share between 1974 and 1980, ceteris paribus. While causation is hardly so simple, the pattern is as if the ghetto exercised a gravitational pull on blacks. The positive coefficient on the squared distance term indicates that this negative geographic gradient levels off eventually, as one would expect. In neither city have racial integration or improvements in transport systems progressed so far as to make distance from the ghetto irrelevant to the employment of blacks.

This marks a significant extension of Kain's work, moving it for the first time from a static to a dynamic frame. Kain, as well as Offner and Saks, showed that black male employment share is higher closer to the ghetto. Here we strengthen that early result by extending it to changes over time: black male employment share increases faster closer to the ghetto. Moreover, this holds true even in a city where the only overall employment growth by zone takes place in the suburbs. It is doubtful that this merely reflects the simultaneous operation of optimal residential location decisions by blacks

in a world without residential segregation, in other words that blacks, but not whites, within a city freely flock to the ghetto for the jobs. The far more plausible alternative is that residential segregation has limited employment opportunities for blacks. From a broader perspective, this is also evidence of the generalized tipping behavior underlying Kain's thesis[10].

The second notable finding in Table 4 is how similar such dissimilar cities are. In both cities distance from the ghetto plays a strong role and the coefficients are of the same order of magnitude despite marked differences in the extent of racial residential segregation and in the structure of urban transport. The impact of greater residential integration in Los Angeles may be tempered by the impact of a less effective mass transportation system for poor blacks who remain in the central ghetto.

Distance matters greatly in both cities, but it matters more in Chicago. Five miles from the ghetto border in Chicago, black male employment share between 1974 and 1980 falls by an average of 3.8 percentage points, holding other variables, including past share, fixed. In Los Angeles the corresponding drop is 2.8 percentage points. Ten miles out, the drop is 6.6 percentage points in Chicago, compared to 5.1 in Los Angeles. The third finding in Table 4 is that the detrimental impact of residential segregation on employment segregation is worse in Chicago. At standard significance levels, F-tests reject the identity of coefficients on distance terms across equations. Distance from the ghetto leads to a stronger and more significant reduction in black males' employment share in Chicago than in Los Angeles. Think of this in a different way: a new and different measure confirms that residential segregation is worse in Chicago than in Los Angeles, and worse in ways that may be interpreted as reducing employment opportunities for blacks[11]. This last interpretation is not unavoidable, but it is highly plausible. There is little apparent reason why discriminating employers should sort themselves along a geographic gradient more perfectly in Chicago than in Los Angeles. Neither is there compelling reason to believe that black males in Chicago are

happily expressing a stronger preference for life in the ghetto than do their brethren in Los Angeles[12].

The Impact on Levels of Employment

So far we have analyzed the impact of distance on changes over time in employment share. Table 5 asks what impact distance has had on the level of employment share in each city. Table 6 interprets the effect of distance in Table 5 by showing the cumulative change in the level of black male share of blue-collar employment as distance from the ghetto increases. Black male employment share falls at a faster rate with distance in Chicago than in Los Angeles. At the 99% confidence level, F-tests indicate that the coefficients on distance terms differ significantly across cities. In 1980 for example, black males' employment share was 12.4 percentage points lower ten miles from the ghetto than in the ghetto itself in Chicago, but only 9.1 percentage points lower in Los Angeles. This finding of a steeper geographic gradient in levels of employment share in Chicago than in Los Angeles reinforces the finding in Table 4 of a similar pattern of geographic gradient for changes over time in employment share. Note that there is no clear reason to expect this steepness to vary with the level of the initial state. Moreover, the initial state here, the percent black at the border, has been selected to be of equal magnitude, twenty percent in each city. It is unlikely then that the gradient is steeper in Chicago simply because the edge of the Chicago ghetto may be blacker. Again, it is unlikely that the relevant transportation system is better in Los Angeles, or that discriminating firms sort themselves geographically more strictly in Chicago than in Los Angeles. A plausible explanation for the steeper gradient in Chicago is the more intense residential segregation there.

The interpretation that greater residential integration in Los Angeles has reduced the potential negative impact on blacks of job dispersion is considerably strengthened by examining relative travel times in the two cities. The Census of Population and Housing reveals that the mean 1980 travel time for all workers, and for black workers

in particular, is surprisingly lower in Los Angeles than in Chicago. Black workers in Chicago average 36 minute commutes, 29% greater than the 28 minute average for all workers. In contrast, the mean commute for Los Angeles black workers is 28 minutes, only 17% greater than the 24 minute mean for all workers. In other words, while employment is more dispersed in Los Angeles, so is residential location, including that of blacks, and it is not obvious that a lack of public transit seriously impedes most employed blacks in Los Angeles.

Has the impact of distance from the ghetto changed over time in either city? One would expect increases in residential integration, which has certainly occurred in Los Angeles, and possible improvements in urban transport to reduce over time the importance of distance from ghetto in determining workplace demographics. We do not observe this. Tables 5 and 6 indicate that there has been some slight decay in Los Angeles, together with a marked deterioration in Chicago between 1974 and 1980. At 95% confidence levels, the distance effects in both cities are stable over time according to F-tests. If employment decentralization changed the gradient over time, we might expect the Chicago gradient to become more like that in Los Angeles, the prototypical decentralized city. Instead, the opposite is occurring: the gradient in Chicago starts steeper than in Los Angeles and becomes yet steeper over time. This suggests that to explain the change in the gradient over time we must look beyond employment decentralization. These cross-section regressions from the longitudinal sample do not correct for establishment growth, and so may be sensitive to differences across the cities in the impact of the business cycle and the sectoral decline of manufacturing in Chicago. In particular, the recession that was developing in 1980 hurt Chicago more than Los Angeles. When combined with the possibility that black males in outlying areas have lower seniority on average, this may account for the increasing negative impact of distance from the ghetto on black male employment in Chicago between 1974 and 1980. While caution must be exercised in view of the longitudinal nature of

the sample, the comparison in Table 5 does suggest that over time, ceteris paribus, the geographic segregation of employment has come to more closely resemble the geographic segregation of habitation in Chicago.

Surprisingly, black male employment in the Chicago sample did collapse towards the ghetto between 1974 and 1980, as a return to Table 3 makes clear. In 1974, 33.6 percent of the black male blue-collar employees in the Chicago sample worked in ghetto establishments. By 1980 this had increased slightly to 34.3 percent. What makes this increased concentration of black male blue-collar employment more striking is that total blue-collar employment was dispersing at the same time in the same sample. 27.4 percent of all blue-collar jobs were in ghetto establishments in 1974, but this had fallen to 26.6 in 1980. While the average job in the sample moved farther from the ghetto, the average job held by a black male moved closer. This holds for a fixed ghetto border and a fixed sample of establishments over time. If we were to recognize the movement of establishments to the suburbs[13] and the expansion of ghetto borders, the suburbanization of employment and the concentration of black employment in the ghetto would be even stronger.

This striking result comes about because blue-collar employment is in decline except in the suburbs more than five miles from the ghetto border. Blue-collar employment fell by 4 percent within the ghetto, fell by 2 percent in the border zone within five miles of the ghetto boundary, but increased by 2 percent beyond five miles from the ghetto. Ghetto establishments were in slow decline over these years. What employment growth there was took place in the suburbs, but the number of black males employed out there actually declined a bit. While 14 percent of all suburban blue-collar employees were black males in 1974, this fell to 13.6 percent in 1980. In the border zone, black male share fell from 17.1 to 16.4. Within the ghetto itself, black male share increased from 20.4 to 22.1, but this was largely offset by a declining base[14]. The result is that while total blue-collar employment fell by a half a percent in

Chicago, black male blue-collar employment fell by two percent.

The evidence in this sample is unique and important. For a fixed and extensive sample of Chicago establishments between 1974 and 1980, the average blue-collar job moved farther away from the ghetto -because ghetto establishments contracted while suburban establishments expended- but black males did not follow the jobs. Exactly how much of the contemporaneous increase in black unemployment this accounts for remains to be seen. Certainly, it cannot have helped black employment[15].

V. Conclusions

Our results may be simply summarized. First, distance from the main ghetto is one of the strongest and most significant determinants of levels and changes in the racial composition of the workforce. The further away an establishment is from the ghetto the fewer blacks it employs and the slower the rate at which it adds blacks to its workforce over time. Residential segregation not only limits where blacks can live, it also influences where they work. Patterns of residential segregation are strongly reflected in patterns of employment segregation. This is a phenomena both the courts and the OFCCP have only roughly taken into consideration in comparing an employer's demographic patterns with those of the local labor market. To approach this from another perspective, the results here certainly indicate that neither Title VII nor affirmative action, which both tend to consider an SMSA as an undifferentiated geographic whole, have yet caused black employment to be as evenly dispersed as are jobs across an SMSA.

Second, the impact of distance from the ghetto on black male employment share can be thought of as a summary measure of the extent of residential segregation and of the efficacy of urban transport in bridging the gap between jobs and the ghetto. The evidence here indicates that distance from the ghetto has had a stronger and more significant effect in reducing black male employment in Chicago than in Los Angeles. In other words, residential segregation limits black male employment

opportunities more strongly in Chicago than in Los Angeles.

Third, to the extent that the future is here today in Los Angeles, it does not look worse for blacks. To the uncertain extent that Los Angeles is a guide, the negative impact of employment dispersion on blacks may be ameliorated by accompanying residential dispersion.

Employment patterns for blacks have been strongly influenced by residential segregation. Both the rate of growth and the level of black employment share are higher closer to the ghetto. The efficacy of efforts to integrate the workplace are still limited by residential segregation.

Notes

1. See Harrison [1974] and Mills and Price [forthcoming] for a fuller discussion of these issues.
2. See McEntire [1960], Abrams [1955], and Thompson, Lewis and McEntire [1960].
3. See Brink and Harris [1967].
4. For simplicity, this implicitly assumes uniform white wages. Whites are usually found to have a negative wage gradient (Straszheim). If we allow for this, then black relative wages rise with distance from the ghetto a fortiori. If tastes are identical across races, and blacks and whites are perfect substitutes in production, then a finding of a negative relation between black employment share and distance from the ghetto, or equivalently a positive relative wage gradient, will suggest residential segregation that limits black employment opportunities.
5. Although there is no evidence that firms chose their location within an SMSA with regard to the racial composition of the nearby population, it is not inconceivable that firms with strong discriminatory tastes would sort themselves into the suburbs. To the extent that this happens, the coefficient on DGHETTO will reflect this taste for discrimination as well as the commuting costs for blacks. We control for a number of other establishment characteristics that may reduce this second effect. For example, we control for whether or not an establishment is a federal contractor or has undergone an affirmative action compliance review. Although there is no evidence to support it, one might expect discriminating firms to avoid federal contracts and their attendant affirmative action obligations, or to be the target of a compliance review if they were contractors. More importantly, given that both the OFCCP and the courts rarely recognize labor markets finer than an SMSA, it is doubtful that firms can escape affirmative action or Title VII pressure by moving to the edges of an SMSA.

6. Sorensen et. al. [1974] find a mean segregation index of 81.6 in a study of 109 American cities, ranging from 57.6 in Cambridge, to 97.4 in Shreveport. The Hispanics in Los Angeles lower its segregation index. Considering just blacks and whites, Sorensen et. al. report an index of 93.0 in Chicago and 90.5 in Los Angeles. According to this index, Los Angeles is just slightly more integrated residentially than Chicago.

7. The log-odds specification is appropriate because the dependent variable, employment share, is bounded by zero and one. We weight by establishment size to reduce the heteroskedasticity arising from more precise share data in larger establishments. The main findings here are not altered in a linear probability specification.

8. The higher proportion of establishments that have undergone a compliance review in Los Angeles is best interpreted as an artifact of the oversampling of DOD reviews and the concentration of defense industries in Los Angeles. Note also that contractor establishments subject to the affirmative action obligation are no more likely to be hiding away in the suburbs in either city. This suggests either that the affirmative action obligation is not on net costly to meet, or that all establishments within an SMSA are held to the same standard no matter how far from the ghetto they are. Concerning compliance reviews, in both cities they are more likely in the border zone than in either the ghetto or the suburbs. Given residential segregation, this may be where they will do the most good, although I doubt this reflects conscious strategy on the part of the OFCCP.

9. This is not an artifact of our sample. Similar patterns are observed in Census data between 1970 and 1980 comparing each city with its surrounding SMSA.

10. The log-odds specification used in this paper is singularly ill-suited for tests of tipping. In linear regressions of 1980 employment share on 1974 share, its square, and other variables, we do not find evidence of tipping within establish-

ments. The higher past share, the smaller the increase in current share.

11. Note that affirmative action among contractors is effective for blacks even when distance from the ghetto is controlled for, although reviews have an insignificant perverse effect in Chicago. In both cities, black males share has grown significantly faster in contractor than in non-contractor establishments. The substitution of white males for Hispanic females in contractor establishments in Los Angeles is evidenced by a significant positive impact of contractor status on white male employment share, which we would not expect from a fully effective program.

12. Regressions not shown here indicate that in Los Angeles manufacturing plants, black male share grows faster in union than in non-union plants, even when distance from the ghetto is controlled for. Other regressions control for the residential proportion black in each establishment's neighborhood, distance from the nearest concentration of black population, and the square of each of these variables. None of these variables are significant, and their exclusion does not appreciably affect the results of interest here. In other words, in Los Angeles during the 1970s, the bone that Offner and Saks picked with Kain isn't on the table. We can unambiguously state that residential integration would improve black employment opportunities.

13. One might be tempted to use a non-longitudinal sample to focus on newly created establishments. Ashenfelter and Heckman carefully document the pitfalls of this approach: sample exits and entrances are largely random and are not closely related to establishment births and deaths.

14. At the same time, the unweighted average black male share across establishments increased in each zone because black employment losses were overrepresented at larger establishments.

15. Returning to the question of affirmative action, the impact of contractor status on the level of black male employment share has increased over time in both cities. Contractor status has a cumulative effect that grows over time as employers continue to adjust. Black male employment share increases faster among federal contractors subject to affirmative action even when detailed residential demographics and distance from the main ghetto are controlled for. Contractors are not located closer to concentrations of black population in any significant way, as one simultaneity argument would run. By promoting the integration of the workplace, affirmative action holds out the promise of reducing residential segregation in the long run.

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Table 1: Employment Population Ratios in 1970 and 1980 of Blacks and Whites in the City and Remainder of the SMSA in Chicago and Los Angeles

	Black		White	
	City	SMSA Remainder	City	SMSA Remainder
Chicago				
1970	.540	.547	.595	.605
1980	.473	.597	.586	.652
Los Angeles				
1970	.539	.547	.563	.568
1980	.508	.592	.617	.611

Table 2: Sample Means and Variable Definitions
N = 1911 Chicago Establishments
N = 2389 Los Angeles Establishments

	MEAN		
Variable	Chicago	Los Angeles	Definition
DGHETTO	6.31	7.60	Miles from border of Central Black Ghetto
$DGHETTO^2$	93.19	116.95	Miles squared
CONTRACTOR	.586	.632	=1 if establishment was part of a federal contractor subject to affirmative action in 1974
REVIEWED	.016	.056	=1 if establishment underwent an affirmative action compliance review between 1974 and 1980
SINGLE	.240	.176	=1 if establishment was not part of a multi-plant company
SIZE	164.70	110.38	Number of blue-collar employees in 1974 (crafts, operatives, laborers, service)
GROWTH	.677	1.22	Growth rate of blue-collar employment, 1974-1980
PCRAFT	.280	.273	Proportion of craft-workers among blue-collar workers
PTBM	.180	.105	Black male proportion of blue-collar workers, 1980
PBM	.160	.101	Black male proportion of blue-collar workers, 1974
PTWM	.485	.373	White male proportion of blue-collar workers, 1980
PWM	.541	.473	While male proportion of blue-collar workers, 1974
PTBF	.097	.060	Black female proportion of blue-collar workers, 1980
PBF	.086	.053	Black female proportion of blue-collar workers, 1974
PTWF	.164	.168	White female proportion of blue-collar workers, 1980
PWF	.171	.173	White female proportion of blue-collar workers, 1974

Table 3: Blue-Collar Employment Characteristics by Geographic Zone by Year in Chicago and Los Angeles

Chicago	1974			1980		
	Ghetto	Border	Suburb	Ghetto	Border	Suburb
1. Number of Establishments	311	364	547	311	364	547
2. Mean Black Male Employees	51.3	40.6	30.7	51.4	38.2	30.6
3. Mean Total Employees	251	237	220	232	233	225
4. Black Male ÷ Total	.204	.171	.140	.221	.164	.136
5. Growth Rate, Black Male	-	-	-	.002	-.006	-.003
6. Growth Rate, Total	-	-	-	-.076	-.017	.023
7. Share of SMSA Black Males	.336	.311	.353	.343	.298	.359
8. Share of SMSA Total Employment	.274	.303	.423	.266	.300	.435
Los Angeles						
1. Number of Establishments	393	763	1233	393	763	1233
2. Mean Black Male Employees	14.1	13.7	3.7	18.4	15.9	4.6
3. Mean Total Employees	113	137	93	129	143	105
4. Black Male ÷ Total	.125	.100	.040	.143	.111	.044
5. Growth Rate, Black Male	-	-	-	.30	.16	.24
6. Growth Rate, Total	-	-	-	.14	.04	.13
7. Share of SMSA Black Males	.270	.509	.222	.289	.485	.227
8. Share of SMSA Total Employment	.168	.397	.435	.175	.377	.448

Table 4: A Comparison of the Effect of Distance from the Ghetto on the Change between 1974 and 1980 Establishment Demographics in Chicago and Los Angeles
N = 1191 Chicago Establishments
N = 2389 Los Angeles Establishments

Demographic Group	BLACK MALES		WHITE MALES	
City	Chicago	Los Angeles	Chicago	Los Angeles
Equation	1	2	3	4
DGHETTO	-.840	-.610	.874	.795
	-0.057	-.065	.035	.034
	(.006)	(.006)	(.005)	(.005)
$DGHETTO^2$	.0177	.0113	-.0225	-.0161
	.0012	.0012	-.0009	-.00069
	(.0002)	(.0002)	(.0002)	(.00018)
CONTRACTOR	2.51	2.62	.574	3.18
	.170	.279	.023	.136
	(.052)	(.052)	(.043)	(.045)
REVIEWED	-.663	1.52	-2.95	-4.09
	-.045	.162	-.118	-.175
	(.085)	(.056)	(.070)	(.048)
SINGLE	-3.02	2.90	.849	-4.94
	-.205	-.309	.034	-.211
	(.056)	(.055)	(.046)	(.047)
SIZE	.0018	.000045	.0019	.0026
	.00012	.0000048	.000078	.00011
	(.000018)	(.000029)	(.00015)	(.000025)
GROWTH	-.501	-.329	.624	-.819
	-.034	-.035	.025	-.035
	(.011)	(.013)	(.009)	(.011)
PCRAFT	.560	3.15	16.81	9.85
	.038	.336	.673	.421
	(.089)	(.081)	(.078)	(.074)
P74	88.01	72.37	107.15	80.93
	5.97	7.71	4.29	3.46
	(.124)	(.226)	(.073)	(.078)
MSE	93.61	84.49	63.71	62.24

Note: All equations include 26 industry dummy variables. For each variable, the first line is 100 dP/dX evaluated at mean P, the second is the coefficient from the log-odds equation, and the third is the standard error. P74 is the 1974 employment share of the given demographic group.

Table 5: Changes Over Time in the Effect of Distance from the Ghetto and Contractor Status on the Level of Employment of Black Males in Blue-Collar Jobs in Chicago and Los Angeles
N = 1911 Chicago Establishments
N = 2389 Los Angeles Establishments

City	CHICAGO		LOS ANGELES	
Year	1974	1980	1974	1980
Equation	1	2	3	4
DGHETTO	-1.20	-1.50	-1.13	-1.09
	-.089	-.102	-.124	-.116
	(.010)	(.009)	(.009)	(.007)
DGHETTO[a]	.0175	.0265	.0218	.0179
	.0013	.0018	.0024	.0019
	(.00033)	(.0003)	(.0003)	(.00025)
CONTRACTOR	4.40	5.47	4.22	4.67
	.327	.371	.463	.497
	(.085)	(.078)	(.075)	(.063)
SINGLE	-4.80	-5.78	-4.04	-4.57
	-.356	-.392	-.443	-.487
	(.091)	(.083)	(.079)	(.066)
SIZE	.0019	.0019	.00021	.00090
	.00014	.00013	.000023	.000096
	(.000029)	(.000027)	(.000041)	(.000034)
PCRAFT	2.34	.383	2.28	2.42
	.174	.026	.250	.258
	(.146)	(.134)	(.118)	(.010)
MSE	250.24	210.93	179.27	126.51

Note: All equations include 26 industry dummy variables. For each variable, the first line is 100 dp/dx evaluated at mean P, the second is the coefficient from the log-odds equation, and the third is the standard error.

Table 6: Geographic Change in Black Male Employment Share, Partialling Out Other Demand Side Characteristics. An Interpretation of Table 5.

DISTANCE FROM GHETTO	CUMULATIVE Δ BLACK MALE EMPLOYMENT SHARE			
	CHICAGO		LOS ANGELES	
	1974	1980	1974	1980
1 mile	-.012	-.015	-.011	-.011
5 miles	-.056	-.068	-.051	-.050
10 miles	-.103	-.124	-.091	-.091
20 miles	-.170	-.194	-.139	-.146