

## The Spatial Mismatch Hypothesis: A Review of Recent Studies and Their Implications for Welfare Reform

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### *Abstract*

In 1992, *Housing Policy Debate* published John Kain's comprehensive review of the extensive scholarly literature on the spatial mismatch hypothesis. This hypothesis maintains that the suburbanization of jobs and involuntary housing market segregation have acted together to create a surplus of workers relative to the number of available jobs in submetropolitan areas where blacks are concentrated.

Since Kain's review, more than two dozen new studies on the spatial mismatch hypothesis have been completed. Generally, these studies use more suitable data and superior methodologies than earlier studies and therefore provide the most reliable evidence to date on the spatial mismatch hypothesis. This article critically reviews the new studies and assesses what implications can be drawn for welfare reform.

**Keywords:** Labor market; Discrimination; Welfare

### **Introduction**

The last half of the 1980s witnessed a revival of interest in the idea that the suburbanization of jobs and serious limitations on black residential choice have acted together to create a surplus of workers relative to the number of available jobs in inner-city neighborhoods where blacks are concentrated. This situation may result in joblessness, lower wages, and longer commutes for black workers. This idea was first expressed by John Kain (1968) and subsequently has been labeled the spatial mismatch hypothesis (SMH). If valid, the SMH has an important implication for current welfare reform; namely, that the success of welfare-to-work programs may hinge upon improving welfare recipients' access to suburban jobs.

Six different reviews of the SMH literature were published in the early 1990s (Holzer 1991; Ihlanfeldt 1992; Jencks and Mayer 1990; Kain 1992; Moss and Tilly 1991; Wheeler 1990). With the exception of Jencks and Mayer, these reviews concluded that the weight of the empirical findings provided either strong (Kain, Ihlanfeldt) or moderate (Wheeler, Moss and Tilly, Holzer) support for the hypothesis. Jencks and Mayer concluded that "the support [for the idea that job

proximity increases the supply of black workers] is so mixed that no prudent policy analyst should rely on it" (p. 219).

Since the above reviews were published, more than two dozen new SMH studies have been completed. In general, these studies use more suitable data and superior methodologies than earlier studies and therefore provide the most reliable evidence to date on the SMH. However, a few of these more recent studies commit many of the same errors listed by Ihlanfeldt (1992) and Holzer (1991) that frequently weakened or even invalidated the findings of earlier studies.

In addition to providing more reliable evidence, a number of the recent studies have gone beyond simply testing the SMH to investigating the factors that cause spatial mismatch to persist in the long run: What are the barriers that prevent inner-city lower-skilled blacks from shifting their labor supply to suburban areas in response to spatial mismatch? Knowledge of these barriers is obviously crucial to the effective design and implementation of policies that would expand the suburban job opportunities of inner-city workers.

The purpose of this article is twofold. First, we critically review recent SMH studies that were not included in Kain's review. Of the six reviews listed above, Kain's is the most recent and by far the most comprehensive, including more than 50 individual studies. Second, we assess what implications can be safely drawn for welfare reform from the SMH studies we review.<sup>1</sup>

The next section gives some background on how the SMH has evolved over the years since Kain first advanced the hypothesis. The third section discusses the merits and possible pitfalls associated with alternative methodological approaches to investigating the SMH. This sets the stage for consideration of individual studies that have tested the SMH. We then review the studies that have provided evidence on the barriers that limit inner-city lower-skilled black workers' access to suburban jobs. The final section of the article discusses the policy implications that can be drawn from our review, especially with respect to welfare reform.

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<sup>1</sup> Since Kain's review, theoretical work on the SMH has also surfaced for the first time (Arnott 1998; Brueckner and Martin 1995; Coulson, Laing, and Wang 1997; Smith and Zenou 1997; Wasmer and Zenou 1997; Zenou and Smith 1995). This work has attempted to strengthen the microfoundations of the hypothesis, which have been criticized as too weak. Because ours is a review of the empirical literature, we do not review these theoretical studies. They are, however, an important milestone in the historical evolution of the hypothesis. As Arnott has noted, "It is indeed remarkable that except for [recent papers, listed above], the voluminous literature on the spatial mismatch hypothesis includes no theoretical work" (p. 1173).

## The historical evolution of the SMH

A simple statement of the SMH is that there are fewer jobs per worker in or near black areas than white areas. As a result, blacks may have greater difficulty in finding work, may be paid less, or may have to make a longer commute in comparison with whites with similar job credentials.<sup>2</sup> Underlying the SMH are the following premises: (1) The demand for labor has shifted away from neighborhoods where blacks are concentrated in favor of high-growth, mostly suburban areas; (2) racial discrimination in housing and mortgage markets has prevented blacks from moving to where job growth exists; and (3) customer discrimination against blacks, poor information about distant job openings, limited public transportation linkages between black neighborhoods and areas of job growth, and possibly other factors have restricted the ability of blacks to commute to and work in job-rich areas.

While the original concept of spatial mismatch focused on inner-city minorities and the migration of jobs from the city to the suburbs, this simple dichotomy between city and suburbs no longer holds. Orfield (1997) is one of the latest to point out that many inner suburbs now face problems similar to those of their central cities. Furthermore, as discussed by Galster and Killen (1995) and Galster and Mikelsons (1995), spatial mismatch is only one dimension of the changing geography of metropolitan opportunity.

After Kain advanced his hypothesis in a series of papers culminating in his seminal 1968 *Quarterly Journal of Economics* article, "Housing Segregation, Negro Employment, and Metropolitan Decentralization," numerous studies in the early 1970s investigated both the implications and premises of the SMH. But over the next decade, interest in the SMH waned, as the attention of scholars and policy makers generally shifted away from urban problems. As Kain noted in his 1992 review of the SMH literature,

Broad interest in urban problems and the twin evils of poverty and discrimination was remarkably short lived. The election of Richard Nixon as president was closely followed by implementation of a policy of benign neglect, as double-digit inflation, declining productivity, slower income growth, worsening federal deficits, growing trade deficits, and a variety of other problems replaced urban problems, racial discrimination, and poverty on

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<sup>2</sup> As originally stated by Kain, the SMH applies to inner-city lower-skilled minorities. While we do not always explicitly state it, this is the context that should be assumed in the following discussion.

the front pages of the nation's newspapers and the nation's policy agenda (Kain 1992, 375).

The revival of interest in the SMH in the late 1980s can be attributed to a confluence of factors (Ihlanfeldt 1994), but probably the most salient is Wilson's (1987) and Kasarda's (1989) emphasis on job decentralization as a causative factor in the growth of the underclass.<sup>3</sup> In the past few years, interest in the SMH has surged once again, as questions have arisen over whether there will be enough jobs within reach of welfare recipients forced off welfare and into local labor markets under welfare reform (Blumenberg and Ong 1998; Coulton, Leete, and Bania forthcoming; Pugh 1998; Rich 1997; Wilson 1996). This concern is embodied in the U.S. Department of Housing and Urban Development's most recent national urban policy report:

Aggravating the urban employment situation—and the great need for people coming off the welfare rolls to find entry level and low-skill jobs—is a mismatch between the urban workforce and the jobs that are being created in cities. For example, in the early 1990s, 87 percent of the new jobs in the lower-paying and lower-skilled service and retail trade sectors were created in the suburbs. Compounding that situation, large numbers of low-skilled jobs that can serve as a first step in breaking the cycle of poverty lie in the suburbs and are often inaccessible using public transportation—the only method of transport available to many of the city's most needy residents (U.S. Department of Housing and Urban Development 1997, 32).

### **Alternative methodological approaches to testing the SMH**

Three methodological approaches to empirically investigating the SMH have become standard in both the earlier literature reviewed by Kain and the newer studies we review below: (1) racial comparisons of commuting times or distances; (2) correlations of wages, employment, or labor force participation with measures of job accessibility; and (3) comparisons of the labor market outcomes of central city and suburban residents. A fourth category has emerged in recent studies that involves examining differences in labor market tightness between central city and suburban areas. Each of these approaches is critiqued below.

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<sup>3</sup> Wilson (1987, 8) defines the underclass as the heterogeneous grouping of families and individuals who lack training and skills and either experience long-term unemployment or are not part of the labor force, individuals who engage in street criminal activity and other aberrant behavior, and families who experience long-term spells of poverty and/or welfare dependency.

*Racial comparisons of commuting behavior*

The SMH states that blacks have relatively poor access to jobs because jobs have suburbanized and blacks have been unable to move to the suburbs because of racial discrimination in the suburban housing market. One possible implication of the SMH is that because of their poorer access to jobs, blacks may have a longer commute to work than whites. However, as outlined below, racial comparisons of commuting times frequently provide, at best, weak tests of the SMH.

As noted above, a shortage of jobs in areas where blacks reside may cause joblessness, lower wages, or longer commutes for black workers. Spatial mismatch will increase the commutes of blacks only if blacks can commute to other areas where job growth is occurring. These high-growth areas are commonly located in white suburbs with few if any black residents. A commuting response to mismatch may be short-circuited by poor or nonexistent public transportation from the inner city to these suburbs, by blacks possessing poor information about jobs in these suburbs, by discriminatory behavior by employers, or by white consumer prejudice against black workers. Therefore, the failure to find differences in commuting times or distances between black and white workers does not necessarily mean that spatial mismatch does not exist.

Moreover, even if blacks can respond to spatial mismatch by making a longer commute, racial comparisons of commuting times or distances are notoriously difficult to interpret. First, black and white commuting distances may differ because of racial differences in incomes. Commuting distances (or times) are known to rise with earnings (see, for example, Ellwood 1986). This fact is explained by the standard urban model if the income elasticity of housing demand exceeds the income elasticity of commuting cost. In other words, higher-income workers may have longer commutes because they wish to consume more units of housing at a lower price. This explanation assumes that housing prices on average decline as distances to employment centers increase, which considerable empirical evidence suggests is the case (see, for example, Jackson 1979). Other models suggest that higher-income workers travel farther to get to work because they are willing to trade commuting costs for environmental amenities or better government services. These explanations assume that these amenities or services are generally of higher quality farther from employment centers. Regardless of what it is that higher-income workers are willing to trade for longer commutes, because blacks have lower mean incomes than whites, it is necessary to control for income differences in making any inferences about spatial mismatch on the basis of racial differences in commuting behaviors.

Similarly, blacks are known to rely more heavily on public transit than whites. Possible reasons for this fact include the following: (1) Public transit is an inferior good and blacks have lower incomes, (2) restrictions on black housing choices confine blacks to areas more likely to offer public transit, or (3) blacks have a stronger preference than whites for public rather than private transportation. Because public transit generally takes longer than private transit to cover the same distance, racial comparisons of commuting times as an indicator of spatial mismatch must also control for mode of transportation.

However, even after controlling for income and transportation mode, differences in mean commuting times or distances between blacks and whites do not generally provide an unambiguous test of the SMH. The problem is that residential location is endogenous, at least for whites. Workers may voluntarily choose to make a longer commute in exchange for a lower cost per unit of housing or greater environmental amenities. Whites are more able to make these exchanges than blacks because blacks face discrimination in the housing market (Yinger 1995). This situation confounds racial comparisons of commuting times or distances and renders them essentially irrelevant to the SMH.

Finally, even if racial comparisons of commuting times or distances overcome all of the above limitations, finding longer commutes for blacks than whites does not necessarily implicate spatial mismatch. Because of racial discrimination in the labor market or relatively inferior job credentials, nearby employers may offer fewer jobs to blacks, causing them to search farther afield to secure employment. While it may be possible to control for skill differences between races, it would be more difficult to differentiate housing market discrimination from labor market discrimination as the source of blacks' longer commutes.

In addition to cross-sectional comparisons of black and white commutes, there have been comparisons of intertemporal changes in commutes, as well as a focus on intertemporal changes exclusively in black commutes. We will consider the latter type of analysis first.

Intertemporal comparisons of black commuting times or distances provide a stronger test of the SMH than cross-sectional black-white comparisons. If job suburbanization results in poorer job access for blacks and if blacks can respond to this poorer access by making a longer commute, then black commutes on average should be increasing over time. Nevertheless, care is required in interpreting evidence on changes in times or distances as well. The pace of job decentralization (relative to population decentralization) has been

uneven over time for most metropolitan areas. Spatial mismatch could be a real problem within a particular metropolitan area but may not have worsened or may actually have improved between two points in time. As a result, black commutes may not show an increase over the observed period.

Comparisons of changes in black and white commuting time or distance are subject to the same criticism as cross-sectional comparisons. Changes in white commutes over time may simply be the result of voluntary trade-offs. For example, many whites may respond to wage increases by moving even farther into the hinterland, thereby decreasing black-white commuting differentials but not altering spatial mismatch.

#### *Utilizing a direct measure of job accessibility*

Another methodological approach to exploring the SMH is to relate the labor market status of individuals to their physical or geographic proximity to available jobs. If job access is found to affect employment and blacks are found to have poorer access to jobs than whites, then part of the racial difference in employment rates can be attributed to housing segregation.

The problem with this approach is that while job access may affect employment, employment may also affect the magnitude of the measure of job access. As noted above, people with jobs (and therefore higher incomes) may choose to reside in areas with poor proximity to jobs in order to consume more housing at a lower price. If the simultaneity between employment and residential location is ignored, the estimated effect of job access on employment will likely be biased toward zero (Ihlanfeldt 1992).

The most popular approach to handling the simultaneity between employment/earnings and residential location has been to focus the analysis exclusively on youth still living at home, on the assumption that their residential location is exogenously determined by their parents or guardians. But there are obvious weaknesses to this approach. First, a youth's unobserved skills, work ethic, or other factors that affect employment are likely to be correlated with those of his or her parents. Therefore, if the parents' residential choice is endogenous, then that of the youth will also be endogenous, even if the youth's employment or earnings play no role in the parents' location decision. Second, results cannot be generalized to youth who are no longer living at home, and it is their nonemployment that arguably can be considered the greater social concern.

Third, results may be biased by sample selection, because youth who obtain jobs are perhaps more likely to choose to live apart from their parents. Fourth, while the findings for youth have generally supported the SMH, these results may not be applicable to adults, because adults may be more able than youth to overcome poor job accessibility. In comparison with adults, youth are less likely to have access to an automobile for commuting, they may place a higher value on their commuting time because of their school responsibilities, and they may have less information about distant jobs because they rely more heavily on informal sources of job information.

Another problem with the use of a direct measure of job accessibility is that such measures commonly contain considerable measurement error. The correct accessibility variable is the number of nearby job *vacancies* per worker, not jobs per worker. Unfortunately, data limitations have precluded the utilization of this vacancy variable in empirical studies. Instead, proximity to employment levels (i.e., to occupied jobs) or the mean commuting time of workers who live nearby has been used as the access variable. Employment levels capture only vacancies that arise from turnover, not those created by job growth. Moreover, the relationship between the number of jobs and turnover may not be constant. For example, turnover-induced job vacancies may be lower in areas with job shortages because workers may be reluctant to give up their current jobs for fear of being unable to find another job. As Raphael (1998b) has noted, “the assumption that permits the use of employment stocks as a measure of turnover-induced vacancies, specifically that non-layoff turnover rates are uniform over space, is suspect” (p. 84).

The argument that has been made in favor of commuting time-based measures of job accessibility is that if jobs are available nearby, then workers should have shorter commutes. Moreover, time-based measures may reflect job opportunities arising from both possible sources of vacancies—turnover (quits, discharges, and retirement) and positive net employment change. But important criticisms can also be made of the use of commuting times. First, as noted above, blacks may fail to hold distant jobs because of poor information about these jobs or the absence of public transport to these jobs. Time differences among areas may therefore understate true differences in job accessibility. Second, the workers included in samples used to compute travel times frequently hold jobs that are not suitable for less-educated workers. This situation introduces measurement error into the job access variable, because the spatial distributions of jobs suitable for less-educated and more-educated workers are not uniform within metropolitan areas; in general, the former are more decentralized than the latter (Kasarda 1985). (This



criticism is also relevant to studies that use employment levels without regard to the skill level required.)

A final problem of the traditional approach is that omitted variables may bias the results. While this is a general caveat surrounding all regression-based analyses, there are strong reasons for believing that underspecified models have biased the results reported in the SMH literature. Tests of the SMH have made use of both individual- and neighborhood-level data. Depending on which type of data is used, a different set of important independent variables gets excluded from estimated equations. Moreover, each set is unlikely to be orthogonal to the measure of job accessibility. In the case of individual-level data, neighborhood descriptors are generally not available in most data sets because the individual's neighborhood or census tract is not identified for reasons of confidentiality. For example, many of the recent studies employ data from the Public Use Microdata Sample (PUMS) that do not identify intrametropolitan residential areas smaller than 100,000 people. The exclusion of neighborhood variables means that negative neighborhood effects arising from the concentration of poverty (Wilson 1987) are not controlled for in estimated equations.<sup>4</sup> The failure to consider both job accessibility and neighborhood effects together is problematic, because neighborhoods with negative effects are frequently distant from job opportunities for less-educated workers.

In the case of neighborhood-level data, important variables describing the personal and family characteristics of the neighborhood's youth are generally missing. The most common approach involves regressing the neighborhood employment rate of youth on a measure of job accessibility, the percentage of the neighborhood residents who are black, and other variables that describe the socioeconomic and demographic composition of the neighborhood. The neighborhood variables presumably capture both neighborhood effects and personal and family influences. In the latter category, we know from studies that have used individual-level data (Ihlanfeldt 1992; O'Regan and Quigley 1996) that the employment status, educational level, and occupation of the head of the youth's family are important determinants of whether the youth is employed; but these variables are not included among the summary statistics that are commonly available for census tracts. Because these variables are correlated with residential location, their exclusion from estimated equations using neighborhood-level data may bias estimated coefficients on the job accessibility measures.

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<sup>4</sup> Under the rubric of "neighborhood effects" fall a variety of mechanisms that link the neighborhood milieu to individual behaviors and opportunities. For a review of these linkages and of the empirical literature on neighborhood effects, see Ihlanfeldt (forthcoming b) or Galster and Killen (1995).

*Comparisons of central city and suburban residents*

These comparisons are based on the argument that blacks who live in the suburbs should have a significant advantage over otherwise comparable blacks who live in the central city if blacks are significantly handicapped in the labor market by involuntary housing segregation. There are two potential problems with this approach.

First, to avoid biased estimates, the residential location of the individual worker must be treated as endogenous. As already emphasized, although a suburban residential location may increase economic welfare by offering superior job access, people with jobs and higher earnings are more likely to self-select a suburban residence. Effectively dealing with the endogeneity of residential location requires predicting the choice of a central city versus suburban home as a function of exogenous variables that do not also affect employment or earnings, which is no easy task.

A second limitation of comparisons of the labor market outcomes of central city and suburban residents is the simple nature of the central city–suburban ring dichotomy used to define intrametropolitan residential location. It implicitly assumes that within each of these areas, job opportunities are spatially uniform. However, both central cities and suburban areas are generally highly heterogeneous in terms of the ideal job accessibility measure—the number of jobs available to residents close to where they live. In fact, many older suburban areas are now more like their central cities than the outer suburbs in terms of job opportunities. This point is made explicitly by Orfield (1997).

*Interarea comparisons of labor market tightness*

The SMH states that the movement of jobs out of central cities, combined with housing discrimination, leads to a spatial disadvantage in minority neighborhoods; hence fewer jobs and consequently *low* job vacancy rates among employers. Jobs that do appear are quickly taken by the surplus of local labor. Conversely, the relative increase of jobs in the suburbs is reflected in relatively *high* job vacancy rates as demand for labor outpaces supply. Of course, rather than see these adjustments in the vacancy rates, employers in minority neighborhoods may accommodate the local surplus of labor through lower wages, while employers in the suburbs (white neighborhoods) may increase their wages. The SMH, therefore, implies lower vacancy rates and/or lower wages in affected neighborhoods (i.e., implies that the labor market is “tighter” outside the inner city).

A number of the new studies have used unique establishment-level data on job vacancies and starting wages to investigate whether la-

bor market tightness varies between predominantly black and predominantly white residential areas. The objective of these studies is to address the logically prior issue of whether spatial mismatch exists, rather than to quantify the possible adverse effects of mismatch on individual workers. Ideally, both vacancy rates and wage rates should be explored, because wage rigidities may cause tightness to be registered in the former, rather than the latter, variable.

## **Review of individual studies**

By our count, 5 new studies make racial comparisons of commuting times, 18 use a direct measure of job accessibility, 2 compare the employment probabilities of blacks residing in central city versus suburban areas, and 3 make interarea comparisons of labor market tightness. The results of each of these studies are considered below.

### *Commuting studies*

Wyly (1996) uses the 1980 and 1990 PUMS for the Minneapolis/St. Paul metropolitan area to focus on intertemporal changes in the length of black commutes. Data from the region's metropolitan planning organization on the average velocities of work trips, broken down by travel mode, are used to convert the PUMS work-journey times into estimated one-way work-trip distances. The results show that the suburbanization between 1980 and 1990 of jobs that blacks disproportionately held at the beginning of the decade did not lengthen blacks' work trips over the decade.

As noted above, such evidence does not necessarily contradict the SMH. In fact, Wyly concludes that his results support the SMH, because he finds that over the decade blacks (1) remained heavily concentrated within the core of the metropolitan area and (2) replaced their relatively high-wage production jobs with low-wage service work in the expanding downtown economy.

McLafferty and Preston (1992, 1996), who also rely on the PUMS, make racial comparisons of commuting times. In their first article, they use 1980 data for northern New Jersey to show that black and Hispanic women have longer journey-to-work times than white women. They conclude that minority women have relatively poor spatial access to jobs. However, despite their finding that minorities rely heavily on mass transit, they do not standardize their comparison of commuting times by mode of transportation. As noted above, this failure negates their comparisons as a test of the SMH.

In their second article, McLafferty and Preston use PUMS data for New York to make much more sophisticated comparisons of

commuting times among groups broken down by race, gender, and location (city versus suburbs). Regressions of commuting times on an extensive set of independent variables, including transportation mode and earnings, are estimated for each group. Their measure of spatial mismatch is the difference between the actual black mean travel time and the expected mean travel time. The latter is obtained by substituting the mean values of the independent variables for blacks in the travel time equations estimated for whites. This substitution puts blacks into the white commuting world to project what the average black's commuting time would be if he or she had the same commuting behavior as whites. In both 1980 and 1990, a significant spatial mismatch is found for blacks living in the center of the metropolitan region. In the suburbs, differences between actual and expected mean travel times are not significant.

The methodological approach followed by McLafferty and Preston in their second article overcomes many of the problems we identified earlier that tend to plague racial comparisons of commuting times. However, the authors are too restrictive in their interpretation of a significant difference between actual and expected commuting times. As noted above, in addition to spatial mismatch, such differences may arise from blacks' facing lower job-offer rates because of discrimination in the labor market or weaker job credentials.

Gabriel and Rosenthal (1996) use data from the neighborhood clusters defined for the 1985 and 1989 American Housing Survey (AHS) national samples. On the basis of these clusters, they estimated a fixed-effects commuting time model that controls for quality-adjusted housing prices, neighborhood amenities, earnings, demographic characteristics, and the number of vehicles to which the worker's household had access. Their results indicate that black workers have commutes that are 14 percent longer than comparably skilled Asian and white workers.

The racial commuting time comparisons conducted by Gabriel and Rosenthal are unique because the fixed-effects model addresses the concern that whites (and possibly blacks) trade longer commutes for lower housing costs or location-specific amenities. In essence, the authors show that among otherwise identical blacks and whites who live in the same neighborhood, blacks have to make a longer commute. While this result is consistent with the SMH, it is also consistent with labor market discrimination against blacks. In interpreting their findings, Gabriel and Rosenthal are cognizant of this possibility.

In addition to their commuting time model, Gabriel and Rosenthal estimate a residential mobility model that includes the error term

from the commuting time equation as one of the independent variables. The results show that blacks are less likely than whites to move in response to undercompensation for their employment commute. These results reinforce the conclusion drawn from the authors' commuting time equation that blacks face discrimination in the housing or labor market or both.

Taylor and Ong (1995) use data from the metropolitan area samples of the 1977/78 and 1985 AHS to study the commutes of whites, blacks, and Hispanics residing in 10 metropolitan statistical areas (MSAs). They make both cross-sectional and intertemporal comparisons of commuting times and distances. Unlike the other four commuting time studies, they find no evidence to support the SMH.

The authors' simple cross-sectional comparisons of commuting distances and times, controlling only for mode, show few differences between whites and minorities. But as noted above, these comparisons are not relevant to the SMH. Regarding their intertemporal comparisons, Taylor and Ong find that the commuting distances of blacks and Hispanics increased between 1977/78 and 1985. These findings are consistent with the SMH. However, the authors dismiss them because white distances increased as well. But the SMH implies only that black commutes will increase over time; it does not imply that white commutes will decline. Therefore, the white commuting changes should have no bearing on the interpretation placed on the minority results.

### *Studies employing a direct measure of job accessibility*

Studies employing a direct measure of job accessibility can be categorized on the basis of whether the data are from a single MSA or multiple MSAs; the latter generally include only workers residing in the central city portion of each MSA. The disadvantage of using data from a single MSA is that the findings may not be generalizable to other MSAs. However, this disadvantage is more than offset by an important advantage. Job accessibility in the physical or geographical sense, while a simple notion conceptually, is exceedingly difficult to quantify. A number of the recent studies focusing on individual metropolitan areas have succeeded in measuring job accessibility at the neighborhood level, while studies using multiple-MSA data construct a single measure of job accessibility that applies to all people residing within the central city. Many central cities are sufficiently large that there can be substantial variation in job accessibility within their boundaries, which may introduce considerable measurement error into the analysis.

Ten recent studies employ data from individual MSAs, while eight take the multiple-MSA approach. We consider the latter studies first.

*The multiple-MSA approach.* Wheeler's (1993) is the first study to use individual-level data to estimate employment models that include both neighborhood and job accessibility variables. As mentioned above, to avoid omitted variable biases, the effects of spatial mismatch and the neighborhood milieu on employment outcomes should be estimated together. Wheeler's work also responds to Kain's (1992) call for more research on females; in the earlier literature that Kain reviewed, most of the evidence pertained only to males. Using the Panel Study of Income Dynamics Geocoded File, Wheeler estimates employment equations for a multicity sample of 629 women in female-headed households with at least one child. In addition to individual characteristics, her independent variables include the labor force nonparticipation rate of the residents in the individual's neighborhood and three alternative measures of job accessibility: whether the individual lives in the central city or the suburbs, the percentage of the MSA's total employment located within the central city, and mean commuting times of all workers computed separately by residence (central city versus suburbs) and mode choice (private versus public transit). The individual is assigned a mean time based on her residence and the availability of an automobile. Separate regressions are estimated by race, residential location (central city and suburbs), MSA population, and income.

Wheeler's results "offer only meager support" (p. 113) for the SMH (and inexplicable evidence of neighborhood effects, because the estimated sign on the labor force nonparticipation rate varies across the separate regressions). These results are not surprising; in fact, they are expected in light of our earlier critique of alternative methodologies. Wheeler ignores the endogeneity of residential location and employs poorly constructed measures of the nearness of available jobs. For both these reasons, her estimates likely understate the true importance of job accessibility to employment (and perhaps also neighborhood effects) for the women in her sample.

Kasarda and Ting (1996) use data from the 1980 and 1990 PUMS for 67 central cities to estimate a system of equations that includes joblessness, poverty, and welfare reciprocity as endogenous variables measured at the city level separately for blacks and whites with not more than a high school education. The exogenous variables measure city industrial mix and its change, degree of residential segregation, skill mismatch, and spatial mismatch. The spatial mismatch measure is the average number of minutes of the one-way work commute of city residents for each racial group. Kasarda and Ting's

assessment of this measure is as follows: “while certainly an imperfect measure of spatial mismatch, it does indirectly tap spatial separation of workers from jobs (including patterns of urban development) and reliance on typically more time-consuming public transit” (p. 401).

Despite the crudeness of their spatial mismatch measure, Kasarda and Ting’s results indicate that travel time has statistically significant positive effects on the joblessness rates of less-educated white men, white women, and black women. The effect for black men, while of the right sign, is not statistically significant. On the basis of these results, Kasarda and Ting conclude “that less-educated inner-city whites are at least as sensitive to structural disarticulations in local job markets as are their black counterparts” (p. 407). They also find that spatial mismatch has a stronger effect on the joblessness of women, regardless of race. They suggest that this finding may reflect women’s more complex travel patterns and greater domestic responsibilities, both of which make them less able to commute to distant jobs.

While the findings of Kasarda and Ting support the SMH, it is troubling that no effect is found for black men. However, like Wheeler’s, all of their results may underestimate true effects, not only because of the weakness of their access measure, but because they ignore simultaneity between their endogenous variables and residential location.

Cutler and Glaeser (1997) also use data from the 1990 PUMS to study multiple poverty-related outcomes, but their work differs from Kasarda and Ting’s in that individual-level data are used and instrumental variables are employed to control for the endogeneity of location choice. They analyze the following outcome variables for samples of youth aged 20 to 24 and 25 to 30 living in 204 different MSAs: high school graduation, college graduation, idleness (neither working nor in school), earnings, and—for females—unmarried motherhood. These variables are separately regressed on individual and MSA characteristics, where the key variable within the latter group is a dissimilarity index used to measure the degree of housing segregation. Because housing segregation may be endogenous with respect to outcomes, both ordinary least squares and instrumental variable estimates are presented. The instruments used to measure housing segregation include the number of municipalities in the MSA, the share of local government revenue in the state that comes from intergovernmental sources, and the number of rivers. The ordinary least squares and instrumental variable regressions yield highly similar results and show that all the outcomes variables (except college degree) are strongly influenced by housing segregation in a manner that is detrimental to blacks.

The results of Cutler and Glaeser's study convincingly demonstrate that blacks suffer a welfare loss from housing segregation. Cutler and Glaeser list four possible reasons why this might be true: (1) The effect of segregation on blacks is really just a differential effect of segregation on central city residents; (2) housing segregation reduces the contact blacks have with more educated people; (3) black parents are marred in some way by segregation, and this damage is passed on to their children; and (4) housing segregation reduces the job accessibility of black workers. They add measures of these possible explanations for the ill effects of housing segregation to their outcomes equations to see what effect their inclusion will have on the coefficients estimated for housing segregation. The measure of job access is the average time to work of blacks minus the average time to work of whites.

Each of the above explanations is found to be related to poor outcomes. Regarding the job access effect, a greater time distance from work for blacks is associated with an increased probability of being idle and lower wages conditional on working. However, collectively these factors account for only 20 to 40 percent of the effects of segregation, which leaves a substantial residual to be explained.

Cutler and Glaeser must measure job access with considerable error, because they do not standardize for type of job or mode of transportation in computing mean travel times. More important, they do not control for the trade-off between commuting costs and housing prices within MSAs. As with Kasarda and Ting, therefore, there is good reason to believe that Cutler and Glaeser have underestimated, possibly by a large amount, the true effects of job access on their outcome measures. Nevertheless, there is support here for the SMH.

Holzer, Ihlanfeldt, and Sjoquist (1994) use individual-level data from the National Longitudinal Survey of Youth (NLSY) for 1981 and 1982 to investigate the relationships among job search, commute to work, and metropolitan job decentralization among young whites and blacks. The sample includes youth aged 16 to 24 living in 113 different MSAs. Their measure of job access is the percentage of the MSA's jobs located outside the central city. They address the endogeneity of residential location with respect to employment status by arguing that the residential locations of young people are for the most part determined by their parents or guardians.

Despite the crudeness of their access measure, which they fully acknowledge, Holzer, Ihlanfeldt, and Sjoquist find that job decentralization substantially increases the duration of unemployment among central city blacks, *ceteris paribus*. This result is consistent with the SMH. They also find that blacks do not offset greater job decentrali-



zation with greater distances traveled, for either job search or work, even after controlling for the time costs of travel. They interpret these results as an indication that the persistence of the mismatch problem is due to factors other than transportation barriers, such as information limitations, perceived hostility, weak skills, and employer discrimination.

Stoll's (forthcoming b) methodological approach is similar to Holzer, Ihlanfeldt, and Sjoquist's in that he also employs the NLSY (interview year 1984) to study the relationship between job decentralization and the duration of unemployment among male central city youth. However, he departs from Holzer, Ihlanfeldt, and Sjoquist by employing a measure of the growth of job decentralization (i.e., the percentage change in the ratio of all standard MSA manufacturing, retail trade, and service jobs located in the suburbs between 1972 and 1982) rather than the level of job decentralization. He cites the results of Raphael (1998b) (discussed below) to bolster his argument that the pace of job decentralization is superior to its level as a job access measure, because the former better captures employment growth. Stoll also differs from Holzer, Ihlanfeldt, and Sjoquist in relating the growth of job decentralization to the incidence of unemployment (i.e., whether an individual ever became jobless during the interview year). His results show that both the incidence and duration of joblessness among black and Latino male youth are strongly affected by faster job decentralization after controlling for the characteristics of the individual, his family, and the local unemployment rate and population growth.

While Holloway (1996) uses data from multiple MSAs (roughly the 50 largest), his methodology is considerably different from that of Kasarda and Ting or Holzer, Ihlanfeldt, and Sjoquist. Instead of focusing only on central city residents and using a job access measure that varies only across central cities, Holloway's samples include youth living throughout the metropolitan area, and his access variable varies within, as well as across, MSAs. His methodological approach, which was first employed by Ihlanfeldt and Sjoquist (1990) and Ihlanfeldt (1992), involves computing mean travel times separately by race for each of the subcounty areas identified by the PUMS. These areas, called County Groups in 1980 and Public Use Microdata Areas (PUMAs) in 1990, contain a minimum population of 100,000. The samples used to compute mean times are restricted to workers holding jobs suitable for youth and traveling to work by private carrier. The idea is to proxy the distance a youth would have to travel if he or she were to take a job.

Holloway provides results for male teenagers for both 1980 and 1990. In addition to travel time, his employment equations, like those of Ihlanfeldt (1992), include individual and family controls

and dummy variables for MSA. In 1980, he found job access to have a statistically significant effect on the employment of white enrolled teenagers and black teenagers regardless of enrollment status. Generally, these results are consistent with those of Ihlanfeldt and Sjoquist (1990) and Ihlanfeldt (1992), who found that job access has strong effects on youth employment. For 1990, the results for enrolled white and black teenagers are almost identical to those obtained for 1980. However, while the job access effect is much stronger for nonenrolled black youth in 1980 than for the other groups, in 1990 the magnitude of this effect declines by more than half and is no longer significantly different from zero. These results are puzzling. One possible explanation is that Holloway predicts travel times where samples are too small to generate a reliable average, possibly introducing additional measurement error into a variable that already suffers from considerable imprecision. Holloway might have been able to avoid this problem had he more closely followed Ihlanfeldt (1992) by using the 5 percent, rather than the 1 percent, version of the PUMS. While Holloway's results may be biased, they are nonetheless interesting, because they provide some confirmation of the strong job access effects found by Ihlanfeldt and Sjoquist (1990) and Ihlanfeldt (1992) for 1980 and at least suggest that these effects may be true for 1990 as well.

Ross (1998b) explicitly models simultaneous residential and job location choices and relates them to job decentralization. The basic idea behind his test is to consider the difference between the probabilities of a move with and without a job change, and then to compare the racial differences in these probability differences. Thus, he tests whether race and job access have independent effects on the probability of a joint residential and job change. Ross estimates separate multinomial logic equations using data from the Panel Study of Income Dynamics restricted to non-Hispanic white and black adults under 55 years of age living in MSAs. A third equation estimates the direct effect of each variable on the joint move after controlling for the effect of each variable on mobility through the two other equations.

Ross finds that white and black households follow the same model when deciding to make a joint move and job change, but that differences in the values of the independent variables account for racial differences in mobility. In particular, he finds that job decentralization, but not race, affects the probability of a joint job and residence change. He concludes that given the spatial distribution of minority residences, black workers may not be able to fully adjust as new jobs are created in the suburbs.

Ross's (1998b) is perhaps the most sophisticated of the papers that attempt to consider the possibility of joint decisions between job and

residential location. Its biggest drawback is the measure of job decentralization, which includes jobs only in certain industries (retail, manufacturing, wholesale, and selected services) but all occupations within those industries; it would have been preferable to consider only lower-skill jobs.

Among the new multiple-MSA studies, Weinberg's (1998) provides the strongest support for the SMH. Data from the 1980 PUMS for 195 MSAs are used to regress the difference between metropolitan-wide black and white employment rates on the percentage of the region's jobs located in the central city and the difference between the percentages of the region's blacks and whites living within the central city. Employment rates are adjusted in a first-stage regression for observable individual characteristics likely to affect employment. Weinberg argues that each of his principal independent variables is endogenous. Regarding the centralization of employment, he states, "An exogenous decrease in the labor force attachment of central city residents will lead employers to locate outside of the central city both because it will be harder to find workers and because decreases in labor force attachment may be associated with higher crime rates" (p. 2). He believes the relative concentration of black residences within the central city is endogenous because "If a decrease in black employment is associated with an increase in crime, whites will have an incentive to move to the suburbs" (p. 4). Because of these endogenicities, Weinberg instruments employment centralization with the industrial composition of the region and relative black residential centralization with the city-suburban difference in the age of housing. PUMS data for 1980 rather than 1990 are utilized because the 1980 data provide better information on whether jobs are located in central cities or suburban areas.

Weinberg finds that an increase in the fraction of jobs located in the central city raises black employment rates relative to those of whites, as does an increase in the fraction of blacks living outside the central city. The effects are greatest in large MSAs and for young workers, women, and those with less than a college education. These results are all consistent with expectations based on differences among groups in their ability to reverse-commute and acquire suburban housing, which adds further support to the SMH. The magnitudes of the effects estimated for large MSAs are remarkable. For example, the shares of the difference between black and white employment rates explained by a one-standard deviation increase in jobs in the central city are 60 percent and 100 percent for noncollege men and women, respectively.

While Weinberg interprets his results as providing strong support for the SMH, a portion of his estimated effects may be attributable to unmeasured neighborhood effects. His instrument for job

centralization will be lowest in value for metropolitan areas with high levels of manufacturing activity, because jobs in this industry are the most decentralized. Metropolitan areas in the Rust Belt will therefore score high on his chosen instrument, and they also contain the highest levels of concentrated poverty in the nation (Jargowsky 1997).

Weinberg's results for large MSAs add another potential explanation for the failure of some multicity studies to find empirical support for the SMH: A spatial mismatch may in fact not exist for many of the MSAs in the samples used. For example, Wheeler (1993) finds support for the SMH when she restricts her sample to MSAs with populations greater than 1 million.

*The single-MSA approach.* Thompson (1997), Pastor and Adams (1996), and Cooke (1997) have produced single-MSA studies that more or less replicate the basic methodology of Ihlanfeldt and Sjoquist (1990). Each of these studies uses the 1990 PUMS for various metropolitan areas.

Thompson's analysis differs from Holloway's in three principal respects: (1) He provides separate estimates for Chicago, Philadelphia, and Los Angeles; (2) his dependent variable is labor force participation rather than employment; and (3) his sample is restricted to less-educated women, aged 18 to 35, while Holloway exclusively studied males. Thompson's analysis, like Wheeler's, is motivated by the lacuna in our knowledge concerning the effects of job accessibility on females. His independent variables, in addition to the travel time-based measure of job access, include number of children, age, education, other household income, and occupation (either current or prior).

Thompson recognizes that simultaneity between labor force participation and job access may affect his results, because unlike those of youth living at home, the residential locations of the women in his sample are less likely to be exogenously determined. But he believes that the bias will be small, because the women in his sample have uniformly low earnings and household incomes, making it difficult for them to trade higher commuting costs for more spacious homes.

His results indicate that job access has a statistically significant effect on the labor force participation rates of white, black, and Hispanic women living in all three MSAs. Following Ihlanfeldt and Sjoquist, he uses his estimates to compute the percentage of racial differences that can be attributed to differential job access. The

white-black participation rate gap explained by differential job access ranges from a low of 5.7 percent in Los Angeles to a high of 24.5 percent in Chicago. Somewhat smaller percentages are found for Hispanics.

Like Holloway and Thompson, Pastor and Adams (1996) adopt Ihlanfeldt and Sjoquist's commuting time-based measure of job accessibility in their analysis of the Los Angeles labor market. However, their analysis is unique in several respects. First, their dependent variable is the wage rate rather than employment or labor force participation. The explanatory variables that enter their log wage equations include the household poverty rate of the worker's PUMA, the average commuting time of all workers residing within the worker's PUMA, and the worker's own commuting time. The standard set of human capital variables serves as controls. Second, their sample is not restricted to youth but includes all male workers with full-time jobs. According to their interpretation of the SMH, Pastor and Adams expect that an increase in mean commuting time will lower the worker's wage rate, presumably because there is a relative surplus of labor in PUMAs with larger commuting times.

Pastor and Adams's results indicate that both the poverty rate and job accessibility have statistically significant effects on wages in the direction that they anticipate, but the poverty rate strongly dominates job accessibility in explanatory power. They conclude that wages are more affected by neighborhood effects (they emphasize residence-based job information networks) than by spatial mismatch.

While Pastor and Adams's study can be applauded for being among the first to focus explicitly on the relative importance of neighborhood and access effects (the others are by Wheeler [1993] and O'Regan and Quigley [1996, 1998]), their analysis is flawed in numerous respects. Perhaps most obvious is that once again their estimated equations ignore the simultaneity between earnings and residential location. Near the end of their article, they do address this concern by reestimating their wage equations for only long-term residents and by reestimating their equations using two-stage least squares. In the case of the former technique, however, the cure may be worse than the disease because the selection of the sample introduces new biases. Their use of two-stage least squares, moreover, appears invalid because no exogenous variables are employed that determine location independent of wages.

The final study that takes the Ihlanfeldt and Sjoquist (1990) approach is by Cooke (1997). He restricts his analysis to data from the 1990 PUMS for the Boston Consolidated Statistical Area. His dependent variable is an ordinal labor force participation scale that

ranges in value from 1 (out of the labor force) to 5 (working full time), which necessitates the use of an ordered logit estimation technique. His sample includes all individuals aged 16 to 65. Separate logits are estimated for black and white males and females. The mean commuting time of the PUMA is interacted with marital and parental status, occupation, and use of public transit.

Cooke's results are dramatically different from those obtained by the other three studies inspired by Ihlanfeldt and Sjoquist: He finds that job access has no discernible effect on the labor force behavior of either black males or females. In fact, the only group whose behavior is affected by access is white married mothers. Because Cooke ignores simultaneity between residential location and labor force status, however, little credence can be given to his results. It is interesting to note that his one significant result is obtained for a group for which endogeneity of residential location may be less of a problem.

As mentioned above, in addition to commuting time-based measures of job accessibility, employment-based measures have been popular in single-MSA studies. Among recent studies, both Cooke's (1993) study of Marion County, Indiana, and Immergluck's (1996) study of the Chicago MSA use a measure of this type—a nearby jobs-to-workers ratio—to explain neighborhood-level unemployment rates. Cooke's estimated job access effect is statistically insignificant, while Immergluck's is significant with the correct sign, but the magnitude of the effect is relatively small. Neither study, therefore, provides much support for the SMH.

The work of Raphael (1998b) may very well explain the weak results of Cooke and Immergluck. Using census tract-level employment data for 1980 and 1990 furnished by the Association of Bay Area Governments, he first documents that blacks live nearer to employment levels but farther from net employment growth than whites. For example, his data show 300,000 jobs within a 10-minute commute of the average white youth's residence versus 340,000 jobs within 10 minutes of the average black youth's residence.<sup>5</sup> In contrast, between 1980 and 1990, within 10 minutes of the average black youth's residence, 20,000 jobs were added, versus a net gain of 40,000 jobs within 10 minutes of the average white youth. He next estimates an econometric model that follows the same basic methodology employed by Ellwood (1986) and Leonard (1986). Male youth employment-to-population ratios computed for census tracts

<sup>5</sup> Cohn and Fossett (1996) similarly find that in Boston and Houston, blacks are physically near more jobs than whites. On the exclusive basis of these findings, they reject the SMH. Their paper is the weakest published test of the SMH we have seen.

are regressed on a set of geographically defined job accessibility measures, a geographically defined competing labor supply variable, and variables describing the demographic composition of the neighborhood. The distinguishing characteristic of Raphael's model is that his accessibility measure, which is obtained by estimating a gravity equation, is based on the change in jobs rather than the number of jobs within a specified commute of each tract. He persuasively argues that proximity-to-employment *growth* comes closer than proximity-to-employment *levels* to the ideal measure of job accessibility: the number of nearby job openings per worker. Like many of the studies already reviewed, Raphael's handles the simultaneity problem between employment and residential location by assuming that the residential distribution of youth is exogenously given by the location decisions of parents and guardians.

The estimated effects of his job accessibility variables have the expected signs and are highly significant. Moreover, contrary to the results of Ellwood and Leonard, when Raphael adds his job accessibility variables to an equation that includes the proportion of the census tract's residents who are black, the coefficient on the latter variable falls precipitously. Differential accessibility is found to explain between 30 and 50 percent of the neighborhood employment rate differential between average white and black male youth. It is remarkable that this range is nearly identical to the one found earlier by Ihlanfeldt and Sjoquist (1990) using 1980 data for Philadelphia.

Raphael presents other results that may go a long way toward resolving the SMH debate, at least as it applies to youth. When he reestimates his models using Ellwood's and Leonard's employment level-based measures of job accessibility (nearby jobs-to-workers ratios analogous to those employed by Cooke and Immergluck), he reproduces their statistically insignificant results.

In another article, Raphael (1998a) takes a methodological approach first adopted by Ellwood (1986)—a comparison of the employment probabilities of otherwise similar youth residing in high and low job accessibility areas within the same metropolitan area. Ellwood argued that the south and west sides of Chicago offered a "marvelous natural experiment," because based on all his measures of job accessibility the west side offered much better proximity to jobs. When he compared the employment rates of young black males residing in the two areas, he found that they were almost identical. As is well known, these results, along with those generated from his regressions, which employed direct-access variables, led him to reject the SMH as an important explanation for the employment problems of black youth.

As in his other 1998 article, Raphael emphasizes that job accessibility is better reflected by nearness to job growth, rather than employment levels. He therefore uses the 1990 PUMS to compare the employment rates (of youth aged 16 to 21, still living at home, with no post-high school degree) between a low job-growth area of Oakland (downtown) and a high job-growth area of Oakland (the eastern suburbs). After controlling for many personal and family background variables, he finds that white and Latino youth have much higher employment rates in the high-growth area. Black and Asian employment rates are also higher in the high-growth area than in the low-growth area, but the differences are not statistically significant. He suggests that his findings for blacks may be attributable to their residential segregation within suburban enclaves. Using data from his first paper, he shows that the job access of blacks in the high-growth area is considerably inferior to the access enjoyed by other suburban youth. As a result, the access difference between the low- and high-growth areas is much smaller for blacks than it is for the other racial groups. These results support, but certainly do not confirm, his contention that "suburban housing markets act to reproduce inner-city ghetto conditions, effectively neutralizing any benefit associated with a suburban residence" (p. 523).

In contrast to blacks, Asians living in the suburbs enjoy the same job access advantage over a downtown location as whites and Latinos. Raphael is unable to offer an explanation for his failure to observe a higher employment rate for Asian youth living in the suburban area than for those living downtown.

Raphael's findings can be criticized because, despite his many control variables, the possibility remains that there are unobservables affecting youth employment that systematically vary between his chosen areas. Nevertheless, the strong results obtained for whites and Latinos and the plausible story he tells for blacks contrasts sharply with the findings of Ellwood and are strongly consistent with the findings of his other 1998 article supporting the SMH.

In a study similar to the first of the two articles by Raphael reviewed above, Rogers (1997) analyzes the relationship between unemployment duration and the spatial distribution of employment. Her sample consists of black and white men aged 15 to 55 residing in the Pittsburgh metropolitan area who have submitted unemployment insurance claims. She argues that the simultaneity problem between employment and residential location is less problematic for her sample because the residential location of laid-off workers is based on previous job location. Her measures of job access are essentially the same as those employed by Raphael: gravity variables that measure either the worker's proximity to employment change or employment levels. Her control variables include age, education,



household size, marital status, industry, and weeks of entitlement remaining. Regarding race, instead of estimating separate equations for blacks and whites, she chooses to combine blacks and whites and include a black dummy variable.

Rogers' results mirror those of Raphael; employment change-based measures of access are found to have a statistically significant effect on unemployment duration, while employment level-based measures do not. A one-standard deviation increase in the mean value of Rogers' access-to-job growth variable is found to decrease expected unemployment duration by about five weeks. An important difference between Rogers' and Raphael's studies is that Rogers interacts her access index with total local employment (her data span the years 1980 to 1986). She finds that accessibility has a stronger effect when total employment is lower. This makes intuitive sense, because geography should play less of a role in determining labor market outcomes in a tight regional labor market than in a loose one.

O'Regan and Quigley (1996, 1998) use individual records from the 1990 census to estimate employment and idleness (not being at school or at work) equations for teenagers (16 to 19 years old) that include measures of both job accessibility and neighborhood composition, along with variables describing the youth and the youth's family.<sup>6</sup> Their data are unique in that the census tract of each individual youth was identified through special arrangements with the Census Bureau. They estimated their equations separately for Newark and for a pooled sample of New Jersey metropolitan areas that included Newark and three other large MSAs. Estimated job accessibility and neighborhood effects were allowed to vary across MSAs. Job accessibility was measured by an index of employment potential—the accessibility of each residence zone to all of the workplaces distributed throughout the region.

Generally, the findings of O'Regan and Quigley indicate that neighborhood composition (as measured by percent white, percent poor, percent on public assistance, percent unemployment, and percent of adults not at work) has a stronger effect than job access on both the employment and idleness of teenagers. Nevertheless, their job accessibility results were sufficiently strong for them to conclude that “measures of access to jobs are important in affecting employment

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<sup>6</sup> Both their articles report on the same set of results, but the 1998 article provides additional analysis of why results vary among metropolitan areas. For example, statistically significant job accessibility effects are found for all MSAs except Newark. For Newark, however, the strongest correlations are observed between the accessibility measure and the neighborhood variables, which leads O'Regan and Quigley to suggest that multicollinearity might be a problem.

in some areas, especially for minority youth” (1996, p. 52). O’Regan and Quigley use all jobs in constructing their accessibility variables, rather than only jobs suitable for teenagers. They admit in their 1998 article that this might be a problem. In addition, they measure nearness to employment rather than employment change; hence, they are subject to Raphael’s criticism that measuring employment levels poorly captures the availability of nearby job opportunities. For these reasons, O’Regan and Quigley probably understate the true causal significance of job accessibility.

The final single-MSA study we review is by Blumenberg and Ong (1998). This study is of particular interest because the authors seek to explain the variation in welfare usage across census tracts as a function of job accessibility. Specifically, they regress welfare usage rates of people with a high school education or less (obtained from administrative records) on a measure of the nearness of jobs and the racial and demographic composition of the census tract. Their job accessibility variable is the ratio of the number of low-wage jobs accessible in a three-mile radius to the number of working-age adults in the home census tract. Separate models are estimated for whites, blacks, Hispanics, and Asians.

Blumenberg and Ong’s results show that in all four models, access to neighborhood jobs is negatively related to the percentage of the working-age population that relies on welfare. All estimated coefficients are statistically significant at better than the 1 percent level. Results are found to be robust to alternative measures of job accessibility (i.e., different types of jobs and different radii), alternative measures of welfare usage (i.e., changes in the population group by which the measure of welfare usage is standardized), and nonlinear modeling techniques.

Regarding the economic significance of the results, increasing job accessibility from the 10th percentile to the 90th percentile of the distribution lowers welfare usage by 0.5 percent for whites, 3.25 percent for blacks, 0.5 percent for Hispanics, and 4.3 percent for Asians. While these magnitudes are certainly not trivial, neither can they be considered large. However, once again it is important to remember that Blumenberg and Ong’s employment level–based measure of job accessibility may only be weakly correlated with the number of nearby job vacancies per worker. Hence, their results should be considered as lower-bound estimates.

### *Comparisons of central city and suburban residents*

Although this approach was popular among earlier studies (Bell 1974; Harrison 1972; Price and Mills 1985; Reid 1985; Vrooman and

Greenfield 1980), the only recent studies to adopt it are by Cooke (1996) and Stoll (forthcoming a). Cooke uses data from the 1990 PUMS to estimate probability of employment equations for black males aged 16 to 65. Separate equations are estimated for each of nine different metropolitan areas. The set of explanatory variables consists of the individual's characteristics, a dummy variable indicating a suburban residence, and Heckman's (1979) correction for self-selection bias.

The results are highly mixed across metropolitan areas, which is not surprising because Cooke's comparisons suffer from both the limitations associated with this approach: He assumes that within their borders city and suburban areas offer spatially uniform access to nearby jobs, and he fails to control for people with jobs self-selecting a suburban residence. Although Cooke's use of Heckman's  $\lambda$  as an independent variable in the employment equations is an attempt to handle the selection problem, the identification of the first-stage residential location equation is questionable because it contains no variables that would affect location but not employment.

Stoll also uses the 1990 PUMS to estimate probability of employment equations, but only for the Washington, DC, metropolitan area and only for youth aged 16 to 21 living at home. He compares the employment of youth residing in DC with otherwise similar youth residing in the suburban counties of Prince George's and Montgomery, Maryland. He finds that employment rates are higher in both suburban counties for both white and black youth than they are in DC. However, differences between city and suburb are larger for whites than for blacks, which leads Stoll to conclude that racial discrimination in the suburban labor market dampens the employment opportunities that blacks can realize by moving to the suburbs.

Because Stoll restricts his analysis to (1) a group whose residential locations are relatively more exogenous to their employment outcomes and (2) only a part of the suburbs characterized by high employment growth, his study is methodologically sounder than Cooke's. However, Stoll's conclusion that labor market discrimination explains the observed differences in results between whites and blacks may be incorrect; they may instead be attributable to the inherent weaknesses of comparisons of city and suburban residents as a methodological approach to testing the SMH. Even within Stoll's carefully selected suburban counties, because of their size (each contained more than 600,000 people in 1990), significant differences in job accessibility may exist between the neighborhoods occupied by white and black youth. The return to blacks from suburbanization therefore may be lower simply because they are moving to less job-rich areas than are whites.

*Studies comparing the relative labor market tightness of submetropolitan areas*

Three studies offer evidence on whether the labor market is tighter outside those areas where blacks are concentrated (Ihlanfeldt forthcoming a; Ihlanfeldt and Young 1994; Turner 1997).

Turner's study is unique among those we review because it is qualitative rather than quantitative. She interviewed 59 respondents in 26 case-matched auto-supply firms in the Detroit metropolitan area; 13 of the firms are white owned, and their matches are black owned. Firms are matched on the basis of size, location, and product.

Turner finds that, regardless of the race of the owner, suburban firms paid higher wages than central city firms. Among white owners, the suburban advantage was a staggering 22 percent, while for black owners it was a more modest 5 percent. From the information she gleaned from employers, she concluded that central city–suburban wage disparities were the result of spatial mismatch:

Both black and white employers who paid lower wages stated that there are relatively few low- or semi-skilled jobs available in the city of Detroit and a very large number of both black and white workers seeking jobs. Employers noted (and often showed me) that they received an avalanche of applications for every opening, whether or not it had been advertised. In addition, many city employers stated outright that they could lower wages or keep them low because they have a captive (primarily black) labor force at their disposal (Turner 1997, 130).

Ihlanfeldt and Young (1994) also find that suburban firms pay lower-skilled workers higher wages than city firms. They estimate wage equations for Atlanta on the basis of data from surveys they conducted with the managers and the employees of 102 fast-food restaurants throughout the metropolitan area. Fast-food restaurants provide an interesting set of employers to study the SMH because they employ a large number of lower-skill workers to do relatively uniform tasks.

The wage rates of black and white fast-food restaurant workers were related to the restaurant's distance from the central business district (CBD) center, after controlling for a lengthy list of individual and establishment characteristics. For both whites and blacks, positively sloped wage gradients were found (i.e., wages increased with distance from the center), but only if the restaurant was on the north side of the metropolitan area. These findings underscore the importance of recognizing that the demography of particular

suburban areas may differ markedly from not only the central city, but also other suburban areas. In comparison with the south side of the city and the southern suburbs, the north side and the northern suburbs are much more affluent, are considerably less black, and have experienced unprecedented job growth, both unskilled and skilled (Hartshorn and Ihlanfeldt 1993).

The final study to look at interarea differences in labor market tightness focuses on spatial variations in both wage rates and job vacancy rates for lower-skilled positions. Using the Multi-City Study of Urban Inequality (MCSUI) Employers Survey, Ihlanfeldt (forthcoming a) compares these alternative indicators of labor market tightness between predominantly minority and predominantly white census tracts for Atlanta, Boston, Detroit, and Los Angeles. After controlling for an extensive set of variables that describe the characteristics of employers, job tasks, and hiring requirements, he finds that (1) job vacancy rates for lower-skilled positions are two to three times higher in white neighborhoods than in minority neighborhoods for all metropolitan areas except Detroit, where interarea differences are not statistically significant, and (2) starting wages are lower in minority neighborhoods than in white neighborhoods in Atlanta and Detroit, but wage differences are not statistically significant in Boston or Los Angeles. Across all four metropolitan areas, therefore, at least one of the two indicators of labor market tightness suggests the presence of spatial mismatch. Ihlanfeldt suggests that the differences observed in the indicators across metropolitan areas might reflect differences in the severity of spatial mismatch:

The first manifestation of a developing spatial mismatch resulting from job decentralization would be lower job vacancy rates in ghetto versus non-ghetto areas. Only after worker shortages persisted or rose above threshold levels would suburban employers respond by offering higher wages. In the central city employers would lower wages only after it became apparent that there existed a surplus of labor at prevailing wage rates.

### **The perpetuation of spatial mismatch**

As first noted by Holzer, Ihlanfeldt, and Sjoquist (1994), it is exceedingly important from a policy perspective to identify the barriers that prevent blacks from shifting their labor supply to suburban areas in response to spatial mismatch. Until very recently, this issue was ignored within the SMH literature. A number of the new studies provide some evidence.

Ihlanfeldt and Young (1996) use data from their sample of fast-food restaurants in Atlanta to examine the factors that underlie the

spatial distribution of black employment between the central city and the suburbs. A model of the racial composition of the restaurant's workforce was estimated that included the following explanatory variables: percentage of white customers, race of manager, whether the restaurant was within walking distance of a public transit stop, miles from CBD center (a proxy for distance from black residences), chain affiliation, and whether the establishment was franchisee owned or company owned. Of these variables, transit was the most important factor in explaining the lower share of jobs held by blacks in the suburbs. Thirty-five percent of the central city–suburban difference in black employment share could be attributed to the tendency of suburban firms to be located beyond walking distance of public transit. Other important contributors to the central city–suburban difference in black employment share were miles from CBD center (33 percent), race of manager (15 percent), and percentage of white customers (14 percent). These results suggest that the physical inaccessibility of suburban job sites by public transit, the length of the commute (which may proxy either commuting costs or information on job opportunities), and labor market discrimination all represent important barriers that prevent blacks from securing suburban jobs.

Like Ihlanfeldt and Young, Holzer and Ihlanfeldt (1996) investigate factors that explain the racial composition of the workplace of the individual employer. However, their analysis is based on relatively large (roughly 800 observations per city) and representative samples of employers in Boston, Atlanta, Los Angeles, and Detroit. On the basis of estimated equations of the probability that the last worker hired by the employer is black, they decompose central city–suburban differences in black employment probabilities into the portions accounted for by each explanatory variable. Their results, which strongly parallel those of Ihlanfeldt and Young, indicate that a number of factors play an important role in explaining the lower probability of blacks' obtaining suburban jobs in comparison with central city jobs. These factors include the tendencies of suburban employers to be located beyond walking distance of a public transit stop, to have mostly white customers and owners, and to be located far away from black residences. Regarding the mechanism underlying the latter effect, they find that the average distance between the employer and black residences has a statistically significant and negative effect on black employment for all recruiting methods (signs, walk-ins, referrals) except for newspaper advertisements. Because newspapers disseminate information over a wider geographical area than the other methods, these results suggest that the distance effect may be attributable to central city blacks' possessing poor information about suburban job openings.

Ihlanfeldt (1997) provides more direct evidence on the possibility that poor information limits black employment in suburban areas. As part of the MCSUI Household Survey for Atlanta, respondents were asked to look at a map identifying six major employment centers within the Atlanta region and indicate which centers they felt had the fewest and the most job opportunities or openings for people without college degrees. Using job vacancy data from the MCSUI Employers Survey as well as other data, Ihlanfeldt was able to accurately rank the centers based on jobs available for less-educated workers. He found that both black and white respondents had very poor knowledge of the spatial distribution of job openings, particularly if they lived within the city of Atlanta. Even among those workers who presumably had the most to gain from acquiring such information—the unemployed with little education—there was a large divergence between actual and perceived rankings.

Another possible barrier preventing blacks from taking suburban jobs is that they may be reluctant to search for a job in white areas because they believe that they will not be socially accepted. Sjoquist (1996) uses the MCSUI Household Survey for Atlanta to investigate this hypothesis. For the same six employment centers for which respondents were asked to assess the number of job opportunities, they were asked whether they had searched for a job in each area and whether they thought residents of the area would be upset if a black were to move in. Sjoquist assumes that if a respondent thought that residents of an area would be upset if a black moved in, then the respondent would believe that a workplace in that neighborhood would not be a welcoming place for blacks.

To explore his hypothesis, Sjoquist restricts his sample to blacks with a high school degree or less who searched for a job within the past year. A 0, 1 variable indicating whether the respondent had searched an area was regressed on the respondent's perception of the area's social acceptance of blacks, the distance of the area from the respondent's home, the respondent's assessment of the number of job opportunities in the area, and other control variables. Separate regression equations were estimated for each of the six areas. The measure of social acceptability is highly significant, with the correct sign in all six equations, which provides strong support for the hypothesis.

Turner's (1997) qualitative study discussed above also provides some interesting evidence on the perpetuation of spatial mismatch. She compares the hiring and recruitment methods of the six case-matched suburban firms in her Detroit sample. The firms that recruited locally by placing help-wanted signs in their windows, relying on word of mouth, or placing ads in suburban newspapers

obtained few black applicants. In contrast, those that placed an ad in one of the Detroit newspapers received many black applicants. The black-owned suburban firms she profiled followed the latter strategy, while the white-owned suburban firms recruited locally. She concludes that white employers deliberately use informal recruitment methods in order to perpetuate their white workforces. Because of her small sample, little confidence can be placed in Turner's conclusion, but the possibility that racial prejudice is manifested in employers' choice of recruiting strategies is provocative and merits consideration by quantitative studies.

### **Overall assessment of the new literature on the SMH**

Since Kain published his review of the SMH literature in 1992, there has been roughly a 33 percent increase in the number of completed studies. Of the 28 new studies reviewed for this article, 21 conclude that their results support the SMH. The seven studies that reject or find little support for the hypothesis fail to adequately account for the endogeneity of residential location (Cooke 1996, 1997; Pastor and Adams 1996; Taylor and Ong 1995; Wheeler 1993) or use employment level-based measures of job accessibility, which may be poorly correlated with nearby job openings per worker (Cooke 1993; Immergluck 1996). We believe, therefore, that it is no longer correct to conclude that "the support [for the SMH] is so mixed no prudent policy analyst should rely on it" (Jencks and Mayer 1990, 219).

Moreover, there are reasons to believe that many of the studies we review whose results support the SMH understate the true importance of job accessibility as a determinant of the relatively poor employment and earnings of minority workers. As emphasized by our own and previous reviews of the SMH literature (see, in particular, Holzer 1991; Ihlanfeldt 1992; Kain 1992), it remains a formidable challenge to measure with any degree of precision the individual's proximity to available jobs for which he or she is qualified. As a result, the likelihood of estimates that are biased toward zero by errors in variables continues to characterize empirical investigations of the SMH. However, where the measure of job accessibility appears to come closer to the ideal (i.e., the number of nearby job openings per worker), remarkably strong effects are registered (Raphael 1998b; Rogers 1997).

Two additional conclusions are suggested by recent studies of the SMH. First, the importance of spatial mismatch may vary considerably across metropolitan areas. In areas with high levels of housing segregation and poor transportation for reverse commuters, mis-



match may play a much more dominant role in explaining the labor market problems of the inner-city poor. In addition, the results of Weinberg (1998) reinforce those obtained by Ihlanfeldt (1992), which suggest that spatial mismatch may be exclusively a big-city problem.<sup>7</sup> More work is needed on whether the SMH applies to smaller MSAs, given their more limited and more centralized geographies. Second, evidence on the factors underlying the perpetuation of spatial mismatch suggests that a combination of barriers, rather than any single factor, is working to keep blacks from obtaining suburban jobs. These barriers include an absence of information on suburban job opportunities, a reluctance to search in white areas for fear of not being socially accepted, greater hiring discrimination against blacks in suburban areas, and the inability to commute from the inner city to suburban employment centers via public transit. As is evident in this review, very few studies address the perpetuation of spatial mismatch. Rather than a continued focus on investigating whether spatial mismatch exists, studies are needed that explore its underlying causes.

### **Policy implications for welfare reform**

Our review of recent SMH studies clearly suggests that the lack of geographical access to employment is an important factor in explaining labor market outcomes and that the findings in these studies have clear-cut implications for welfare reform. When evidence accumulated in the late 1980s and early 1990s in favor of the SMH, the policy recommendation most frequently advanced was to improve the ability of low-skilled workers to commute from the inner city to suburban job sites. Although this policy appears to be directly implied by the findings, it is perhaps too naïve. Other, more subtle implications of the literature should be considered before such single-focus programs are adopted.

First, as noted above, the empirical results suggest that the magnitude of the effects of spatial mismatch differs among metropolitan areas and that perhaps in some metropolitan areas, particularly smaller ones, the effects are inconsequential. If spatial mismatch is exclusively a big-city problem, commuting programs, as well as

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<sup>7</sup> In Ihlanfeldt's 1992 analysis, "job access is found to have a strong effect on a youth's job probability as long as he/she lives in a metropolitan area with more than 800,000 people. However, for youth living in the smallest size class of metropolitan areas (i.e., fewer than 800,000 in population), none of the job access effects for any of the racial groups is significantly different from zero" (pp. 78–79). Weinberg (1998) concludes that "there is little evidence that job locations affect employment status in [metropolitan areas] with less than 500,000 residents."

other programs designed to mitigate spatial mismatch, may not work or be necessary in smaller metropolitan areas. It follows that it is important for jurisdictions to assess the severity of spatial mismatch within their metropolitan labor market before advancing specific programs.

Second, the spatial mismatch studies only reveal that accessibility matters; they do not determine the cause of that effect. The effect of accessibility may be driven by commuting difficulties, lack of information about job availability at distant sites, job discrimination by suburban firms, or a feeling among minorities of a lack of acceptance at suburban job sites. The limited research on this aspect of spatial mismatch suggests that all these factors play a role, although their relative importance has not been determined and likely differs among MSAs. The implication again is that commuting programs may not be sufficient or even necessary to overcome access problems within certain metropolitan areas.

Third, while the SMH was originally conceived to explain employment problems of inner-city minorities, urban structures have changed and class segregation has grown (Abramson, Tobin, and VanderGoot 1995) so that spatial mismatch applies more generally to lower-skilled workers, regardless of race, whose residence may be outside the inner city. Thus, policies and programs that seek to address the problem of spatial mismatch need to target a population broader than just inner-city minorities.

Fourth, it remains unclear whether accessibility poses a major problem for all categories of lower-skilled workers. While a few of the new SMH studies focus on adults, most follow the earlier literature by restricting the analysis to youth. For this group, the literature is clear: Spatial mismatch plays a substantial role. For adults, spatial mismatch is also found to matter, but there is uncertainty regarding the magnitude of the effect and how it differs between males and females.

Finally, while spatial mismatch may play an important role in explaining the lower employment and wages of lower-skilled minority workers, it would be incorrect to place all the blame for these problems on spatial mismatch, even in large, highly segregated metropolitan areas that have experienced substantial job decentralization. Even studies that find the strongest effects of spatial mismatch explain only about half of the racial differences in employment rates; other factors need to be considered.

There is no shortage of policy prescriptions for addressing spatial mismatch. The policies are grouped into three broad categories: moving jobs closer to the workers (inner-city development strategy),

moving people closer to the jobs (desegregation strategy), and making it easier for workers to get to existing jobs (mobility strategy). An extensive literature has addressed the pros and cons of each of these strategies. In fact, this policy debate has been simmering and at times raging for over 25 years.<sup>8</sup> The most recent empirical evidence relevant to the debate is reviewed by Ihlanfeldt (forthcoming a). He concludes that much uncertainty continues to exist regarding the effectiveness of the specific policies falling within each of the three strategy groups. However, he notes that results from demonstrations currently under way (such as the Bridges to Work and Moving to Opportunity programs [U.S. Department of Housing and Urban Development 1997]) promise to reduce some of this uncertainty. In the remainder of this section, we focus our attention on the mobility strategy, because it has drawn the greatest attention in the debates surrounding welfare reform, presumably because it is the most cost-effective approach in the short run.

Recent SMH studies have several implications for how communities should approach the development of a mobility strategy. First, as suggested above, the community needs to determine whether mismatch is contributing to the employment problems of less-educated workers. A number of alternative strategies might be used to determine this. The most informative approach is to survey establishments throughout the region to obtain information on the spatial distribution of starting wages and job vacancies for lower-skilled workers. For example, as mentioned above, fast-food restaurants hire less-educated workers to perform relatively standardized tasks across locations. Variation in starting wages reported by managers is therefore likely to reflect differences in labor market tightness among submetropolitan areas rather than differences in skill needs. In Atlanta, managers were surveyed in 1989 (Ihlanfeldt and Young 1994, 1996) and 1997 (Ross 1998a). On both occasions the spatial variation in reported wages was found to correlate highly with other indicators of spatial mismatch (Ihlanfeldt 1997).

Another approach is to compare low-skilled employment growth among submetropolitan areas. Greater growth in white or higher-income areas in comparison with minority or lower-income areas may indicate spatial mismatch, especially in highly segregated (by race or class) metropolitan areas. A two-step strategy can be used to estimate low-skilled employment growth at the ZIP Code level. First, state-level unemployment compensation records, commonly known as ES202 data, are used to estimate employment change by

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<sup>8</sup> Early participants in this debate included Downs (1968), Edel (1972), Kain and Persky (1969), and Harrison (1974). Among the recent participants are Hughes (1995), Wilson (1996), and Yinger (1995).

industry within each ZIP Code (White et al. 1990). Employment change by industry is then converted to employment change by occupation by applying the occupation/industry matrix that can be computed from the PUMS for each metropolitan area.

Assessing the relative importance of the factors underlying the perpetuation of spatial mismatch within a particular metropolitan area may be too large a research undertaking for most jurisdictions responsible for welfare reform. However, with Geographic Information Systems it is a rudimentary task to map the residential locations of welfare recipients, entry-level job opportunities, and public transit systems.<sup>9</sup> Results will show where recipients live in relation to the location of job opportunities and the extent to which recipients can reach these opportunities via public transit. This information is invaluable in assessing the need for greater investment in transportation services for the welfare population. If such services are provided, their design must recognize the special needs of inner-city workers. In particular, single parents must deal with the need for child care. Unless that need is met, a transit system may be totally ineffective in getting these workers to suburban sites. Studies have found that even when there is no accessibility problem (e.g., for higher-skilled white females), child care considerations limit the commuting range for women with young children (Madden 1981).

A conclusion that some policy makers seem to draw from the literature on SMH is that inner-city lower-skilled workers would commute any distance provided public transit is available. There is, however, a limit to the distance (or time) that an individual will commute for a given wage. For some it may be 10 minutes, while for others it may be two hours. But the greater the distance, the fewer the workers who will be willing to commute. Holzer, Ihlanfeldt, and Sjoquist (1994) find, for example, that as jobs become more suburbanized, the distance commuted does not change, suggesting a limit on commuting distance. In addition, Forlaw (1998) presents early evidence from the Bridges to Work program in St. Louis, which indicates that low-income job seekers will tolerate an hour commute only for jobs that pay relatively high wages (\$11 to \$12 per hour).

The geographic targets for reverse commuting programs are traditionally suburban job sites containing large *numbers* of jobs. However, the new literature on the SMH suggests that sites with ample

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<sup>9</sup> Coulton, Leete, and Bania (forthcoming) and Rich and Coughlin (1998) have constructed such maps for Cleveland and Atlanta, respectively. The results show that (1) job opportunities are primarily in outer suburbs far from welfare recipients' homes, which are concentrated within the central city, and (2) job opportunities are generally inaccessible by any mode of transportation other than automobile.

*job openings* are more important if the goal is for current welfare recipients to obtain a first job. Thus, reverse commuting programs aimed at finding a first job may have to be different from those that meet the needs of existing workers. Fainstein and Fainstein (1989) argue that the key to inner-city minority employment access is a job that pays enough to support automobile ownership.

The need to address suburban hiring discrimination, which may be caused by either employer or customer prejudice, as part of a mobility strategy is perhaps the greatest challenge. There does not appear to be a quick and easy solution to changing attitudes or enforcing equal employment opportunity (EEO) laws. Holzer (1996) suggests a policy of targeting suburban firms for increased EEO enforcement, but he cites Block (1994), who takes a skeptical view of potential benefits of greater EEO enforcement.

In addition to pure prejudice, discrimination against inner-city workers may be based on the perception that they are poor workers. Rosenbaum (1996) reviews evidence suggesting that a type of statistical discrimination occurs when suburban employers consider a housing project address, a central city address, or attendance at a city public school as signals of low worker productivity. One approach to this problem that has been recommended by Wilson (1996) is to have not-for-profit job information and placement centers certify inner-city workers:

These centers would recruit or accept inner-city workers and try to place them in jobs. One of their main purposes would be to make persons who have been persistently unemployed or out of the labor force "job-ready" so that a prospective employer would be assured that a worker understands and appreciates employer expectations such as showing up for work on time and on a regular basis, accepting the orders of supervisors, and so on. When an information and placement center is satisfied that a worker is job-ready, then and only then would the worker be referred to an employer who has a job vacancy (p. 224).

In developing a mobility strategy, it is also important to draw a distinction between the level of discrimination that minorities expect to encounter and the actual discrimination that occurs. Expectations may be based on past experience that is no longer applicable, especially where worker shortages are creating staffing problems for suburban employers. Efforts to realign minorities' perceptions with the current situation may decrease their reluctance to search in areas where they previously encountered discrimination.

There is empirical evidence that lack of information about jobs is a cause of the inability of lower-skilled inner-city workers to obtain

suburban jobs. Because information dissemination is relatively inexpensive, it can be recommended as a policy option. But there is also evidence that suburban employers do not widely advertise their job openings. If the jobs are not advertised, even the best welfare caseworker cannot inform welfare recipients of the opportunities. Approaches that might be used to enhance job informational flows include encouraging suburban businesses to conduct job interviews at conveniently located centers (e.g., rail stations). Some communities have developed information systems that encourage inner-city residents who are working at suburban sites to post notices of job openings in their neighborhoods (American Public Transit Association 1994).

Finally, there is limited evidence that inner-city minority workers may avoid suburban job settings out of concern for how they might be treated on the job. Little consideration has been given to how this problem might be addressed. One approach might be for a not-for-profit corporation to operate a temporary employment agency focusing especially on suburban employers and inner-city employees. Placing inner-city workers in suburban job sites on a temporary basis would allow employers to screen potential employees on the job and would allow employees to gain a view of the job setting. Recording the experiences of these employees would make it possible to identify job environments where minority workers are treated unfavorably and either change them or eliminate them from consideration.

A mobility strategy is just one of the set of policies required to solve employment problems of inner-city lower-skilled workers. Summers (1996) points out that reliance on the use of "single-pronged" policy programs to aid the lower-skilled has been one of the great flaws in public policy. More complex, multipronged approaches are needed. We have emphasized that even within the mobility strategy there is a need for a multipronged approach, rather than simply running some buses from the central city to suburban job sites. We also wish to emphasize that a mobility strategy is strictly a short-run policy. Eliminating housing and job discrimination and significantly improving the job skills of minority workers are the long-run solutions to unequal geographic opportunity within metropolitan areas.

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