Neighborhoods, Economic Self-Sufficiency, and the MTO

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Abstract

The Moving to Opportunity (MTO) Program, undertaken in five metropolitan areas (MSAs) during 1994-1998, has produced the only evidence about the effects of neighborhood conditions on social outcomes which is based upon experimental observation. The results of this experiment provide no support at all for a link between neighborhood conditions and the economic self sufficiency of adults. This contrasts sharply with a prior body of social science evidence suggesting that the spatial segregation of minority workers from concentrations of urban employment leads to reduced earnings, employment, and minority welfare. We assess the importance of the experimental findings.

To establish a prior about the expected effects of the experimental treatments in these five MSAs, we estimate a simple statistical model of the effects of spatial isolation from job concentrations on the employment levels of black workers. We then analyze whether the experiment could have reasonably been expected to detect effects of this magnitude. We conclude that the experimental treatment observed *ex post* – a reduction of the neighborhood poverty rate for experimental subjects from the 96th percentile of the poverty distribution to the 88th percent – could not be expected to yield detectable effects. We conclude that the experimental results of the MTO are uninformative about the potential effects of neighborhood isolation on the employment levels of low-income black workers.

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I. Introduction

Despite substantial declines in the degree of racial segregation in the U.S. housing market reported in the 2000 Census (Jargowsky, 2003), most African-Americans still reside in communities that are geographically separated from those of white Americans. Continued racial disparities in education, income, and employment mean that housing segregation is accompanied by the concentration of poverty in predominantly black neighborhoods, and by the spatial concentration of adults with low levels of formal education, and high rates of joblessness. The concentration of black households in older, predominantly inner-city neighborhoods, coupled with continuing decentralization of employment within metropolitan areas, reduces the accessibility of jobs to low-skilled inner-city residents. Lack of access is compounded by public transit systems that do not facilitate reverse commuting and by low auto ownership rates among poor minority households. This "spatial mismatch" between the locations of low-skilled jobs and the residences of low-skilled workers has been a focus of labor economists since the late 1960s (Kain, 1968).

During the 1980s, concern with the employment effects of residential segregation was subordinated to a more general concern with the external effects of economic and racial segregation on social outcomes – for example, school completion, teenage pregnancy, crime, and disease. These "neighborhood effects" were thought to contribute to the pathology of an urban "underclass." (Jencks and Peterson, 1991) The spatial concentration of the poor declined during the decade of the 1990s, and the number of "underclass" census tracts declined by a third (Jargowsky and Yang, 2006). Nevertheless, the 2000 Census documented the fact that more than three and a half million poor Americans live in neighborhoods where poverty concentrations exceed forty percent.

An assessment of the importance of these issues for economic welfare is complicated. The explicit causal mechanisms are hard to articulate, and the measurement of influences is difficult. Any assessment based upon non-experimental data is made more difficult because individuals sort across neighborhoods for reasons that are almost certainly correlated with the determinants of the social outcomes studied (Manski, 1999). For example, in interpreting cross-sectional data on the isolation of low-income workers from job concentrations, it is likely that those with weaker attachments to the labor force will have chosen to locate in places where employment access is low. This is simply because monthly rents are lower in these places.

Thus the experimental evidence provided by the Moving to Opportunity (MTO) Program undertaken by the U.S. Department of Housing and Urban Development (HUD) during the 1994-1998 period is potentially quite valuable – in understanding the importance of neighborhood externalities upon social outcomes, in general, and the importance of spatial isolation upon employment outcomes in particular. The MTO experiment sought to document the effect of neighborhood conditions on a broad set of social outcomes for households with children residing in poor socially-isolated neighborhoods. The experiment recruited more than 4,600 low-income households residing in public housing in high–poverty neighborhoods in five central cities – Baltimore, Boston, Chicago, Los Angeles, and New York. Program participants were assigned to one of three groups: a control group; an experimental treatment group who were given housing vouchers that could only be used in neighborhoods with relatively low poverty rates; and an additional treatment group who received identical vouchers but with no neighborhood or geographical restrictions.

Adults and children in families assigned to the two treatment groups were exposed to significant declines in neighborhood poverty rates. Experimental evaluations of the program

during the five-year period following random assignment found some significant positive effects on mental and physical health and personal safety for adults and female youth, and adverse behavioral effects for male youth (Kling *et al* 2007, Orr *et al* 2003). These evaluations, however, found no evidence at all of an experimental impact on adult self-sufficiency as measured by employment or earnings. Kling, Liebman and Katz (2007) conclude that "housing mobility by itself does not appear to be an effective antipoverty strategy – at least over [the] five-year horizon [of the experiment]." More generally, these experimental findings suggest that non-spatial factors such as poor skills and racial discrimination in labor markets are more important in explaining racial inequality than are structural geographical barriers that emanate from the operations of local housing markets.

In this paper, we consider the implications of the findings from the MTO experiment for adult self-sufficiency. Our evaluation of the MTO results is that, while the experimental treatment certainly reduced a household's exposure to concentrated poverty, the magnitude of this treatment was very small. It is hard to see how a treatment of this magnitude could offset the spatial disadvantages experienced by low-skilled African-Americans. The experiment is uninformative.

The effect of treatment under the MTO program was, on average, to move households from neighborhoods at roughly the 96th percentile of the neighborhood poverty distribution to neighborhoods at the 88th percentile of this distribution in the five MTO metropolitan areas. Over the five-year period following random assignment, members of the experimental group resided in neighborhoods that were nearly identical along many observable dimensions to the neighborhood of the *average* poor black resident in these metropolitan areas. The treatment (that is, the change in exposure to neighborhood characteristics) fell far short of moving experimental

subjects to neighborhoods comparable to those of the *average* poor white resident in metropolitan areas. Moreover, essentially none of the treatments affected the accessibility to employment opportunities of the experimental subjects. Finally, given the small intent-to-treat effects of MTO on accessibility to employment and the standard errors of the estimated employment effects, the magnitude of any employment effect implied by the existing body of non-experimental research lies well within the confidence intervals of the MTO estimates.

An assessment of this experimental evidence on labor market outcomes and adult self-sufficiency – estimated effects which are insignificantly different from no effect at all – clearly depends upon prior expectations about the magnitudes involved. Section II below helps to confirm the magnitude of this prior. We present and estimate a simple model of employment and wage determination; the model assumes that within-metropolitan areas, blacks and whites have access to different subsets of the employment opportunities. We use this model to characterize the conditions that give rise to a mismatch between residential and job locations over space. More importantly, the model provides a range of non-experimental estimates of the employment effects of spatial mismatch that accords with the existing body of non-experimental research. There magnitudes can be compared to the treatment effects of the MTO for the five metropolitan areas in which the treatment was applied. We then discuss the impact of treatment under MTO on neighborhood quality and on physical accessibility to employment opportunities, as well as the precision of these estimates relative to the range of non-experimental estimates.

II. Wage and Employment Determination: The Importance of Space

In this section, we develop a simple model of wage and employment determination that illustrates the mechanism through which the mismatch between jobs and residences affects the relative employment rates of blacks. The model is based on aggregate data from 241 metropolitan areas (MSAs); it is designed to answer the following question: How large an effect on employment could we expected from treatment under MTO if the experimental treatment eliminated completely the difference in demand and supply conditions faced by black and white workers?

We extend the factor shares model presented by Card (2001) to describe the relationship between differential access to employment and differential concentrations of labor supply on employment outcomes. This model was used by Card to analyze the effects of immigrants on native wages and employment, but it is easily adapted to the case where effective labor demand and supply vary within metropolitan areas due to housing segregation by race and an uneven spatial distribution of employment.

A. The Basic Model

Consider an aggregate production function that varies by city *c* and is differentiated by race *r*. Race-specific production functions reflect the geographic dissimilarity across cities between the residential and workplace locations of members of different racial groups. Production takes place according to the relationship

$$Q_{cr} = F(K_{cr}, L_{cr}). \tag{1}$$

K_{cr} is a vector of non-labor inputs for city c and race group r. L_{cr} is an aggregation of different quantities of labor N_{jcr} distinguished by skill level j. The aggregation takes the convenient CES form:

(2)
$$L_{cr} = [\sum_{j=1}^{J} (e_{jcr} N_{jcr})^{\frac{\sigma-1}{\sigma}}]^{\frac{\sigma}{\sigma-1}}$$

where J is the number of different skill groupings. σ is the elasticity of substitution between any two grades of labor, and e_{jcr} is a productivity factor which may vary by skill group, city, and race.

The wages and employment rates for workers in each skill category must satisfy two standard conditions: the marginal revenue product of each grade of labor must equal the wage paid to those workers; and the quantity of labor demanded must equal quantity of labor supplied. The first condition implies that

(3)
$$F_{L_{cr}} L_{cr}^{\frac{1}{\sigma}} e_{jcr}^{\frac{\sigma-1}{\sigma}} N_{jcr}^{-\frac{1}{\sigma}} = w_{jcr}$$

where the price of output is unity and w_{jcr} is the wage paid to a worker in group *jcr*. With a slight rearrangement, the natural log of total employment of each skill group can be expressed as a linear function of the natural log of the wage:

$$\ln N_{jcr} = X_{cr} + (\sigma - 1) \ln e_{jcr} - \sigma \ln w_{jcr}$$

(4)

where X_{cr} is a parameter $(= \sigma \ln[F_{L_{cr}} L_{cr}^{1/\sigma}])$ that varies by city and racial group.

Let P_{jcr} be the resident population of group *jcr* and assume that labor supply is log-linear

(5)
$$\ln \frac{N_{jcr}}{P_{jcr}} = \varepsilon_j \ln w_{jcr} \Rightarrow \ln N_{jcr} = \varepsilon_j \ln w_{jcr} + \ln P_{jcr}$$

where ε_j is the labor supply elasticity for members of skill group *j*.[1] Equating the right hand sides of equation (4), the demand condition, and equation (6), the supply condition, and rearranging yields the equilibrium wage for group *jcr*

$$\ln w_{jcr} = \frac{1}{\varepsilon_j + \sigma}\{X'_{cr} + (\sigma - 1)\ln e_{jcr} - \ln(P_{jcr} / P_{cr})\} \quad (6)$$

where $X'_{cr} = X_{cr} - \ln P_{cr}$ and P_{cr} is the total population of racial group *r* in city *c*. The equilibrium wage in (6), in conjunction with the labor supply function in (5), yields the employment rate for group j

$$\ln(N_{jcr} / P_{jcr}) = \frac{\varepsilon_j}{\varepsilon_j + \sigma}\{X'_{cr} + (\sigma - 1)\ln e_{jcr} - \ln(P_{jcr} / P_{cr})\} \quad (7)$$

Equations (6) and (7) summarize the causal mechanisms through which a spatial mismatch between workplaces and residents may affect the relative employment and earnings of black workers. Wages and employment by race are affected by the term $X'_{cr} = \sigma \ln[F_{L_{cr}} L_{cr}^{1/\sigma}] - \ln P_{cr}$. But X'*cr* is an increasing function of the marginal product of the labor aggregate. A higher employment density in white neighborhoods relative to black neighborhoods is merely a greater endowment of non-labor inputs K_{cr} (i.e., more capital located in white neighborhoods). Other things being equal, the relatively large capital endowment increases the marginal product of labor in white neighborhoods and, in turn, employment and wages. Thus, the differential effect of employment decentralization on black employment outcomes is measured by the race-specific demand factor. The impact of a positive demand

[1] A more general specification would allow the labor supply elasticity to vary with all three dimensions of the data (--i.e, by jcr). The constraint that the supply elasticity is constant across racial groups and cities, but varies across skill groups, facilitates the difference-in-difference model that we estimate below. This empirical specification suggests that employment and wages should increase with accessibility and decrease with the degree of labor market competition, two fairly straightforward propositions.

shock on the wages of any given group will be smaller if the labor supply elasticity is larger and if the elasticity of substitution between labor grades is larger. On the other hand, the effect of a demand shock on a specific group's employment rate will increase with the labor supply elasticity and decrease with the elasticity of substitution.

Equations (6) and (7) also indicate that wages and employment of members of group *jcr* decline in the share of the regional population within this group. The negative wage effect of a supply shift (for example, an increase in P_{jcr} / P_{cr}) is smaller if the group-specific supply elasticity is larger and if the elasticity of substitution between skill groups is larger. The negative effect on employment is larger if the supply elasticity is larger. The effect on employment is smaller if the substitution elasticity is larger. With the sizable racial disparities in educational attainment, racial segregation mechanically concentrates low-skilled workers in black neighborhoods while reducing the factor shares of high-skilled workers. This relationship between segregation and factor proportions works to the detriment of low-skilled black workers and to the advantage of high-skilled black workers.

B. How different are demand and supply conditions in black and white neighborhoods?

Is there a difference between the labor demand functions faced by black and white workers within the same metropolitan area? Answering this question requires reference to a quantitative measure of demand conditions – accessibility to jobs. Measures of job accessibility used in the past include the average commute times of different types of workers (Ihlanfeldt 1992), ratios of jobs to residents (Stoll, Holzer and Ihlanfeldt 2000; Hellersteinm, Neumark, and McInerney 2007), and distance-weighted estimates of proximity to employment clusters (O'Reagon and Quigley 1996), as well as proximity to employment growth (Raphael 1998). Here we use a simple metric employed by Raphael and Stoll (2002) to characterize racial

disparities in effective labor demand, namely, the disparity between the residential and workplace distributions of whites and blacks.

Figure 1 presents the average dissimilarity between the residential distributions of blacks and whites and the distribution of total employment for the years 1990 and 2000. The figures are weighted averages of values of the Taueber index calculated by postal code for each of 241 metropolitan areas, where the weights are the metropolitan area population of each racial group.[2] The index is interpreted as either the proportion of the population or the proportion of jobs that would have to be relocated to yield a uniform job-residence distribution across the geographic units of analysis.

The figure illustrates the large inter-racial disparities in the jobs-people dissimilarity index. While roughly 33 percent of the white population residing in U.S. metropolitan areas would have had to move in 2000 to yield an even ratio of jobs to white workers by postal code, the comparable figures for black metropolitan area residents is 53 percent. To the extent that these disparities segment the effective labor demand for workers of different racial groups, black and white workers face different demand conditions.

Do supply conditions differ in black and white communities? A simple measure of the effect of racial segregation on available factor shares is presented in Figure 2. The figure reports the educational distributions of adult residents in the neighborhoods of the average black and white resident.[3]

[2] These dissimilarity indices are measured using zip-code level employment data from the 1994 and 1999 Economic Censuses as well as zip-code level population data from the 1990 and 2000 Census of Population and Housing (see Raphael and Stoll (2002) for details).

[3] For the census tract of the average black and white resident in all MSAs, we calculate the proportion of adults 18 to 65: who have less than a high school education; who are high school graduates; who have attended some college; and who have graduated from college. These calculations are based on data from the 2000 U.S. Census of Population and Housing Summary File 3 (SF3) using all 67,000 tracts located in MSAs.

There are clear disparities between the educational attainment of adults in typical white neighborhoods and typical back neighborhoods. For example, roughly 24 percent of adults in black neighborhoods are high school dropouts.[4] By contrast, only 14 percent of the adults in the typical white neighborhoods have less than a high school education. At the other end of the spectrum, the difference between the percent of adults in white neighborhoods with college degrees and the percent in black neighborhoods is a full 11 percentage points. Figure 3 compares low-skilled to high-skilled factor proportions in black and white neighborhoods; in all comparisons, the ratio of less- to-more-skilled labor is considerably higher in the average black neighborhood.

C. How do these difference in demand and supply conditions relate to black employment rates?

Do these observed differences by race in demand conditions and factor supplies matter? Answering this question requires estimating the wage and employment equations (6) and (7). Here we focus on estimating the employment equation.[5]

We impose two restrictions that permit estimation of (7) using cross sectional data from the 2000 census. First, we assume that the demand shifter X'_{cr} is a function of the degree of dissimilarity between the residential distribution of race group r and total metropolitan area employment, allowing for a race and skill group specific intercept and slope. Specifically, we assume

$$X'_{cr} = \alpha_j + \beta_j D_{cr} \tag{8}$$

[4] This number that would certainly be even higher if one were to account for the nearly 20 percent of adult black men in this educational category who are incarcerated on any given day (Raphael 2007).

[5] For low-skilled blacks, an unusually high proportion of non-institutionalized working age adults are not employed (nearly 60 percent) rendering the participation selection bias problem in the wage equation particularly difficult. However, estimating the employment relationship, equation (7), does not require addressing this selection bias. Of course, if we wish to uncover the structural parameters of this model – i.e., the labor supply elasticities and the elasticity of substitution – we would have to estimate both the wage and employment equation. Nonetheless, the model does provide clear predictions regarding the likely signs of the effects of the demand shifter and supply shifts on employment rates.

where D_{cr} is the degree of dissimilarity (the Taeuber index) between the spatial distribution of employment and the spatial distribution of the residences of group r in city c. If demand is decreasing in the geographic imbalance between people and jobs, β_j is negative. Second, we assume that the productivity coefficient is constant across cities and racial groups, but varies across skill groupings

$$\ln e_{jcr} = \gamma_j. \tag{9}$$

Substituting these two restrictions into equation (7) yields the reduced-form equation

$$\ln(N_{jcr} / P_{jcr}) = \theta_j + \delta_j D_{cr} + \xi_j \ln(P_{jcr} / P_{cr}), \tag{10}$$

where $\theta_j = \frac{\varepsilon_j}{\varepsilon_j + \sigma}[\alpha_j + (1-\sigma)\gamma_j]$, $\delta_j = \frac{\varepsilon_j}{\varepsilon_j + \sigma}\beta_j$ and $\xi_j = -\frac{\varepsilon_j}{\varepsilon_j + \sigma}$. With a positive labor supply elasticity,[6] δ_j and ε_j are both negative. Equation (10) can be estimated separately by skill group, using data on employment rates, factor shares, and geographic dissimilarity from employment for a given racial group.[7]

Table 1 presents estimates of various specifications of equation (10) for black workers in four skill groups: high school dropouts, high school graduates, those with some college, and college graduates. Employment rates are calculated for each of 241 metropolitan areas using data

[6] Since an increase in wages induces offsetting income and substitution effects on labor supply, the sign of the supply elasticity is ambiguous. However, estimates of labor supply elasticities in the U.S. tend to be positive, with higher elasticity estimates for men than women. See the estimates in Raphael (2007) and the research reviewed in Juhn and Potter (2006).

[7] Several factors that may bias simple cross sectional estimates of the coefficients of equation (10). For example, African Americans in metropolitan areas where the mismatch between people and jobs is lowest may be more productive relative to those in metropolitan areas with high degrees of mismatch, even within defined educational groups. These unobserved differences in productivity would bias our estimate of the effects of variation in demand conditions upwards. As noted below, however, if this were true, it would make our comparison with the MTO findings even more conservative.

for the 2000 five-percent Public Use Microdata Sample (PUMS) from the census.[8] Metropolitan area jobs-people dissimilarity indices are computed following Raphael and Stoll (2002); factor shares in black neighborhoods are estimated using data from the SF3 files as discussed above.

For high school dropouts, the simplest model shows a significant negative effect of the spatial mismatch in employment on the employment rates of black high school dropouts. In addition, a greater proportion of adults in black neighborhoods who are high school dropouts leads to a lower employment rate for this group. In the second row, we add the residential dissimilarity index between blacks and whites to the specification.[9] The results indicate that the degree of dissimilarity between blacks and jobs as well as the proportion of adults in black neighborhoods who are high school dropouts have significantly negative effects on the employment rates of black high school dropouts, though the coefficients are somewhat smaller.

Table 1 also reports that the dissimilarity between black residents and jobs exerts significant negative effects on the employment rate of black high school graduates, as well as the employment rates of blacks with some college education. The effects for college graduates are generally insignificant or small. The effects of neighborhood factors, supply and demand, decline with educational attainment, a result consistent with existing research (see for example, Hellersteinm, Neumark, and McInerney 2007). We do find an unexpected positive effect of own factor shares for high school graduates, significant negative effects for those with some college, and small positive effects for college graduates.

Table 2 reports analogous results for inter-racial differences. A simple extension of the model specified in equation (10) is to permit the productivity coefficient to vary both by city and by educational attainment group

[8] Employment rates pertain to non-institutionalized adults between 18 and 65 years of age.
[9] We tabulate the degree of residential dissimilarity by metropolitan area using data form the 2000 SF3 files.

(11) $$\ln(N_{jcr} / P_{jcr}) = \theta_{jc} + \delta_j D_{cr} + \xi_j \ln(P_{jcr} / P_{cr}),$$

(Note that θ_{jc} has been substituted for θ_j.) Equation (11) cannot be estimated with data for one racial group; however, with data on two racial groups, this metropolitan area/skill group productivity component can be eliminated by differencing across groups. Let r=(b,w) indicate blacks and whites, respectively; then

(12)

$$\ln(N_{jcb} / P_{jcb}) - \ln(N_{jcw} / P_{jcw}) = \delta_j (D_{cb} - D_{cw}) + \xi_j [\ln(P_{jcb} / P_{cb}) - \ln(P_{jcw} / P_{cw})]$$

where the common city-occupation component has been differenced away.[10]

Table 2 presents estimates of this alternative specification. For black high school dropouts, the effects of the geographic imbalance between people and jobs remain significant and negative, though in these models the coefficient estimates are somewhat smaller. Similarly, the estimated effects of own factor shares are smaller by comparison. For the other three educational attainment groupings, the mismatch effect estimates using the specification in equation (12) are quite similar to those from equation (10).

Thus, the correlation between the employment rates of less-skilled black workers and a simple measure of geographically-induced variation in demand conditions is fairly robust. Controlling for the degree of residential dissimilarity between blacks and whites and transforming the data into inter-racial differences to account for city-skill group productivity effects does attenuate this relationship; nevertheless the measure of mismatch is associated with large and highly significant effects in almost all models, especially for less-skilled workers. The estimates of supply concentration are somewhat less stable and less robust.

[10] The regression results based on equation (12) can also be viewed as a test of whether factor prices equalize across black communities in different metropolitan areas.

D. How big an effect might we expect?

How should we interpret these magnitudes? The regression estimates can be used to predict how the employment rates of low-skilled blacks would change if they confronted the same economic geography as whites – job availability and neighborhood factor shares.

Table 3 summarizes these calculations. The first column reports the employment rate for black high school dropouts in the five metropolitan areas included in the MTO experiment. The last row of the table is the average employment rate across MTO sites, where the representation of MTO subjects in each metropolitan area is used in weighting. The employment rates of black high school dropouts are extremely low, with an average rate of 0.36 across MTO cities. Columns (2) and (3) characterize the differences in labor supply and demand conditions between blacks and whites in each city. Column (2) reports the large black-white differences in each metropolitan area between the dissimilarity index for blacks and the dissimilarity index for whites (ranging from 0.15 to 0.35). Column (3) reports the large disparities in the natural log of the proportion of adults who are high school dropouts between black and white neighborhoods in these five metropolitan areas.

Columns (4) and (5) use the characteristics reported in columns (2) and (3) to estimate the joint effect of employment mismatch and supply concentration on the employment rates of black high school dropouts. They estimated increase in employment rates that would occur if the disparities in columns (2) and (3) were eliminated.[11] The upper bound estimates in column (4), based on the parameters from the regression reported in the first row of Table 1, indicate a joint mismatch/supply concentration effect on employment rates ranging from 0.05 for Los Angeles to 0.11 for Boston, with a weighted average estimate 0.08. The lower bound estimates in column

[11] We use the parameters estimates in Tables 1 and 2 to estimate the effect on the natural log of the employment rate, add this to the log of the employment rate for the metropolitan area, and exponentiate.

(5) (based on the final regression for high school dropouts in Table 2), yield estimated employment effect ranging from a low of 0.02 for Los Angeles to 0.05 for Boston, with a weighted average estimate of 0.03. The three-to-eight percentage-point range of the average effect is roughly 25 to 58 percent of the black-white employment rate differential among high school dropouts.[12]

The upper bound estimates from a regression with few controls are, perhaps, too high, while the lower bound estimates derived from models that hold constant the level of black-white dissimilarity are perhaps too low. But they do provide a benchmark, say, a five percentage point employment effect (equal to 36 percent of the black-white employment rate differential among dropouts) estimate based on non-experimental methods for comparison with the MTO results.

3. Moving to Opportunities: The Results on Employment

The MTO experiment was conducted in five cities: Baltimore, Boston, Chicago, Los Angeles, and New York. Experimental households were drawn from public housing residents living in census tracts with very high poverty rates. Between 1994 and 1997, 4,248 households were randomly assigned to one of the three groups: (1) a "control group" who received no new assistance but who continued to be eligible for public housing assistance; (2) a "Section 8 group" who received a traditional Section 8 housing voucher with no geographic restrictions on the units eligible for rental; and (3) an "experimental group" who received a Section 8 housing voucher, restricted for one year for use in a census tract with a poverty rate less than ten percent (this latter group were also provided with mobility counseling). After the initial one-year period, "experimental group" households were also permitted to use this housing voucher to move from

[12] This range of estimates is consistent with those provided in other non-experimental studies (reviewed in Ihlanfeldt, 1998), and they are somewhat larger then the more recent estimates of Hellersteinm, Neumark, and McInerney (2007).

their new location without any further geographic restrictions. After the first year, the "experimental group" and the "Section 8 group" faced the same behavioral rules, but the former group was eligible for mobility counseling.

Table 4 summarizes the mobility outcomes for the three MTO groups. For the control group, the table provides cross tabulations of households by their post-assignment mobility decisions. It reports the average census tract poverty rates for movers, stayers, and for all members of the group. The table provide similar figures for the "experimental group" and the "Section 8 group" with additional tabulations indicating whether the households complied with the treatment (leased up a Section 8 rental unit or did not); for those who did, the table reports whether they moved again after their first move.

Several patterns are clear from Table 4. First, nearly 70 percent of the control households moved after random assignment. Moreover, these mover households were exposed to substantial declines – more than twenty percentage points – in average neighborhood poverty rates (from 55.1 to 33.6 percent). Among households in the "experimental group," only 47 percent complied with treatment and leased a Section 8 dwelling in a designated neighborhood. Of this 47 percent, roughly two-thirds moved again after their initial move; most of those who moved ultimately selected neighborhoods with relatively high average poverty rates. Among the 53 percent of the experimental group households that did not lease up, nearly two-thirds moved subsequently, most to lower-poverty neighborhoods.

Among the Section 8 group, 61 percent of households used the voucher offered at random assignment, with two thirds moving again after the first program-induced move. Among those who did not lease up (39 percent of the group), nearly 60 percent move since random

assignment. Note that there are high mobility rates among low-income renters. The households participating in the MTO program are not exceptions to the general pattern.

With the exception of the post-random-assignment moves of compliers in the experimental group, the post-assignment mobility of all of the sub-groups listed in Table 4 are towards neighborhoods with lower poverty rates. Nonetheless, a comparison of the neighborhood poverty rates does demonstrate notable intent-to-treat effects on this variable. In particular, in 2002 the average census tract poverty rate for control group households stood at 39 percent. By contrast, the neighborhood poverty rates for the experimental and Section 8 groups were 30 and 32.4 percent, respectively.

Table 5 summarizes the estimated employment effects reported for the five MTO cites (Kling *et. al.* 2004). The first column presents the mean values of outcomes for the control group. The second column presents estimates of the intent-to-treat effect of the offer of an MTO voucher. These effects are estimated by a simple regression of the outcome on assignment group indicator variables and a vector of observable human capital and demographic covariates. The third column presents estimates of the effect of the treatment on those who comply, or the treatment-on-the-treated (TOT) effect. Here, the key explanatory variable is an indicator of using an MTO voucher; the effects are estimated by employing group assignment indicator variables as instruments for whether one actually uses an MTO voucher.[13]

The table provides results for a number of outcomes, including self-reported employment in 2002 and employment indicators from state administrative employment records for the year 2002, for the five year period following random assignment, and for year five following random assignment. None of the estimates are statistically significant. All of the Section 8 ITT and TOT

[13] The TOT estimate is simply the ITT estimate divided by the regression-adjusted proportion of either the experimental group or Section 8 group that comply.

point estimates are positive yet insignificantly different from zero. Half of the TOT point estimates for the experimental group are negative (including two of the three estimates derived from administrative data), and half are positive. All are statistically insignificantly different from zero. Thus, there is no evidence of an impact on employment rates arising from the MTO program.

4. What Explains the Difference Between the MTO Employment Results and the Non-Experimental Research Results

The non-experimental estimates of the effect of mismatch on employment and the experimental employment results from MTO stand in stark contrast with one another. While the empirical research on spatial mismatch suggests that eliminating the relative disadvantage that African-Americans face in terms of the demand and supply conditions characterizing their local labor markets would narrow inter-racial differentials in employment outcomes, the only experiment that provides certifiably exogenous variation in residential mobility fails to find *any* impact on the relative employment outcomes of treated subjects. What explains this difference in results?

Two aspects of the MTO experiment limit its effectiveness as a test of the effects of neighborhood on adult self-sufficiency: (1) the magnitude of the treatment in terms of the types of neighborhoods that those treated by the program were exposed, and (2) the statistical power of the MTO estimates relative to the magnitudes commonly reported in the non-experimental literature. Here we discuss each in turn.

A. How big was the MTO treatment?

The hypothesis tested in Section II above posits that disparities in demand and supply conditions charactering the neighborhoods of low-skilled whites and low-skilled blacks help

explain the disparity in employment and earnings between these two groups. The magnitude of non-experimental effects in that section are based on a simple counterfactual: black high school dropouts are relocated to neighborhoods with demand conditions and labor factor shares similar to those encountered by white high school dropouts. The extent to which MTO provides a test of variations in these neighborhood conditions depends on whether the experiment achieved this level of residential mobility. Did treatment under MTO move poor inner-city minority families to neighborhoods comparable to those of low-skilled whites?

Table 6 presents the average characteristics of the census tracts where members of the MTO control, Section 8, and experimental groups resided between randomization and 2001. The figures are averages weighted by the duration of residence in a given census tract, and census tract characteristics are estimates from the 1990 and 2000 censuses.[14] There are notable differences among the three groups, with the Section 8 and experimental groups residing in neighborhoods with lower poverty rates, lower proportions of households on public assistance, higher employment rates, and proportions of adult workers in professional and managerial occupations, and lower shares of minority residents. However, the average neighborhood of an experimental group household is still quite poor and largely minority. For example, 52 percent reside in neighborhood with poverty rates in excess of 30 percent, and the proportion minority in the census tract of the average experimental group households is 0.82.

Figure 4 indicates how these changes compare to the distribution of poverty concentration across these metropolitan areas; it presents the empirical cumulative density function of census tract poverty rates weighted by the total census tract population for the five MTO metropolitan areas. This distribution is calculated using data from the 2000 census SF3

[14] For years between 1990 and 2000, tract level characteristics are based on linear interpolations of the 1990 and 2000 values. These results are reported in Kling et. al. (2006) and Kling et. al. (2004).

files. A move from a census tract that is 45 percent poor (the rate for the average control group household) to a census tract that is 33 percent poor (the rate for the average experimental group household) constitutes a move from the 96th percentile of this distribution to the 88th percentile of this distribution.[15]

Table 6 also provides comparisons of the characteristics of the neighborhoods of the average experimental household with those of other sub-populations in these metropolitan areas. From the SF3 files of the 2000 Census we calculated the values of these neighborhood characteristics for the average poor black person and the average poor white person for the five PMSAs within which the MTO experiment was implemented.[16] The characteristics of the neighborhood of the *average* poor black person are nearly identical to the average characteristics of experimental household neighborhoods. In other words, it appears that MTO moved extremely poor minority households from extremely poor neighborhoods to the neighborhood of the average poor black person. While this is certainly an improvement, it falls far short of eliminating the racial disparity in neighborhood quality measures that exists in metropolitan areas throughout the country.

This point is further illustrated by the tabulations for poor white people in MTO metropolitan areas presented in the last column of the table. There are very large disparities between the neighborhood of the *average* poor white person and the neighborhood of the *average* poor black person. For example, the average census tract poverty rate is 32 percent for poor blacks (at the 87th percentile of the cdf in Figure 4) and 17 percent for poor whites (at the

[15] In the un-weighted cumulative distribution of census tract poverty rates, rates of 0.45 and 0.33 correspond to the 95th and 86th percentiles, respectively.

[16] These are weighted averages of tract level characteristics for the five MSAs where the tract count of the population (either poor black or poor whites) are used as weights. We also tabulated these figures so that each metropolitan area contributes to the weighted average in proportion to the proportional representation of each MSA among MTO households. These alternative results suggest that poor black households live in neighborhoods that are slightly better than those listed above, indicating that the MTO experimental group resides in neighborhoods that are not as high quality as those of the average black poor person.

62nd percentile). Fully half of poor blacks reside in neighborhoods where over 30 percent of the residents are poor, compared with 15 percent of poor whites. The proportion of households receiving public assistance in poor black neighborhoods is nearly three times that for poor white neighborhoods. Employment rates and the proportion of employed in professional and managerial occupations are higher in poor white neighborhoods. Finally, there is an enormous difference – of 49 percentage points – in the proportion of residents who are minority.

Given the marginal changes in the neighborhood characteristics induced by MTO, what was the effect of treatment under the program on subjects' physical accessibility to employment opportunities? The residential mobility achieved certainly did not integrate these households into their respective PMSAs given the large share of minority poor households observed for experimental group households. Thus, the observed mobility was unlikely to bridge the racial disparities in demand and supply conditions discussed above. Moreover, the conditions for compliance with treatment involved moving to neighborhoods with low poverty rates, not neighborhoods with better proximity to employment opportunities. While poverty concentration and accessibility as commonly measured are certainly negatively correlated, this correlation is far from perfect; there are many wealthy neighborhoods in urban areas with poor accessibility and poor neighborhoods in suburban areas with relatively better accessibility.

For reasons of confidentiality, we are unable to estimate changes in accessibility with the dissimilarity index; however, in the web appendix to Kling et. al. (2007)[17] the authors provide estimates of employment growth in the post-random assignment zip codes of the three MTO groups. Raphael (1998) and Mouw (2000) both demonstrate a strong partial correlation between black employment outcomes and accessibility measures based on proximity to employment

[17] Available at http://www.nber.org/~kling/mto/481a.pdf.

growth. Thus, neighborhood employment growth does provide one previously-used gauge of mismatch that is demonstrably positively associated with employment rates.

Table 7 presents these tabulations. The table presents the average change in the natural log of employment for various time periods in the residence of the control group and the ITT effects on this variable for the experimental group and the Section 8 group. Panel A presents estimates using residential distributions one-year after random assignment. Panel B presents figures using the residential distribution of MTO households in 2002. There are very few significant differences in neighborhood employment growth for the experimental group and the Section 8 group relative to the control group. For the period 1994 through 1998 on Panel A, experimental group households basically resided in zip codes where employment growth was near zero or slightly negative.[18] The neighborhoods of experimental group households one-year after random assignment did experience employment growth over the longer period from 1994 through 2001, but the observed change was nearly identical to that observed for the neighborhoods of the average control group member. The results in panel B using the residential distributions for 2002 are essentially the same.

Thus, while MTO certainly did induce mobility towards less poor neighborhoods, the observed changes in neighborhood conditions were relatively small. There is little evidence that the program improved accessibility to employment opportunities or bridged the gap in neighborhood quality between poor blacks and poor whites.

B. Did the experiment have enough power to rule out non-experimental effect sizes?

The discussion above suggests that receiving treatment under MTO probably did not eliminate the accessibility or competing workers disadvantages faced by the residents of isolated inner-city neighborhoods. Nonetheless, given the mobility induced by the experiment, how big

[18] This statement is based on adding the ITT effect for the experimental group to the control group mean.

an employment effect might we have expected, given the results from the non-experimental work? Most importantly, does the MTO experiment have sufficient power to rule out such magnitudes?

Roughly half of treatment group households leased up in neighborhoods designated by the experiment. The resultant mobility had modest effects on neighborhood poverty rates and no measurable effect on physical accessibility to employment. For the sake of argument, however, assume that treatment under the program eliminated half of the relative proximity disadvantage of program participants assigned to the treatment group.

The non-experimental empirical estimates presented above provided estimates of the effects of mismatch on the employment rate of black high school dropouts on the order of five percentage points. Coupled with the observed lease-up rate and the assumption of an elimination of half the proximity disadvantage, this range of estimates suggests a likely intent-to-treat effect on the order of 1.25 percentage points and an effect of treatment on the treated of roughly 2.5 percentage points. Using the upper bound 8 percentage point estimate of the effect of mismatch implied an ITT effect of 2 percentage points and a TOT effect of 4 percentage points.

To gauge whether the experimental estimates have sufficient power to discriminate against effects of these magnitudes, Table 8 presents the upper and lower bounds of the 95 percent confidence intervals for the employment effects listed in Table 5. The ITT and TOT effects implied by the "middle of the road" mismatch effect lie solidly within these confidence intervals for every outcome. For the effects sizes implied by the high mismatch effect estimate, the implied effect lies outside of the 95 percent confidence interval for two of the eight ITT estimates and one of the eight TOT estimates.

Thus, the experiment did not have sufficient power to reject mismatch effects on the order of five percentage points. Moreover, the experiment rejects substantially larger mismatch effects in very few instances. With regards to the importance of the spatial mismatch hypothesis, the MTO experiment is uninformative.

5. Conclusion

The MTO experiment represented a bold attempt to study the effects of residing in poverty on individual economic, health, and other sociological outcomes. Treated households experienced substantial reductions in neighborhood poverty and improvements in other measures of the average health of their resident neighborhoods. As we have noted in our review, the experiment was generally unable to reject the null hypothesis of no effects of neighborhood poverty on employment. However, our reading of this evidence is that the relatively small mobility effects of the program and the variance of the effect-size estimates cannot rule out neighborhood effects of the range implied by the existing non-experimental literature. The ultimate intent-to-treat effect on neighborhood poverty indicates that most of the net mobility was from extremely poor neighborhoods to the average poor minority neighborhood. Moreover, the existing MTO research indicates that there was little impact on accessibility to employment. Thus, the absence of employment effects is not particularly surprising.

Nonetheless, MTO did reveal significant effects for the mental and physical health of adults and several behavioral outcomes for girls. In addition, experimental group families reside in safer neighborhoods and are happier as a result. Given the relatively modest moves experienced by these households, these findings are quite remarkable. In fact, structural

estimates of the effects of poverty and various outcomes from the MTO indicate poverty effects in line with non-experimental estimates (Kling et. al. 2007).

The low compliance rate in the experimental group coupled with the subsequent mobility patterns of the experimental group clearly point to the difficulty of achieving real poverty reduction by relying on residential mobility programs. The low compliance rate is consistent with housing market discrimination against poor minority households in neighborhoods that are less poor, a lack of affordable rental units in those neighborhoods, or a reluctance on the part of the experimental households to abandon familiar neighborhood surroundings. All of these mechanisms are likely at play, and the post-assignment moves of experimental households back towards poorer neighborhoods may be explained quite easily by these forces. Together, these findings indicate how difficult it is to counter the social and economic forces that lead to racial and socioeconomic segregation in American cities.

The existence of a spatial mismatch in labor market conditions by race is predicated on the unobserved mechanisms that maintain racial segregation despite incentives for lower-skilled, inner-city minority workers to move to areas of the metropolitan region with more favorable labor market conditions. One of the most problematic aspects of existing non-experimental research on the question is the fact that most studies simply assume that segregation reflects geographically constrained housing choices and that low employment densities are caused by barriers (physical and political) to capital formation in urban neighborhoods – that is, observable variation in mismatch conditions within and/or between metropolitan areas is exogenous. As we have argued, the one recent social experiment did not provide enough variation in underlying neighborhood conditions to resolve this identification problem. Future non experimental

research on the topic should focus on identifying sources of exogenous variation, but this is no substitute for additional experimentation.

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Figure 1

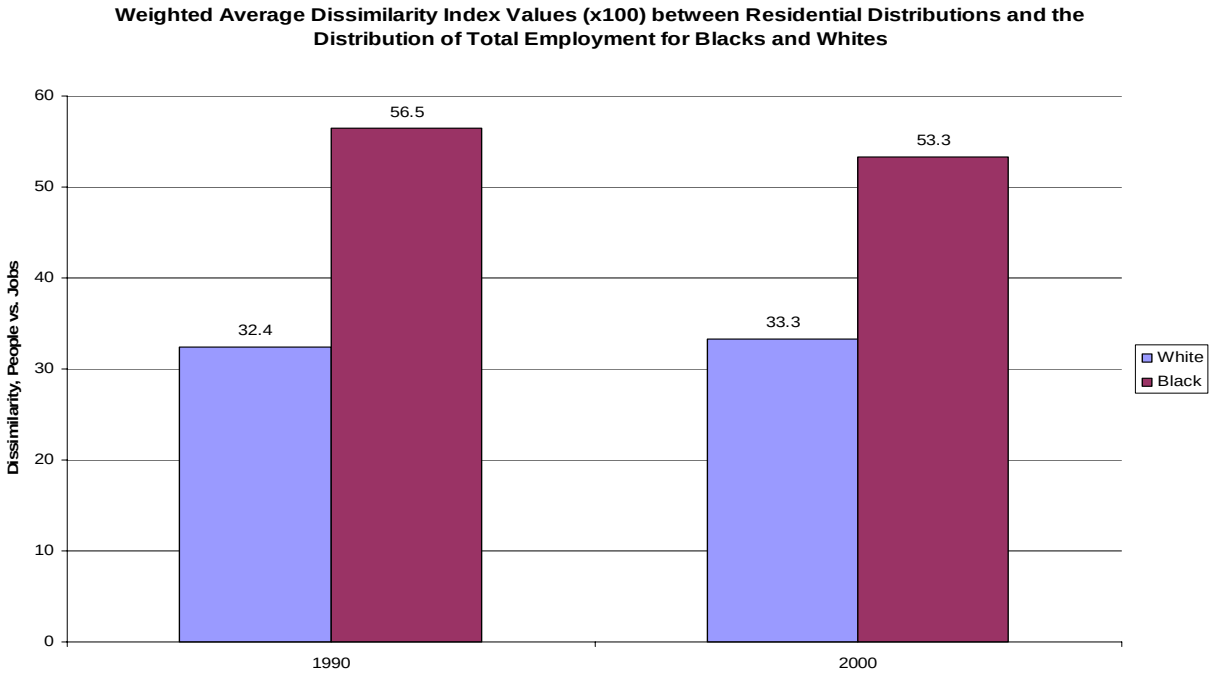

Figure 2

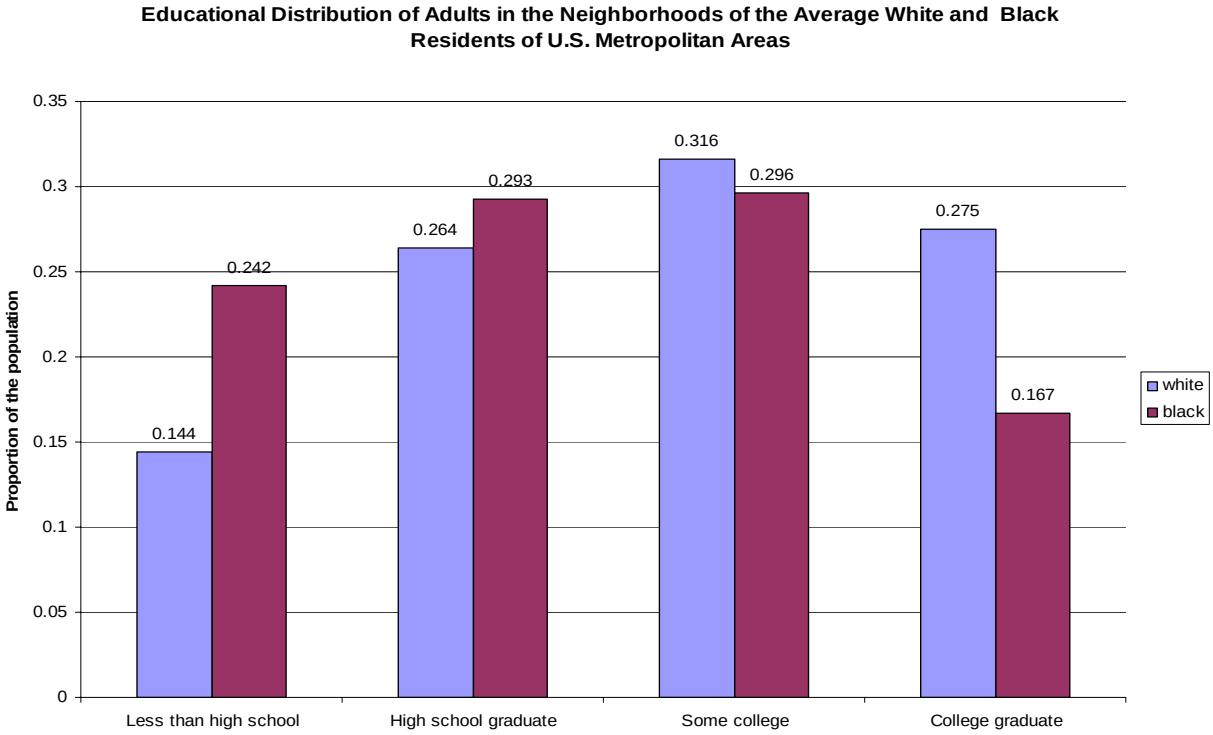

Figure 3

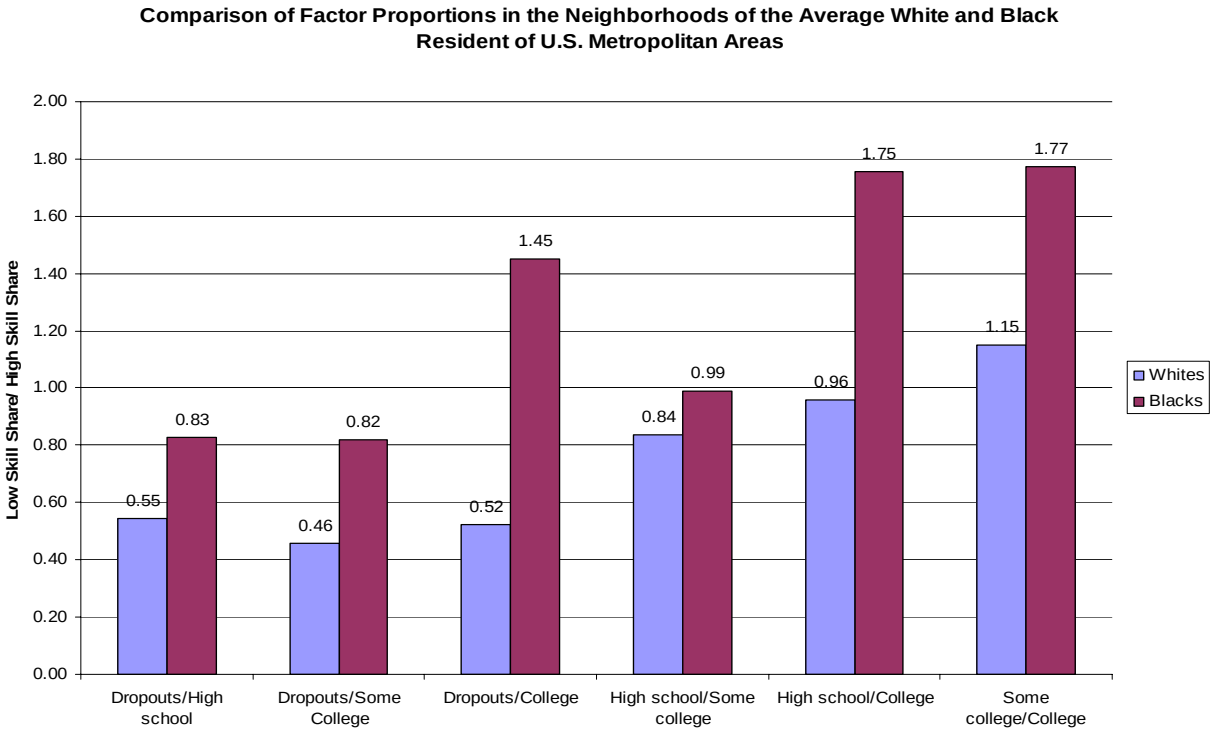

Figure 4

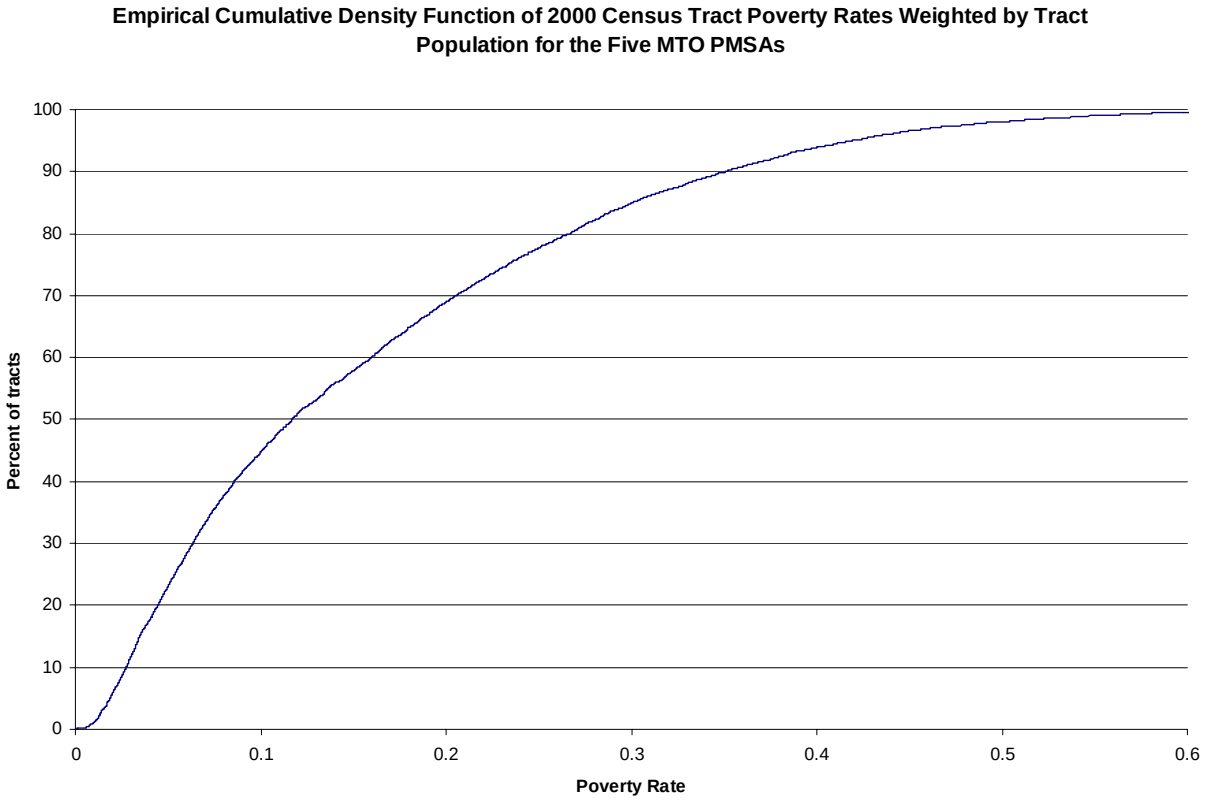

Table 1

Estimated Effects of Variation in Labor Supply and Demand Conditions in Black Neighborhoods on Employment Rates for Black Workers

$$\ln(N_{jcb} / P_{jcb}) = \theta_j + \delta_j D_{cb} + \xi_j \ln(P_{jcb} / P_{cb})$$

	Jobs-People Dissimilarity	Black-White Dissimilarity	$\ln(P_{jcr}/P_{jc})$	R^2
A. High school				
Specification (1)	-0.489	-	-0.124	0.259
	(0.067)		(0.048)	
Specification (2)	-0.245	-0.340	-0.119	0.280
	(0.115)	(0.131)	(0.047)	
B. High School Graduates				
Specification (1)	-0.373	-	0.083	0.332
	(0.036)		(0.039)	
Specification (2)	-0.216	-0.206	0.129	0.349
	(0.072)	(0.084)	(0.043)	
C. Some College				
Specification (1)	-0.103	-	-0.119	0.067
	(0.029)		(0.041)	
Specification (2)	-0.159	0.078	-0.111	0.073
	(0.052)	(0.061)	(0.041)	
D. College Graduates				
Specification (1)	0.024	-	0.051	0.052
	(0.022)		(0.014)	
Specification (2)	-0.082	0.146	0.063	0.087
	(0.041)	(0.048)	(0.015)	

Standard errors are in parentheses. All models are weighted by the metropolitan area black population. Results in panels B, C, and D are based upon models estimated with 241 MSA-level observations. Results for panel A are based on 237 observations.

Table 2
Estimated Effects of Relative Variations in Labor Supply and Demand Conditions in Black and White Neighborhoods on Relative Employment Rates of Black and White Workers

$$\ln(N_{jcb} / P_{jcb}) - \ln(N_{jcw} / P_{jcw}) = \delta_j (D_{cb} - D_{cw}) + \varepsilon_j [\ln(P_{jcb} / P_{cb}) - \ln(P_{jcw} / P_{cw})]$$

	Jobs-People Dissimilarity	Black-White Dissimilarity	$\ln(P_{jcr}/P_{jc})$	R^2
A. High school				
Specification (1)	-0.351	-	-0.086	0.164
	(0.071)		(0.053)	
Specification (2)	-0.229	-0.198	-0.054	0.174
	(0.101)	(0.117)	(0.056)	
B. High School Graduates				
Specification (1)	-0.374	-	0.159	0.314
	(0.035)		(0.058)	
Specification (2)	-0.262	-0.156	0.163	0.332
	(0.056)	(0.061)	(0.057)	
C. Some College				
Specification (1)	-0.166	-	0.019	0.201
	(0.021)		(0.035)	
Specification (2)	-0.101	-0.091	0.025	0.222
	(0.034)	(0.037)	(0.034)	
D. College Graduates				
Specification (1)	-0.067	-	0.008	0.039
	(0.030)		(0.023)	
Specification (2)	-0.009	-0.113	-0.021	0.062
	(0.038)	(0.047)	(0.025)	

Standard errors are in parentheses. All models are weighted by the metropolitan area black population. Results in panels B, C, and D are based upon models estimated with 241 MSA-level observations. Results for panel A are based on 237 observations.

Table 3
Implied Effects of Employment Mismatch and Supply Concentration on the Employment Rates of Black High School Dropouts in MTO Metropolitan Areas

	(1) Employment rate, black HS dropouts	(2) Black-White difference in the mismatch index	(3) Black-White difference in the log of neighborhood residents who are HS dropouts	(4) Effect of differences in (2) and (3) on black HS dropout employment levels, HIGH	(5) Effect of differences in (2) and (3) on black HS dropout employment levels, LOW
Baltimore	0.38	0.15	0.68	0.07	0.03
Boston	0.46	0.30	0.51	0.11	0.05
Chicago	0.32	0.35	0.56	0.09	0.04
Los Angeles	0.29	0.24	0.34	0.05	0.02
New York	0.37	0.26	0.54	0.08	0.03
Weighted Average[a]	0.36	0.27	0.52	0.08	0.03

The high estimates in column (4) are based on the regression results in column (1) in Table 1 for high school dropouts. The low estimates in column (5) are based on the regression results in column (4) of Table 1 for high school dropouts. The employment level effects are the joint implied effect of the geographic concentration of supply and the mismatch between black residential distribution and labor demand.

a. The averages in this row use the MSA proportional representation among MTO subjects as weights.

Table 4
Summary of Mobility Outcomes for Three MTO Assignment Groups and Poverty Rates by Residential Location in 2002

	Number of Households	Percent of Assignment Group	Mean Neighborhood poverty rate in 2002[a]
Panel A: Control Group			
Stayed in place	343	30	51.1
Moved	793	70	33.6
Total Control Group	1,136	100	38.9
Panel B: Experimental Group			
Did not lease up	785	53	39.6
Stayed in place	267	18	49.1
Moved	518	35	34.6
Leased up	701	47	20.0
Did not move again	245	16	12.6
Moved again	456	31	24.0
Total Exp. group	1,486	100	30.4
Panel C: Section 8 Group			
Did not lease up	408	39	38.3
Stayed in place	166	16	46.8
Moved	242	23	32.5
Leased up	641	61	28.6
Did not move again	215	20	29.1
Moved again	426	41	28.4
Total Section 8 Group	1,049	100	32.4

Figures in this table come from Exhibit 2.5 in Orr et. al. (2003).
a. Based on census tract poverty rates from the 2000 census.

Table 5
Summary of Employment Effect Estimates from the Moving to Opportunities Experiment Five Years After Randomization

	Control group mean	Intent-to-treat effect (ITT)	Effect of the treatment on the treated (TOT)	N
Self-reported employment rate in 2002				
Exp. vs. control	0.520	0.015 (0.021)	0.033 (0.044)	2,525
Sec 8 vs. control	0.520	0.024 (0.023)	0.040 (0.038)	2,068
Fraction of quarters employed in 2002, administrative data				
Exp. vs. control	0.508	-0.017 (0.017)	-0.036 (0.035)	2,910
Sec 8 vs. control	0.508	0.014 (0.017)	0.022 (0.028)	2,411
Fraction of quarters employed in years 1 through 5 after random assignment, administrative data				
Exp. vs. control	0.422	-0.006 (0.013)	-0.012 (0.028)	2,455
Sec 8 vs. control	0.422	0.001 (0.014)	0.001 (0.023)	2,039
Fraction of quarters employed in year 5 after random assignment, administrative data				
Exp. vs. control	0.499	0.002 (0.018)	0.005 (0.039)	2,455
Sec 8 vs. control	0.499	0.008 (0.020)	0.013 (0.032)	2,039

Figures in the table are reproduced from Tables 3 and 4 in Kling et. al. (2004).

Table 6
Average Census Tract Characteristics for MTO Control, Treatment, and Section 8 Groups As Well As Poor Black and White Residents of the Five MTO PMSAS

	MTO Groups				
Average Census Tract Characteristics	Control	Section 8	Experimental	Poor Blacks	Poor Whites
Poverty rate	0.45	0.35	0.33	0.32	0.17
Poverty rate >30%	0.87	0.62	0.52	0.51	0.15
Share on public assistance	0.23	0.17	0.16	0.14	0.05
Share of residents 16 and over that are employed	0.38	0.44	0.46	0.46	0.57
Share of workers in professional and managerial occupations	0.21	0.23	0.26	0.24	0.37
Share minority	0.90	0.87	0.82	0.89	0.40

Average characteristics for the MTO groups describe the traits of the sequence of an individual's addresses between randomization and 2001, weighted by duration. All figures with the exception of the employment rates come from Kling et. al. (2007). The employment shares for adults 16 plus are calculated from Kling et. al. (2004), Table 2. The figures in the final two columns pertain to the five PMSAs containing the MTO cites and are average tract characteristics from the 2000 census using either poor blacks residing in the tract or poor whites as weights.

Table 7
Estimates of Employment Growth in Zip Codes of the MTO Control, Experimental and Section 8 Groups, One Year After Random Assignment and Residents in 2002

	Control Mean	Experimental Group, Intent-to-Treat Effect	Section 8 Group, Intent-to-Treat Effect
Panel A: One Year After Random Assignment			
Δln employment, 1994 to 1995	-0.008	0.010*	0.013*
		(0.003)	(0.003)
Δln employment, 1994 to 1996	-0.023	0.005	-0.000
		(0.005)	(0.006)
Δln employment, 1994 to 1997	-0.028	0.015*	-0.002
		(0.007)	(0.007)
Δln employment, 1994 to 1998	-0.011	0.007	-0.006
		(0.007)	(0.008)
Δln employment, 1994 to 1999	0.015	0.005	-0.012
		(0.008)	(0.009)
Δln employment, 1994 to 2000	0.056	0.001	-0.029*
		(0.009)	(0.010)
Δln employment, 1994 to 2001	0.065	0.001	-0.032*
		(0.009)	(0.010)
Panel B: Residence in 2002			
Δln employment, 1994 to 1995	0.005	0.004	0.012*
		(0.003)	(0.005)
Δln employment, 1994 to 1996	-0.009	-0.006	0.005
		(0.007)	(0.007)
Δln employment, 1994 to 1997	-0.014	0.004	0.005
		(0.008)	(0.009)
Δln employment, 1994 to 1998	0.001	0.003	0.001
		(0.009)	(0.009)
Δln employment, 1994 to 1999	0.024	0.002	-0.003
		(0.010)	(0.010)
Δln employment, 1994 to 2000	0.050	0.002	-0.007
		(0.010)	(0.011)
Δln employment, 1994 to 2001	0.050	-0.001	-0.006
		(0.011)	(0.011)

Standard errors are in parentheses. Figures in the table are reproduced from Table F14 of Kling, Jeffrey; Liebman, Jeffrey, and Lawrence Katz, "Experimental Analysis of Neighborhood Effects: Web Appendix." Accessed at http://www.nber.org/~kling/mto/mto_exp_a.pdf on August 28, 2007.

- Significant at the 5 percent level of confidence.

Table 8
Estimates of the 95 Percent Confidence Intervals Around the MTO Intent-To-Treat and Treatment-on-the-Treated Employment Effect Estimates

	Intent-to-Treat Confidence Interval		Treatment-on-the-Treated Confidence Interval	
	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Self-reported employment rate in 2002				
Exp. vs. control	-0.026	0.056	-0.053	0.119
Sec 8 vs. control	-0.021	0.069	-0.034	0.114
Fraction of quarters employed in 2002, administrative data				
Exp. vs. control	-0.050	0.016	-0.107	0.035
Sec 8 vs. control	-0.019	0.047	-0.033	0.077
Fraction of quarters employed in years 1 through 5 after random assignment, administrative data				
Exp. vs. control	-0.031	0.019	-0.067	0.043
Sec 8 vs. control	-0.026	0.028	-0.044	0.046
Fraction of quarters employed in year 5 after random assignment, administrative data				
Exp. vs. control	-0.033	0.037	-0.071	0.081
Sec 8 vs. control	-0.031	0.047	-0.050	0.076

Tabulated from effect size estimates and standard errors reported in Table 4