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Migration Patterns and the Growth of High-Poverty Neighborhoods, 1970–1990

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Abstract

The proportion of the population residing in high-poverty urban areas grew in the 1970s and 1980s (Wilson 1987; Jargowsky 1997). This paper examines why the number of high-poverty neighborhoods increased by using data from the Panel Study of Income Dynamics (PSID) matched with data on tracts from the decennial census. The main findings are that (1) African Americans are moving into white neighborhoods at a high rate, but the white population is declining in areas with substantial black populations quickly enough that the proportion black in white areas is not increasing and (2) there is no systematic tendency for poverty rates among stayers in poor neighborhoods to increase over time relative to poverty rates of other neighborhood types, although there is some evidence of a larger increase in the poverty rate of moderately poor black neighborhoods than other neighborhood types during the early 1980s recession. Implications of the findings for theories of high-poverty neighborhoods and racial segregation are discussed.

Migration Patterns and the Growth of High-Poverty Neighborhoods, 1970–1990

William Wilson's book *The Truly Disadvantaged* (1987) first pointed out that starting in the 1970s areas of concentrated urban poverty increasingly took on a different character than they had earlier in the century. As in the ethnic ghettos that have long interested urban sociologists, dwellers in modern poor urban neighborhoods are almost all members of minority races or ethnicities. Wilson argues, however, that unlike older ethnic ghettos, poor neighborhoods of the 1970s and 1980s contained an especially high concentration of poor families. He hypothesizes that one cause of this trend is that middle-class blacks in the 1970s and 1980s increasingly relocated to predominantly white suburbs, leaving behind neighborhoods composed largely of poor or near-poor families.

Wilson's work led empirical researchers to examine data to confirm or deny these suspicions. Investigations by Jargowsky (1994, 1997) have supported some of Wilson's hypotheses, finding that the proportion of the urban population living in census tracts in which at least 40 percent of the population is poor increased from 3 percent of the urban population in 1970 to 4.5 percent in 1990 (Jargowsky 1997, p. 38). Tests of Wilson's hypotheses about why this has occurred have been contradictory, and a considerable debate continues about why poor urban neighborhoods have expanded so sharply.

An increase in the number of high-poverty urban neighborhoods can be thought of as resulting from a combination of two proximate causes: change in rates of poverty among urban residents and change in the tendency for persons of like poverty status to live close to each other. I decompose flows of persons among neighborhood and poverty status categories over time to examine how each of these proximate causes has influenced the number of high-poverty neighborhoods. This procedure sheds light on several explanations of the increase in neighborhood poverty.

Along the way I consider evidence relevant to debates about the role of racial segregation in explaining concentrated urban poverty. I argue that studies of the role of racial segregation in forming high-poverty neighborhoods have not always clearly separated evidence about change over time from

evidence about cross-sectional variation, and have not fully considered the dynamics of neighborhood change. Research has found that racial segregation in American cities remains very high, even for high-income black families (Denton and Massey 1988; Massey and Denton 1993). This has been interpreted as inconsistent with Wilson's claims that middle-class blacks are migrating into white neighborhoods. A central finding of this paper is that these apparently contradictory findings can be reconciled when considered as part of a dynamic metropolitan setting. Middle-class blacks have been moving into white neighborhoods at rates high enough to increase their numbers there, but declining white populations in neighborhoods with substantial black populations have prevented a large increase in the share of blacks in white nonpoor neighborhoods.

PAST THEORY AND RESEARCH

What Is a High-Poverty Neighborhood?

Most prior research has defined high-poverty neighborhoods by a fixed cutoff based on the percentage of persons living in families with income below the federal poverty line, usually 30 percent or 40 percent (Wilson 1987; Jargowsky and Bane 1991). In part this is because practically it is easier to tabulate results with a fixed cutoff defined. But fixed cutoffs make theoretical sense if there are thresholds in neighborhood poverty rates beyond which neighborhoods become substantially less liveable. The only research I know of on what might make a good cutoff is by Jargowsky and Bane (1991), who toured a number of cities and compared block census maps showing poverty percentages to their impressions based on appearances. Areas with more than 40 percent poverty rates contained more dilapidated housing stock and seemed significantly more distressed to them than neighborhoods with poverty rates of 20–40 percent, which had a more working-class character. Areas that were more than 40 percent poor also corresponded well to areas local census officials considered ghettos. Following the work of Jargowsky and Bane (1991), I consider an extremely poor neighborhood to be a census tract in

which more than 40 percent of persons are in families with incomes below the official poverty line.[1] This standard has also been adopted by the U.S. Census Bureau, which refers to areas where more than 40 percent of the population is poor as "extreme poverty areas" (U.S. Bureau of the Census 1995).

Black Middle-Class Flight and Socioeconomic Segregation

In *The Truly Disadvantaged* Wilson (1987) argues that one of the key forces that led to the increase in the number of extremely poor neighborhoods was the movement of middle-class residents, especially black middle-class residents, from mixed-income neighborhoods to suburban white neighborhoods. With the departure of middle-class blacks from inner-city mixed-income neighborhoods, the population left behind was "a much higher concentration of the most disadvantaged segments of the black urban population" (1987, p. 49). Wilson supports this conclusion by citing data on predominantly black neighborhoods in Chicago that shows that from 1970 to 1980 the number of black middle-class families declined, but the absolute number of poor families remained roughly the same.

Several lines of research have investigated aspects of Wilson's claim. Studies of changes in the population of census tracts with increasing poverty rates come to conclusions broadly consistent with black middle-class out-migration. Studies of changes in racial segregation and the relation between racial segregation and socioeconomic status (SES), on the other hand, have come to conclusions that seem inconsistent with black middle-class out-migration. I discuss these lines of research below and propose possible explanations for the differences between the findings of these studies.

First, several studies have examined population changes associated with neighborhoods that become poorer between decennial censuses, and these studies support a connection between

[1]Census tracts are small population units of 2,500 to 8,000 residents (average about 4,000) that are designed to be homogeneous with respect to population characteristics, economic status, and living conditions. They are drawn in such a way as to correspond roughly to what is normally thought of as a small neighborhood by people familiar with the local geography. For a discussion of how census tract boundaries are drawn and the advantages and disadvantages of considering census tracts as neighborhoods, see White (1987, pp. 18–20, 286–300).

depopulation and increases in poverty rates. Case studies of the increase in high-poverty neighborhoods find that census tracts experiencing increases in their poverty rate beyond 40 percent usually show population losses, mostly due to a shrinking number of nonpoor families (Jargowsky and Bane 1991; Jargowsky 1997). Using census tract data for a number of cities, Greene (1991) shows an apparent strong connection between loss of population and increase in tract poverty rates. Similar conclusions are reached by Gamlich, Laren, and Sealand (1992) using data from the Panel Study of Income Dynamics (PSID) for 1979–1985 matched with census tract data from 1980. Examining transition rates among neighborhoods classified by poverty status, they find that rates of migration among tracts imply that poor urban areas are gradually becoming poorer, blacker, and less densely populated. This research does not definitely establish that black middle-class out-migration is a cause of increases in the number of poor neighborhoods, but it is consistent with the possible importance of this factor.

The black out-migration thesis, however, has been challenged in a number of articles on residential racial segregation by Douglas Massey, Nancy Denton, and their colleagues. Using a census extract of 60 large Standard Metropolitan Statistical Areas (SMSAs) with substantial minority populations, they conclude that blacks of high SES (measured by income, education, or occupation) are only slightly less segregated from whites than are low-SES blacks (Denton and Massey 1988). By contrast, segregation of Hispanics and Asians decreases notably with higher SES. Furthermore, they show that SES is not related to greater suburbanization among blacks, again a pattern different from Asians and Hispanics (Massey and Denton 1987). Blacks in suburban areas are only slightly less segregated from whites than are blacks in urban areas, except in suburban areas of SMSAs with very few blacks.

These studies demonstrate that African Americans live largely in separate communities from whites, even at high levels of SES. This leads Massey and Denton (1987) to conclude that “If the black middle class has abandoned the black poor, it has not been by moving to Anglo neighborhoods, at least

not on a significant scale. Most blacks continue to reside in predominantly black neighborhoods, even in cities with relatively large and affluent black middle classes" (p. 823).

These results leave open the possibility that middle-class blacks fled from inner-city mixed income areas to predominantly black upper-income or middle-income areas. This is not Wilson's original statement of the black out-migration thesis, but it is a closely related idea that could explain the increasing concentration of poverty among poor blacks. If this is the case, then we should see an increase in income segregation among blacks in the 1970s and 1980s.

Several researchers have investigated this hypothesis, and the majority of their studies conclude that income segregation among blacks has been increasing.[2] Massey and Eggers (1993) conclude from their sample of 60 SMSAs that black segregation by income has grown "quite sharply." Jargowsky (1996) computes an index of income segregation for 110 MSAs using a measure of the degree of sorting by income that corrects for some methodological shortcomings of the index used by Massey and Eggers. He finds that the neighborhood sorting index for African Americans rose from .34 in 1970 to .48 in 1990, a substantial increase. Moreover, his data show an increase in almost all of the 110 MSAs he examined. These results support Wilson's hypothesis if we alter it to note that middle-class blacks are moving to black middle-class neighborhoods rather than to white neighborhoods.

Yet the insights of most of these studies have been limited by the fact that they rely on static snapshots of the population from decennial census results. The decline in the number of middle-class residents of neighborhoods that became poorer could be caused by middle-class blacks migrating out *or* by both poor and middle-class blacks migrating out combined with the movement of many middle-class

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[2]Reynolds Farley (1991) produced the one study that dissents from this conclusion. Farley examines 21 large SMSAs and finds no tendency for an increase in black income segregation between 1970 and 1980, or for the poorest blacks to be more isolated from middle-class blacks in 1980 than in 1970. His study is the smallest in terms of number of SMSAs, and his measure of income segregation suffers from confounding changes in the black income distribution with changes in the degree of sorting into neighborhoods among black families, as discussed by Jargowsky (1996).

residents into poverty. This would show up in decennial census results as an increase in poverty rates and a decline in the number of middle-class blacks, yet there would be no stronger a tendency for middle-class persons than for poor persons to migrate out of poor black neighborhoods. Thus, studies using cross-sectional samples at two points in time are ambiguous about the sources of the growth in poor neighborhoods because both poverty status and residence can change over time (Hughes 1990; Jargowsky and Bane 1991). To separate these and in general to provide a more complete view of the processes causing changes in neighborhood poverty rates, we need longitudinal data on families and households, and the neighborhoods in which they reside.[3]

The Importance and Limitations of Explanations Based on Racial Segregation

Massey and Denton's (1993) criticisms of the black out-migration thesis are part of their wider criticism of Wilson's views on urban poverty. Their main point is that Wilson has neglected the key role of racial segregation in creating extremely poor neighborhoods. Indeed, one needs only to examine statistics on the racial disparities in residence in high-poverty neighborhoods to become convinced of a connection between racial segregation and extremely poor neighborhoods. Almost seven of eight residents of extremely high-poverty neighborhoods are nonwhite or of Hispanic origin. In 1990 about 14 percent of the black urban population and 9.5 percent of the Hispanic urban population lived in extremely poor neighborhoods. By contrast, only about 1 percent of the non-Hispanic white urban population lived in extremely poor urban neighborhoods (Jargowsky 1997).

As Massey, Denton, and their colleagues have made clear in a number of articles, the disproportionate burden of ghetto poverty on nonwhites is the result of two factors: the high degree of residential segregation of nonwhites from whites and racial disparities in poverty rates (see especially Massey 1990). African Americans are highly residentially segregated from the white population. The

[3]Below I discuss the one study that uses longitudinal data to address these questions.

average African American in a large American city lives in a neighborhood that is 55 percent to 75 percent black (Massey and Denton 1993).[4] All black neighborhoods tend to have high poverty rates because of the high rate of poverty among African Americans. In the population as a whole, about 10 percent of non-Hispanic whites are poor, compared to about 30 percent of blacks (and 25 percent of Hispanics). This means that in a city with complete residential segregation and no income segregation, blacks would experience about a 30 percent neighborhood poverty rate—already a fairly high level of neighborhood poverty contact. In this city even a low level of income segregation among African Americans would be sufficient to create some neighborhoods in which 40 percent or more of their population have incomes below the poverty line. Whites in this segregated city, in contrast, would experience only a 10 percent neighborhood poverty rate. Although high levels of income segregation could still lead to white neighborhoods that are at least 40 percent poor, levels of income segregation in modern American cities simply do not occur at high enough levels to create more than a handful of extremely poor white neighborhoods.

Although racial segregation is critical to understanding the existence of ghetto poverty, it is less clear that racial residential segregation can explain the change in the number of poor neighborhoods *over time*. Change in racial segregation *overall* cannot explain the growth in the number of high-poverty neighborhoods because racial segregation declined slightly in the United States from 1970 to 1990 while the number of high-poverty neighborhoods increased (Jakubs 1986; Farley and Frey 1994). Massey and Eggers (1990) and Massey and Denton (1993) argue that the effects of economic changes have especially strong impacts on black neighborhoods because of racial segregation. Although the empirical evidence

[4]Furthermore, there is some evidence to suggest that census tracts that appear "integrated" in census data are really border areas between white and black areas of cities rather than truly integrated neighborhoods (Jargowsky 1994). Thus, existing studies of metropolitan segregation probably underestimate neighborhood racial segregation because they count these tracts as integrated.

on this point is debatable,[5] their simulations and theoretical arguments are convincing. They argue that racial segregation is a force that intensifies the impact of economic changes on black neighborhoods and that few high-poverty neighborhoods would exist were it not for residential racial segregation. The *timing of the increase* in black neighborhood poverty rates, however, cannot be explained by changes in racial segregation.

Massey, Gross, and Shibuya's "Migration, Segregation, and the Concentration of Poverty"

One previous study, Massey, Gross, and Shibuya's "Migration, Segregation, and the Geographic Concentration of Poverty" (1994), uses longitudinal data to examine forces contributing to the growth of high-poverty neighborhoods and Wilson's black middle-class out-migration thesis. I carefully consider these results here because my own work closely follows that of Massey, Gross, and Shibuya. Their paper concludes that racial segregation is the central cause of ghetto poverty and that middle-class out-migration is at most a minor contributing factor. On this basis they claim that Wilson was incorrect in asserting that middle-class black out-migration has significantly increased the concentration of poverty. In discussing Wilson's thesis they do not separate black migration into white neighborhoods from black migration into predominantly black neighborhoods. Instead, they consider the importance of black migration into nonpoor neighborhoods overall.

Massey, Gross, and Shibuya's (1994) investigation starts with an examination of transition probabilities among neighborhood types. The transition probabilities they compute are the probabilities

[5]Massey and colleagues have argued that there is an interaction of changes in racial segregation and increasing poverty rates that has led to the increase in ghetto poverty (in particular, see Massey and Eggers 1990). A reanalysis of Massey and Eggers's (1990) empirical evidence for this claim (Korenman, Sjaastad, and Jargowsky 1995), however, finds little evidence to support the presence of this interaction. An additional problem is that this line of research has somewhat misspecified the nature of this interaction as predicted by theory. A close reading of the theoretical model in Massey (1990) indicates that the interaction is between racial segregation and the *difference* between the economic situations of whites and African Americans in the metropolitan area. Empirical models have operationalized it based on the absolute level of black poverty, rather than on the difference between white and black poverty rates in an urban area.

that a respondent will move to another neighborhood type conditional on their tract type of origin and destination, and their race and poverty status. These probabilities indicate that poor blacks are moving out of poor neighborhoods at higher rates than are nonpoor blacks, which they argue contradicts the black middle-class out-migration thesis.[6]

Massey, Gross, and Shibuya's results are instructive in telling us about racial differences in patterns of movement among neighborhoods of different types. Yet they have a sharp limitation in that these rates alone do not tell us about change in the population over time. Massey, Gross, and Shibuya's analysis tests Wilson's hypothesis only as it applies to cross-sectional changes and does not explain change in the number of poor neighborhoods over time.

To understand why this is true, consider the hypothetical population in Figure 1. The top panel of Figure 1 shows a matrix of transition rates among two neighborhood types. The numbers in the cells are the probabilities of moving to the column neighborhood type given the row origin neighborhood type. In this example there are only two neighborhood types: poor and nonpoor.[7] The bottom panel shows the proportions of the population living in each neighborhood type at a hypothetical starting point, and then after one application of the transition matrix, after three applications of the transition matrix, and finally at the stable distribution the population will approach given repeated application of the transition matrix.[8] In the example, although the probability of moving into a poor neighborhood is greater than the

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[6]A problem with this result as a test of Wilson's middle-class out-migration thesis, however, is Massey, Gross, and Shibuya's definition of a movement "out." They count any movement from a poor tract to any other tract as a movement out. Massey, Gross, and Shibuya's Table 3 shows that most of these moves are from one poor, black tract to another poor, black tract. As they point out, poor blacks move out more often than nonpoor blacks largely because they tend to be renters and therefore tend to move more often. But this is not a test faithful to Wilson's intent. When Wilson refers to black "out"-migration he almost surely is referring to movements out of the ghetto and into nonpoor areas, not any move originating in a poor census tract. A more reasonable way to test Wilson's hypothesis would be to compare a nonpoor and a poor black respondent on the probability that, if they live in a poor neighborhood at time t, they will reside in a nonpoor tract at time t+1.

[7]These results generalize to n neighborhood types.

[8]For discussions of rates and the stable population they imply, see Rogers (1968), Keyfitz (1977), and Boudon (1973).

FIGURE 1
Population Change Based on Rates for a Hypothetical Population

Transition matrix for a hypothetical population distributed between two tract types			
		Destination Neighborhood Type	
		Nonpoor	Poor
Origin neighborhood type	Nonpoor	.45	.55
	Poor	.3	.7
Number in the cell is the probability of being in the column tract type at time t+1 given residence in row tract type at time t			

Change in the population distribution over time as transition matrix rates are applied		
	Neighborhood Types	
	Nonpoor	Poor
Starting population distribution (time t)	20.0%	80.0%
Population distribution at time t+1	33.0%	67.0%
Population distribution at time t+3	35.2%	64.8%
Stable population distribution	35.3%	64.7%

probability of exiting it for both residents of poor and nonpoor neighborhoods, the proportion of the population residing in the poor neighborhood type is *declining* over time. Because most of the population lives in poor neighborhoods to begin with, even a low probability of moving to a nonpoor area is compatible with an increase in the proportion of the population in nonpoor neighborhoods.

Massey, Gross, and Shibuya (1994) find that nonpoor blacks are less likely to enter nonpoor areas than poor areas. The implication of the example in Figure 1 is that their result is consistent with the possibility that the number of blacks in white neighborhoods is increasing over time. If there are sufficiently few blacks in white neighborhoods to begin with, then even a low probability of black migration to a nonpoor white neighborhood can be consistent with an increase in the size of the black nonpoor population in white neighborhoods over time. More generally, *because population change is a complex function of both the rates of change and the population distribution at a given point in time, we can say nothing definitive about how a population is changing over time just by looking at transition rates.* Nor can we conclude that because population A has a lower rate of entry to a state than population B, therefore population A is declining in size relative to population B. A better way to examine the implications of these rates for the distribution of people across neighborhood types is to examine flows, a method I use below.[9]

The other technique Massey, Gross, and Shibuya (1994) rely on is a simulation. They begin with a hypothetical city composed of neighborhoods of economic and racial composition similar to the city of Chicago. They then "age" the population 5 years by applying transition probabilities estimated from the PSID five times. They show that giving blacks and whites equal destination probabilities has a much larger impact on the average poverty rate experienced by blacks than eliminating black middle-class out-

[9]Preston and Campbell (1993) made a related point in discussing how differences in rates of fertility among people of different IQ classes will result in changes in the distribution of IQ over time. Another way to examine change over time based on rates is to compute the stable population distribution implied by the rates and then to compare this to the observed population distribution.

migration from poor areas or eliminating socioeconomic mobility. On this basis they conclude that racial segregation is ultimately more important than black out-migration in explaining the concentration of black poverty.

There are two caveats to the results from the simulation. First, although the procedure of assigning black probabilities to whites is an interesting hypothetical, it does not address historical trends over time and does not examine what actual rates of movement from white to black tracts or vice versa imply about change over time in the distribution of blacks in poor neighborhoods. A second limitation is that Massey, Gross, and Shibuya (1994) begin their simulation with a hypothetical city with a racial and economic distribution of neighborhoods similar to Chicago. Since the degree of change toward the equilibrium distribution is related to the difference between the starting and stable distribution, choosing a city with a different degree of segregation as the starting point would lead to different results. Given that the PSID rates are from a national sample, it would probably make more sense to compare the distribution using a city that has the same degree of segregation as that national sample (the PSID data) rather than Chicago. In any event, it is difficult to know if the results would be different enough to change Massey, Gross, and Shibuya's conclusions without reanalyzing the data with different starting distributions.

To summarize, Massey, Gross, and Shibuya's (1994) results are persuasive for illustrating the existence of great racial differences in patterns of movement between neighborhood types and summarizing the crucial importance of racial segregation for creating and maintaining extremely poor urban areas. I take this to be the main point of their paper, and I think it is effective in making this point. Like other studies of transition rates, however, Massey, Gross, and Shibuya's results do not provide much insight into questions about changes over time in racial segregation or the possible sources of the increase in high-poverty neighborhoods in the 1970s and 1980s. In what follows I perform a number of

different analyses to determine what the PSID data imply about the growth of high-poverty neighborhoods in the 1970s and 1980s.

Economic Changes and Poverty Rates

Wilson (1987) hypothesizes that a second cause of increases in the number of high-poverty neighborhoods is economic change that worsens the employment and earnings prospects of blacks in inner-city neighborhoods. Wilson's later work (1996) emphasizes these demand-side economic factors as the fundamental causes of increasing urban poverty. His analysis is based on two theses from prior work on urban poverty. The spatial mismatch hypothesis, initially proposed by John Kain (1968), argues that jobs have increasingly moved away from urban central cities to suburban areas, leading to higher unemployment rates among blacks who live in inner-city neighborhoods. The deindustrialization hypothesis, associated with the work of several authors (e.g., Harrison and Bluestone 1988, Kasarda 1990), argues that there has been a decline of factory jobs that used to provide relatively high-wage employment for inner-city residents. As a result, wages and employment rates of inner-city residents have fallen relative to the wages and employment of suburban dwellers.[10]

Although these theories are simple, they have been difficult to test. Several studies have tried to establish whether distance from available jobs contributes to unemployment (see Holzer 1994). These studies have been primarily cross-sectional, often trying to estimate the relationship between measures of job access and unemployment and the extent to which racial differences in spatial mismatch can explain racial differences in unemployment rates. They do not establish the extent to which spatial mismatch and deindustrialization can explain change in the unemployment rate of inner-city areas.

[10]Wilson's emphasis on the importance of demand-side changes is supported by SMSA-level analyses by Jargowsky (1997) and Korenman, Sjaastad, and Jargowsky (1995) that show strong links between overall black economic success in an SMSA and the number of extremely poor neighborhoods. Jargowsky (1997) also shows that there appears to be little connection between deindustrialization and increasing rates of urban poverty. For a recent review of work assessing the spatial mismatch hypothesis more generally, see Holzer (1994).

Studies that have considered changes in employment trends over time (e.g., Kasarda 1990) have been hampered by their inability to distinguish increases in rates of unemployment and poverty from the migration out of poor neighborhoods by the employed and the nonpoor. Jencks and Mayer (1989) conclude that the failure to deal with class-selective migration has been "probably the single most important reason why we have learned so little about this subject in the two decades since Kain first advanced the spatial mismatch hypothesis" (p. 220). Solving this problem demands longitudinal data that can separate changes in employment or earnings resulting from demand-side job changes from changes in employment or earnings resulting from class-selective migration.

METHODS

Data

To investigate the causes of the growth in concentrated urban poverty, I rely on data from the Panel Study of Income Dynamics (PSID). The PSID has followed approximately 5,000 families and their descendants with yearly interviews since 1968. The PSID has recently made available (under certain conditions) the identifiers for census tracts in which the respondents lived for the period 1968–1990. To study changes in neighborhoods over time, I have matched data on PSID respondents to data on census tract characteristics from the 1970, 1980, and 1990 censuses.[11] The PSID sample originally included an oversample of poor families; I employ the PSID sampling weights for all analyses in this paper to make the results representative of the U.S. population.

Unfortunately, the PSID address tapes for 1969, 1975, 1977, and 1978 were missing when my data extract was compiled. Although geocodes for 1975, 1977, and 1978 are now available, they are only available using 1990 census geography. Because 1990 is 12 to 15 years after the PSID data being studied,

[11]See footnote 1 for more information on census tracts.

using these data to represent tract characteristics for 1975–78 would probably be highly unreliable. Therefore I exclude the years 1975, 1977, and 1978, so my PSID extract uses data from 1970–74 and 1979–90.

The PSID data and census geocodes are available for respondents at single-year intervals. Data on the neighborhoods in which these respondents live, however, are only available from the census at 10-year intervals. This leaves the problem of how to impute neighborhood characteristics for years between censuses. For most analyses in this paper I impute the tract percentage black and percentage poor by using linear interpolation between 1970 and 1980 census tract data for the PSID respondent addresses for 1971–74 and 1979, and linear interpolation between 1980 and 1990 census tract data for PSID respondent addresses for 1981–89. I also present results based on matching census geocodes to the nearest census year. The imputation procedure is discussed at greater length in the next section.

Since the PSID sample before 1990 has very few Latinos or Asians, I examine black and white PSID sample members only. I divide the respondents into four groups: white nonpoor, white poor, black nonpoor, black poor. I consider PSID respondents to be poor if they are members of a family whose 3-year average posttransfer income is less than 125 percent of the federal government poverty needs standard.[12] I use a 3-year moving average of income to needs because much of the transitory fluctuation in income is measurement error. In addition, many families whose income is below the poverty line in only one year are not "poor" in any meaningful sense since they have sufficient assets and social support to avoid hardship during their period of low income. If poverty based on standard of living and style of life are the concern, as I believe they are in this case, then multiple-year measures of economic status are much more accurate than single-year measures (Rodgers and Rodgers 1993).

[12]Since there is less underreporting of income in the PSID than in the census, the 125 percent poverty line poverty rates in the PSID sample are comparable to poverty rates in the census or CPS using the 100 percent poverty line (Hill 1992).

To analyze the relation between individual and neighborhood characteristics, I create three income categories: nonpoor (less than 20 percent of population in the tract is in households below the federal poverty threshold), moderately poor (20–39.9 percent poor), and extremely poor (40 percent or more poor), following the work of Jargowsky and Bane (1991) and Massey, Gross, and Shibuya (1994). I also create three racial tract types: white (less than 30 percent of population black), mixed (less than 70 percent black), and black (70–100 percent black). Cross-categorizing the neighborhood poverty and racial types forms nine cells. I add a tenth cell for nonmetropolitan residence and an eleventh cell for individuals who live in metropolitan areas but do not have tract addresses because they live in a nontracted metropolitan area or because they provided an address which the PSID was unable to assign to a single tract.

The number of respondents in some of these eleven neighborhood types, however, was too small to support an analysis. As a result, I further collapsed these eleven categories down to eight. In so doing I collapsed together white moderately poor and extremely poor neighborhoods (there are very few white extremely poor neighborhoods). I also collapsed all poverty levels of racially mixed neighborhoods into one category, racially mixed (30–70 percent black). Table 1 shows the weighted percentage of person-years for each neighborhood type separately for the four race-by-poverty-status categories using the full pooled sample (1970–74, 1979–90). The unweighted number of person-years is also shown in Table 1.

Imputation of Intercensal Years

One goal of this paper is to measure the impact of neighborhood changes around PSID respondents on movement among census tract types. This requires some care because the boundaries of many census tracts change between censuses and the method of interpolation for these tracts may influence results. To deal with this problem, I tried three different methods of imputing census tract racial makeup and poverty makeup for intercensal years.

TABLE 1
Percentage and Number of Person-Years by Neighborhood Type
(Pooled PSID Data, 1970–74, 1979–90)

	White Nonpoor		White Poor		Black Nonpoor		Black Poor	
Neighborhood Type	% of Person-Years (Weighted)	Person-Years (Unweighted)	% of Person-Years (Weighted)	Person-Years (Unweighted)	% of Person-Years (Weighted)	Person-Years (Unweighted)	% of Person-Years (Weighted)	Person-Years (Unweighted)
White nonpoor (0–30% black; 0–20% poor)	47.2	45964	21.9	2166	11.3	4919	5.0	1814
White moderately poor and white extremely poor (0–30% black; 20–100% poor)	3.0	3126	10.1	1039	3.2	1059	2.1	668
Racially mixed (30–70% black; 0–100% poor)	1.5	1896	2.8	403	19.8	7655	15.2	4077
Black nonpoor (0–30% black; 0–20% poor)	0.1	99	0.1	17	10.4	5805	4.2	1886
Black moderately poor (70–100% black; 20–40% poor)	0.2	300	0.5	153	20.4	12142	17.6	8384
Black extremely poor (70–100% black; 40–100% poor)	0.0	107	0.0	12	6.9	4593	13.9	7190
Nonmetropolitan	36.7	38310	53.4	5136	20.3	8727	33.9	8047
Nontract metropolitan	11.3	12450	11.1	1322	7.6	4502	8.2	3498
Total	100.0	102252	100.0	10248	100.0	49402	100.0	35564

Note: Numbers are based on imputing tract characteristics for intercensal years based on tract-to-tract matching. See Methods section.

In the first method I assign neighborhood characteristics to PSID respondents based on the nearest census year. Tract characteristics for 1971–74 are assigned based on 1970 tract data, tract characteristics for 1979–84 are assigned based on 1980 tract data, and characteristics for 1985–89 are assigned based on 1990 census tract data. This procedure treats tract characteristics as if they are fixed at particular census years. Most prior studies using the PSID geocode data use this method. I call this the *nearest census year method.*

In the second method I match all census tracts which did not change, or which had only minor changes in their boundaries from 1970 to 1980, using the Census Bureau's 1970 to 1980 census tract match file (U.S. Bureau of the Census 1983a). I similarly match census tracts in 1980 with the corresponding tracts in 1990 using the Census Bureau's 1980 to 1990 tract match file (U.S. Bureau of the Census 1992a).[13] Then I fill in values for years between censuses for the matched tracts using linear interpolation. For years that a respondent is a resident of the approximately 15 percent of tracts that had more than minor boundary changes between censuses, tract data are missing. Person-years in these tracts are excluded from the analysis. This method I call *tract-to-tract interpolation* because it is based on matching tracts that did not change significantly; it is the basic method used in the tables shown in the Results section.

The potential problem with this method is possible selection bias in excluding tracts that have had boundary changes. Given the Census Bureau's rules for drawing tract boundaries, one would guess that census tracts that had boundary changes were also the tracts that had large changes in the demographic makeup of their neighborhood populations.[14] Excluding these tracts might tend to

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[13]"Minor changes" are defined following the Census Bureau's definition in the tract-matching files. The definition of a minor change differs slightly between 1970/1980 and 1980/1990. For 1970/1980, minor changes are those that involved a gross population shift of fewer than 100 persons (U.S. Bureau of the Census 1983b). For 1980/1990, minor changes are those that affected less than 2.5 percent of the 1990 population of the tract (U.S. Bureau of the Census 1992b).

[14]The rules and procedures for drawing tract boundaries are summarized in appendix B of White (1987).

systematically underestimate the effect of neighborhood changes because it eliminates many of the neighborhoods that had the most radical demographic shifts. To deal with this problem, I compared results using the tract-to-tract method with results employing a third method less sensitive to this problem.

The third method takes advantage of the fact that the PSID provides both 1970 and 1980 geocodes for PSID respondents for the period 1970–85. I fill in intercensal years using linear interpolation between the census tract where the respondent's dwelling was located using the 1970 geocode and the census tract where the respondent's dwelling was located using the 1980 geocode. If the respondent's census tract changed between censuses, then the 1970 and 1980 tracts will have different boundaries. If the census tract committees are doing their job and boundaries of tracts really represent neighborhoods, then changes in tract boundaries represent changes in neighborhood boundaries, and this method of imputation probably make sense. If the census tract committees draw tract boundaries more arbitrarily, on the other hand, then this procedure would probably overstate the extent of neighborhood change because many apparent neighborhood changes are really arbitrary shifts in boundaries. This procedure I call *place-to-place interpolation* because it is based on interpolation between the tracts that include an addresses in different census years (which in some cases are different tracts).

I have computed the basic results for this paper using all three methods. The tables show the results using matching based on the nearest census year and results using the tract-to-tract method of imputation. Flows using the tract-to-tract method are shown in the left column for each period; flows using the nearest census year matching are shown in the right column.

The disadvantage of place-to-place interpolation is that the geocodes needed to do it are not available for the 1985–90 period. Results based on imputation using the place-to-place method are shown in Appendix Tables 1, 2, and 3. Results using the place-to-place method are generally very similar to results using the tract-to-tract method and in no way alter the substantive results of this paper. Estimated

flows due to neighborhood change tend to be slightly larger with the place-to-place method than with the tract-to-tract method.

A Method to Study Change over Time: Flows

In the literature review, I argued that simply examining transition rates and their correlates is not a method well suited to tell us about changes over time. There is no way, just by eyeballing rates, to tell if the number of persons living in a particular neighborhood type is going up or down, because change in the population is a complex function of both the rates of transition between different neighborhood types and the size of the population in each of these neighborhood types. A better method is to consider flows. The flow is the probability of changing to another neighborhood (or making whatever other transition) times the size of the population that is at risk—that is, the flow is the size of the population moving in or out. Flows have the advantage that they are unambiguous about change over time. Positive net flows indicate that the population in an area is increasing over time, negative net flows that it is decreasing over time.

Using the PSID, I examine the net flows of respondents (based on their race and poverty status) into and out of poor neighborhoods. The net flow into a particular state is the share of the population that enters that state minus the share of the population that exits that state. More precisely, I first define a transition as a sequence of 2 years in which we observe a PSID respondent and have valid data on neighborhood characteristics based on PSID geocoding. Then I define in_{nptr} as the flow into neighborhood type n (the eight neighborhood types are listed in Table 1) for persons of poverty status p (nonpoor, poor) and racial group r (black, white) in period t (1970–74, 1979–84, 1985–90). Define the flow as equal to

$$in_{nptr} = entrances_{nptr} / transitions_{tr} \quad (1)$$

where $entrances_{nptr}$ is the number of transitions that move respondents who are members of neighborhood n and poverty status p out of that state (by exiting neighborhood type n, poverty status p, or both), and $transitions_{tr}$ is the total number of transitions observed for members of that racial group during time

period t. Thus, the flows I am using are normalized to be a percentage of all transitions observed by members of the racial group during the given period. We can interpret in_{nptr} as the average proportion per year of the rth racial group (blacks or whites) that entered neighborhood type n and poverty status p in period t. Similarly, we can define movements out as

$$out_{nptr} = exits_{nptr} / transitions_{tr} \quad (2)$$

where $exits_{nptr}$ is the number of transitions that move respondents who are in both neighborhood type n and poverty status p out of neighborhood type n and/or poverty status p, and $transitions_{tr}$ is the total number of transitions observed for members of racial group r during time period t. We can interpret out_{nptr} as the average proportion per year of racial group r (blacks or whites) that exited neighborhood type n and poverty status p in period t.

The net flow, f, is defined by

$$f_{nptr} = in_{nptr} - out_{nptr} \quad (3)$$

where f is the net flow into the nth neighborhood type for persons in the pth poverty status for persons of race r during time period t. The net flow is the number presented in the tables below. It can be interpreted as the average percentage per year of the racial group that moves in or out of the race-by-poverty-status state in the specified period; a positive percentage indicates net movement in, a negative percentage a net movement out. For many PSID respondents, more than one transition is counted in computing a total for a given time period—if two transitions are observed for a given individual during a period, then each of these transitions is counted separately in computing the flow totals. This does not bias these estimates of population change, but it does create special problems in computing accurate standard errors of the flows, a problem I deal with at greater length in the next section.

I calculate flows separately for residents of each of the six basic neighborhood types, and I calculate net flows as percentages of the racial group separately for nonpoor blacks, poor blacks, nonpoor whites, and poor whites.

We can further decompose the flows into subcategories based on entries or exits for particular reasons. I separately consider four ways in which PSID respondents can switch among neighborhood types. First, they can simply move from one neighborhood type to another. Second, they can stay still while the neighborhood type changes around them. Neighborhoods can become poorer or blacker (or less poor or more white) while the respondent does not move. Third, respondents can change poverty status while staying in their current neighborhood type. That is, they can become poor or become nonpoor, thus entering or exiting these subpopulations. Finally, respondents can change both poverty status (enter or exit poverty) and their neighborhood because of moving or neighborhood change. When both of these events occur between PSID interviews, I cannot distinguish which occurred first; accordingly I consider these events to be simultaneous and put people experiencing simultaneous events into their own category. I break down the flows into these four component sources of change. The total net flow of a neighborhood type is equal to the sum of its net flows due to each of these four reasons.

In addition, other sources of population change can influence the size of populations in poor neighborhoods but are not accounted for in these models. Births and deaths are flows into and out of neighborhoods that are not accounted for. Similarly, entries into institutions are not included in calculations of flows in or out because the PSID does not gather data on people in institutions and no geocodes are available for them.[15] Flows of people who enter or exit neighborhoods for these reasons are not counted as transitions. Changes in the population composition of neighborhoods because of these processes remain potential areas to investigate in future research.

Inferential Statistics

Using formulas that assume simple random sampling to compute standard errors is clearly inappropriate for computing standard errors for the flows calculated in this paper. There are a number of

[15]Institutions include armed forces barracks or quarters, college dorms, hospitals, prisons, and residential communities for members of religious orders.

reasons why this is the case. First, the PSID sample was initially drawn using a stratified and clustered design and so was not a simple random sample to begin with (Hill 1992). Second, the transitions that are used to compute flows for each period often include multiple transitions for a single individual. Some correlation in the probability of movement across an individual's person-years is likely, violating the assumption (assured by random sampling) that the observations are independent. Third, by definition individuals within the same family unit reside at the same location and share the same poverty status. As a result, there is perfect clustering on these attributes for particular individuals. Because of the multiply clustered nature of the sample, standard error calculations using simple random sample formulas are likely to be substantial underestimates (Wolter 1985).

To deal with this problem I used variables identifying stratum and sampling error computation units in the PSID to compute corrected standard errors using the Taylor series linearization (or delta) method (Kalton 1977; Wolter 1985). The estimates do not make any assumptions about the structure of the errors within the clusters.[16] Since all the person-years of particular individuals and of their family members are within the same cluster, this method effectively accounts for the clustering caused by these supplementary sources. The standard errors computed this way were on average about 2 to 2.5 times larger than standard errors computed under the assumption of simple random sampling.

RESULTS

Tables 2 through 7 contain estimates from the PSID sample of the net population flows among neighborhood types. The results are shown separately for four groups: nonpoor African Americans, poor

[16]This was done using the svy commands in the statistical package Stata (StataCorp 1997a). Because these estimates make no assumption about correlations among observations within the first-stage probability sampling units (and thus do not use information about randomness introduced into the design by sampling at later stages), they probably are slightly upwardly biased (see StataCorp 1997b, section 30). I also checked results by bootstrapping a few flow standard errors, which were quite close to the estimated standard errors shown in the tables.

African Americans, nonpoor whites, poor whites. Estimates were computed for each of the eight neighborhood types shown in Table 1. However, I do not show tables that were either too sparse to permit an analysis or that contained no results of relevance to the main themes of the paper. The flows are computed separately for 1970–74, 1979–84, and 1985–90.

Often the net flow estimates in the tables are close to zero and we cannot reject the hypothesis that the net flow is equal to zero. One reason for this is that in many cases the proportion of the population living in a particular neighborhood type appears to be staying fairly constant over time. A second reason many estimates are not significant is that the PSID sample size is not large and is highly clustered; thus, many of the sample estimates are somewhat imprecise. Unless a net flow is substantial, it will not show up as statistically significant in the tables.

For the 1970–74 and 1979–84 periods, the tables show results using the tract-to-tract imputation method and the nearest census year method. By definition, the nearest census year method does not allow for neighborhood change and correspondingly this row is left blank in the tables. In the discussion of results that follows, I am referring to figures computed with the tract-to-tract method unless otherwise stated.

Results for African Americans

Tables 2 through 5 show estimates of net flows for nonpoor and poor African Americans through white nonpoor neighborhoods (Table 2), black nonpoor neighborhoods (Table 3), black moderately poor neighborhoods (Table 4), and black extremely poor neighborhoods (Table 5). There were not enough African Americans in white poor or extremely poor neighborhoods to compute reasonably accurate flows; flows of the African-American population in racially mixed neighborhoods are shown in Appendix Table 4. Few of these flows are statistically significant.

TABLE 2
Average Net Population Flows per Year, African Americans in White Nonpoor Neighborhoods

	1970–74		1979–84		1985–90	
	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year
A: Nonpoor Blacks						
Movement	-.054	.479*	.407*	.456*	.503*	.435*
	(.1556)	(.2140)	(.1148)	(.1439)	(.0647)	(.1439)
Neighborhood change	-.542*		-.123*		-.250*	
	(.2018)		(.0622)		(.0876)	
Poverty status change	-.020	.101	-.046	-.073	-.069*	-.079
	(.1249)	(.0956)	(.0590)	(.0636)	(.0288)	(.0423)
Multiple changes (e.g., movement + poverty status)	.153*	.158*	.072	.037	.055*	.055*
	(.0394)	(.0502)	(.0809)	(.0820)	(.0228)	(.0120)
Total net flow (sum)	-.463	.738*	.310*	.420*	.239	.411*
	(.2675)	(.2806)	(.0877)	(.1585)	(.1495)	(.1128)
B: Poor Blacks						
Movement	-.089	-.051	.007	.117*	.088	.102
	(.1112)	(.2025)	(.0302)	(.0470)	(.0903)	(.1254)
Neighborhood change	-.202		-.051*		-.015	
	(.1571)		(.0166)		(.0105)	
Poverty status change	.020	-.101	.046	.073	.069*	.079
	(.1249)	(.0956)	(.0590)	(.0636)	(.0288)	(.0423)
Multiple changes (e.g., movement + poverty status)	-.031	.082	-.009	-.025	.033*	.032*
	(.0160)	(.0952)	(.0679)	(.0723)	(.0120)	(.0108)
Total net flow (sum)	-.301	-.069	-.007	.166	.175*	.213*
	(.1578)	(.1090)	(.1120)	(.0909)	(.0602)	(.0992)

Notes: The figures are given in percentages of the total black population, so that 0.5, for instance, represents 0.5% more of the black population entering than exiting that neighborhood type. Nearest census year estimates are based on matching PSID geocodes to the nearest census year and do not allow for neighborhood change; tract-to-tract methods use linear interpolation of census tract characteristics for intercensal years; estimates using the place-to-place method are shown in Appendix Table 1. For explanation of the tract-to-tract and place-to-place methods, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

The results in Table 2 address the question: Have nonpoor African-American families been moving out of predominantly black neighborhoods and into white nonpoor neighborhoods, as Wilson (1987) argues in *The Truly Disadvantaged*?

The numbers in Table 2 are the net population flow, or the flow in minus the flow out, of nonpoor African Americans (Panel A) and poor African Americans (Panel B) in predominantly white nonpoor neighborhoods. The numbers are given as percentage of the black population. For instance, in Panel A of Table 2, the 0.503 under tract-to-tract 1985–90 in the movement row indicates that on average 0.503 percent more of the black nonpoor population moved into that neighborhood type in each year than moved out during 1985–90. A positive number in Table 2 indicates that the flow into the neighborhood is increasing the size of the group over time (more entrances than exits) while a negative flow indicates that the group is declining in size over time (more exits than entrances).

I will not discuss every coefficient but instead highlight central results from Table 2. First consider the flows by nonpoor African Americans due to movement of PSID respondents among neighborhood types (shown in the row labeled “movement”). Only moves that take a respondent to a different neighborhood type are counted as movement for this statistic; relocation to another dwelling within the same neighborhood type is not counted as moving. In Panel A, for both the 1979–84 and 1985–90 period there is a positive movement of about 0.4 percent or 0.5 percent of the African-American population into white nonpoor neighborhoods per year. Although this might not seem like a large flow at first glance, over a 10-year period if the flow remains constant this represents a movement of 4–5 percent of the black population into white nonpoor neighborhoods. Since about 11 percent of the black nonpoor population lives in white neighborhoods in the PSID sample, this would represent a 35–45 percent increase in the share of nonpoor blacks living in white neighborhoods over 10 years. This holds for all of

the periods except 1970–74.[17] *These results support Wilson's (1987) contention that nonpoor blacks are moving out of black metropolitan areas into predominantly white neighborhoods at a pace sufficient to increase their numbers there.*

Flows for poor African Americans are shown in Panel B. The coefficients in the movement row are generally close to zero and not statistically significant, indicating that poor blacks are moving into nonpoor neighborhoods about as often as they are moving out.[18] *These results support Wilson's contention that nonpoor blacks are becoming more spatially separated from poor blacks because nonpoor blacks are relocating to white areas faster than are poor blacks.*

Yet just examining the movement of PSID respondents leaves out other important ways in which nonpoor African Americans can switch census tracts. As I discussed in the Methods section, individuals can change from one neighborhood type to another in two ways: by moving to a new neighborhood type or by staying put while the neighborhood type changes around them. Net flows among tract types due to neighborhood change are shown in the neighborhood change row. In the neighborhood change row of Table 2, Panel A, all of the numbers are negative and statistically significant. From Panel A, 0.12 percent to 0.5 percent of the black nonpoor population is exiting white nonpoor neighborhoods each year because their neighborhoods become poorer and blacker around them. *For the nonpoor African-American population, changes in neighborhoods are a cause of net movement out of white nonpoor census tracts.* In fact, these flows out due to neighborhood change largely counteract the movement of African Americans into white nonpoor neighborhoods.

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[17]Examining the estimates based on the nearest census year method in Table 2, however, there is evidence of a movement of nonpoor blacks out of white nonpoor neighborhoods of 0.479 percent per year for 1970–74 (the estimate based on the place-to-place method is intermediate at about 0.2 percent but is not statistically significant). This is a rapid flow out. The differences between the nearest census year and tract-to-tract estimates suggest that nonpoor blacks in the PSID sample during 1970–74 were moving into tracts that had just changed from white (30 percent or less black) to racially mixed (30 percent or more black).

[18]The exception is the 1979–85 flow based on nearest year imputation, which suggests statistically significant net movement of poor blacks out of white nonpoor neighborhoods.

What do these patterns imply? If the neighborhoods into which nonpoor African Americans are moving would stay white and nonpoor after they move in, then the proportion of nonpoor blacks in white neighborhoods would rise considerably. But at the same time, some of the white nonpoor neighborhoods that had moderate concentrations of black families changed so that more than 30 percent of their population was black, making them racially mixed neighborhoods. In other words, whites are moving out and blacks are moving in at a rate that is fast enough to keep the proportion of nonpoor blacks in white neighborhoods constant or slowly increasing, even though nonpoor African Americans continue to have high net positive migration into white nonpoor areas.

The point estimates in Panel B show that poor blacks living in white nonpoor neighborhoods also have some tendency to follow a pattern of net movement out of poor neighborhoods due to neighborhood change. The flows of poor blacks out of white nonpoor neighborhoods are more modest than those for nonpoor blacks, though, in large part because the number of poor blacks in white nonpoor neighborhoods is small to begin with. Except for 1979–84 these flows out are not statistically significant.

In a sense, then, Wilson appears to be correct that nonpoor African Americans are moving in patterns that, if they constituted the only population movement, would increase black representation in white areas substantially—estimates from 1979–90 suggest by 35–45 percent in 10 years. But white flight and the increase in the black population are too rapid to allow for an overall increase in the proportion of the African-American population living in white nonpoor neighborhoods. Thus, Denton and Massey's (1988) finding that high-SES blacks are only slightly more likely to live in white neighborhoods than low-SES blacks and Wilson's (1987) contention that nonpoor blacks are moving into white neighborhoods are both supported by the data.

The third and fourth rows of each panel of Table 2 complete the decomposition of the total net flow (total net flow is shown in the fifth row of each panel). The third row gives the average flow per year of blacks who stayed in the same neighborhood type but changed from nonpoor to poor or vice

versa. Negative numbers in Panel A indicate that more nonpoor African Americans in the neighborhood type are entering poverty than exiting it; positive numbers indicate that more nonpoor blacks are exiting poverty than entering it. Note also that the figures for poverty change for poor blacks are equal to the figures for nonpoor blacks multiplied by negative 1—a movement into poverty by a stayer family increases the size of the poor black population just as it decreases the size of the nonpoor black population. The poverty change net flows are consistently negative for nonpoor blacks (Panel A) and positive for poor blacks (Panel B), indicating net increases in the poverty rate among black stayers in white nonpoor neighborhoods over time. But the net flows are small, and except for the 1985–90 period we cannot reject the hypothesis that they are equal to zero.

Finally, the multiple changes row indicates the proportion of the black population that both changed poverty status and changed neighborhood type. The results indicate that for nonpoor blacks, a small but statistically significant fraction of the black population moved into white nonpoor neighborhoods around the same time that they moved out of poverty—over the entire period averaging a net flow of 0.08 percent of the black population per year. The evidence is consistent with a modest but consistent net flow into white nonpoor neighborhoods by African Americans who move out of poverty concurrently with moving into a white nonpoor neighborhood.

African Americans in Predominantly Black Neighborhoods

Table 3 shows movement among black nonpoor neighborhoods. Fewer of the coefficients in these tables are statistically significant than in Table 2, and when they are it is often only for a single time period. These one-period flows can be hard to interpret and may be the result of a temporary disequilibrium condition. The table shows net flow out of black nonpoor neighborhoods by nonpoor blacks for 1970–74 and 1979–84, followed by a net flow into black nonpoor neighborhoods for 1985–90.

Flows of African Americans living in black moderately poor neighborhoods are shown in Table 4. For 1970–74 and 1979–84, neighborhood change increases the share of the nonpoor African-American

TABLE 3
Average Net Population Flows per Year, African Americans in Black Nonpoor Neighborhoods

	1970–74		1979–84		1985–90	
	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year
A: Nonpoor Blacks						
Movement	.033	-.025	-.436*	-.294	.080	.036
	(.1951)	(.2846)	(.1136)	(.1713)	(.1072)	(.0782)
Neighborhood change	-1.198*		-.167		.188	
	(.4907)		(.0914)		(.1430)	
Poverty status change	.069	.081	-.018	-.045	.064	.071
	(.1439)	(.2198)	(.0415)	(.0489)	(.1206)	(.1050)
Multiple changes (e.g., movement + poverty status)	.000	-.104*	-.048*	-.017	.024	.028
	(.0899)	(.0451)	(.0224)	(.0244)	(.0350)	(.0248)
Total net flow (sum)	-1.095*	-.048	-.669*	-.355*	.356*	.134
	(.4955)	(.3145)	(.1244)	(.1482)	(.1192)	(.1489)
B: Poor Blacks						
Movement	.241*	.0270	.030	.030	-.030	.060
	(.0648)	(.1667)	(.0769)	(.1160)	(.0431)	(.0388)
Neighborhood change	-.183		.005		.128	
	(.1849)		(.0290)		(.0741)	
Poverty status change	-.069	-.081	.018	.045	-.064	-.071
	(.1439)	(.2198)	(.0415)	(.0489)	(.1206)	(.1050)
Multiple changes (e.g., movement + poverty status)	-.150*	-.165*	-.032	-.011	.023	-.077
	(.0643)	(.0799)	(.0413)	(.0362)	(.0200)	(.0818)
Total net flow (sum)	-.161	-.218	.020	.064	.057	-.088
	(.2496)	(.1490)	(.0641)	(.1280)	(.1718)	(.1964)

Notes: The figures are given in percentages of the total black population, so that 0.5, for instance, represents 0.5% more of the black population entering than exiting that neighborhood type. Nearest census year estimates are based on matching PSID geocodes to the nearest census year and do not allow for neighborhood change; tract-to-tract methods use linear interpolation of census tract characteristics for intercensal years; estimates using the place-to-place method are shown in Appendix Table 2. For explanation of the tract-to-tract and place-to-place methods, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

TABLE 4
Average Net Population Flows per Year, African Americans in Black Moderately Poor Neighborhoods

	1970–74		1979–84		1985–90	
	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year
A: Nonpoor Blacks						
Movement	-.276	-.322	.406	.320	-.534*	-.442*
	(.2817)	(.1914)	(.3213)	(.3016)	(.1442)	(.1501)
Neighborhood change	1.280*		.382*		-.443*	
	(.6080)		(.1640)		(.1442)	
Poverty status change	.142	.106	-.466*	-.460*	.131	.127
	(.2355)	(.1477)	(.2153)	(.2058)	(.1135)	(.1171)
Multiple changes (e.g., movement + poverty status)	.086	.067	-.007	-.044	.024	.022
	(.0549)	(.0304)	(.0798)	(.0705)	(.0588)	(.0508)
Total net flow (sum)	1.233*	-.149	.316	-.184	-.822*	-.293
	(.5323)	(.1697)	(.3364)	(.2541)	(.2728)	(.2404)
B: Poor Blacks						
Movement	-.245	-.055	-.119	-.228	.015	.178
	(.2399)	(.0778)	(.2643)	(.1375)	(.1585)	(.1185)
Neighborhood change	.253		-.238		-.363*	
	(.1900)		(.2511)		(.0825)	
Poverty status change	-.142	-.106	.466*	.460*	-.131	-.127
	(.2355)	(.1477)	(.2153)	(.2058)	(.1135)	(.1171)
Multiple changes (e.g., movement + poverty status)	.048	-.062	.117*	.058	-.065	-.036
	(.0938)	(.0200)	(.0502)	(.0527)	(.0343)	(.0348)
Total net flow (sum)	-.088	-.223	.225	.290	-.544*	.014
	(.2198)	(.1898)	(.3636)	(.1713)	(.2415)	(.2318)

Notes: The figures are given in percentages of the total black population, so that 0.5, for instance, represents 0.5% more of the black population entering than exiting that neighborhood type. Nearest census year estimates are based on matching PSID geocodes to the nearest census year and do not allow for neighborhood change; tract-to-tract methods use linear interpolation of census tract characteristics for intercensal years; estimates using the place-to-place method are shown in Appendix Table 2. For explanation of the tract-to-tract and place-to-place methods, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

population in black moderately poor neighborhoods. These entrants are from racially mixed or black nonpoor neighborhoods that have become poorer and blacker. In the 1985–90 period, on the other hand, neighborhood change is decreasing the proportion of the black population in black moderately poor neighborhoods and increasing the share in black extremely poor neighborhoods (indicated by the positive flow in because of neighborhood change in Table 5). Thus, neighborhood change led mostly to increases in the share of African Americans in black moderately poor neighborhoods in the early 1970s and early 1980s, while from 1985 to 1990 neighborhood change had the effect of increasing the share of blacks in black extremely poor neighborhoods and decreasing it in moderately poor neighborhoods.

Table 5 shows flows of nonpoor blacks into black extremely poor tracts. The point estimates suggest that both nonpoor and poor blacks have a net tendency to move out of extremely poor neighborhoods, although most of these coefficients are not statistically significant. Neighborhood change, on the other hand, leads to increases in the share of both nonpoor (by 0.1 percent to 0.2 percent of the black population per year) and poor (by 0.3 percent of the black population per year, excluding 1970–74) African Americans living in extremely poor neighborhoods. The tendency for neighborhoods to become poorer keeps the proportion of the black population living in extremely poor neighborhoods from dropping and contributes to a large increase in the nonpoor black population in poor neighborhoods in 1985–90.

Neighborhood change, then, appears to be a force that has operated to increase the share of the black population in moderately and/or extremely poor neighborhoods. Neighborhood change increased the share of the black population in moderately poor neighborhoods in 1970–75 and 1979–84, while it increased the share of the black population in extremely poor neighborhoods in 1985–90. There is no evidence that neighborhood change around PSID respondents has moved substantial numbers of persons into nonpoor neighborhoods. Neighborhoods deteriorate more often than they gentrify, expanding

TABLE 5
Average Net Population Flows per Year, African Americans in Black Extremely Poor Neighborhoods

	1970–74		1979–84		1985–90	
	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year
A: Nonpoor Blacks						
Movement	-.106	-.163	-.249	-.233	.055	-.019
	(.1200)	(.1064)	(.1761)	(.1514)	(.1187)	(.1256)
Neighborhood change	.171		.107*		.237*	
	(.2994)		(.0246)		(.0943)	
Poverty status change	.168	.126	.054	.047	.241	.197
	(.1346)	(.0979)	(.1524)	(.1262)	(.1475)	(.1285)
Multiple changes (e.g., movement + poverty status)	-.090	.086	-.039	-.064	.022	.004
	(.0935)	(.0726)	(.0372)	(.0677)	(.0169)	(.0120)
Total net flow (sum)	.143	.048	-.128	-.250	.555*	.182
	(.4340)	(.1330)	(.2070)	(.1903)	(.1479)	(.1515)
B: Poor Blacks						
Movement	.233	.189	-.097*	-.105	-.163	-.235
	(.1928)	(.1678)	(.0452)	(.0700)	(.2561)	(.1655)
Neighborhood change	-.000		.314		.314*	
	(.0587)		(.2443)		(.0390)	
Poverty status change	-.168	-.126	-.054	-.047	-.241	-.197
	(.1346)	(.0979)	(.1524)	(.1262)	(.1475)	(.1285)
Multiple changes (e.g., movement + poverty status)	-.029	-.030	.126	.113	.006	-.041
	(.0257)	(.0141)	(.0684)	(.0541)	(.0176)	(.0232)
Total net flow (sum)	.035	.033	.289	-.039	-.085	-.473*
	(.2171)	(.2261)	(.2746)	(.1535)	(.2455)	(.1534)

Notes: The figures are given in percentages of the total black population, so that 0.5, for instance, represents 0.5% more of the black population entering than exiting that neighborhood type. Nearest census year estimates are based on matching PSID geocodes to the nearest census year and do not allow for neighborhood change; tract-to-tract methods use linear interpolation of census tract characteristics for intercensal years; estimates using the place-to-place method are shown in Appendix Table 2. For explanation of the tract-to-tract and place-to-place methods, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

geographically and declining in population density in the process. The predominant path to a less poor neighborhood is to move into it.

Are Poverty Rates among Stayers in Poor Neighborhoods Increasing?

The spatial mismatch and deindustrialization hypotheses imply that we should observe increases in poverty rates among residents of poor neighborhoods because the decline in inner-city manufacturing and the increasing frequency of spatial mismatches between jobs and people worsened the job prospects of inner-city workers during the 1970s and 1980s.

The relevant results are shown in the poverty change row of Tables 2 though 5. There is no systematic tendency in the data for more entrances into poverty than exits from poverty among residents of poor neighborhoods. In fact, for 1970–74 and 1985–90, poverty rates among African-American stayers in poor neighborhoods appear to be declining, although the decline is not statistically significant. Thus, *there does not appear to be any consistent increase in the poverty rate among stayers in poor neighborhoods over time.*[19] This is inconsistent with the idea that either growing spatial mismatch or increasing deindustrialization had a strong, consistent impact on the poverty rates of residents of extremely poor neighborhoods from 1970 to 1990.

This finding is not, however, conclusive evidence against the deindustrialization or spatial mismatch hypotheses. Nonpoor blacks might be moving into white nonpoor neighborhoods in part because they are following job prospects, in which case migration might be the proximate cause of an increase in black poverty rates, but changing economic opportunities would be the ultimate cause. Firmer tests of these theories will require data on the locations of jobs relative to people or interview data on why respondents are moving from one neighborhood to another.

[19]By "stayer" I mean a consecutive person-year in which a respondent does not change tract type.

Although the poverty flows do not conform to a monotonic trend, they do follow a clear pattern. The poverty-rate changes among stayers in the tables are consistent with overall changes in U.S. poverty rates. For most neighborhood types, the poverty change coefficients for 1970–74 and 1985–90 indicate decreases in the number of stayers who are poor (negative numbers), while those for 1979–84 indicate increases in the number of stayers who are poor (positive numbers). The individual coefficients are not usually statistically significant, but the result is quite consistent across the different neighborhood types. This corresponds basically to changes in the poverty rate in the United States during these periods: The poverty rate was declining or about holding steady in 1970–74 and 1985–90; the poverty rate was increasing from 1979 until about 1983 (Lamison-White 1996).

Research has consistently found that black unemployment and poverty rates fluctuate more with business cycles than do white unemployment and poverty rates (Jaynes and Williams 1989; Freeman 1991), but it has not compared the experiences of persons living in different neighborhood types. Table 4 provides some evidence that residents of poor and black neighborhoods may have disproportionately borne the brunt of the increase in poverty rates during the 1979–84 period. There is a substantial increase in the number of poor African Americans living in black moderately poor neighborhoods during the 1979–84 period; on average 0.466 percent more of the black population entered poverty than exited it per year. African Americans in the other neighborhood types do not register a similarly large increase. *This suggests that the increase in poverty rates in the early 1980s was larger among blacks living in black moderately poor neighborhoods than among blacks living in other neighborhood types.*

The finding that the increase in poverty during the early 1980s appears to have been especially concentrated among African Americans living in black moderately poor neighborhoods suggests that the increase in poverty rates in the early 1980s contributed to the increase in the number of high-poverty neighborhoods. In fact, the increase in poverty rates was spatially distributed in such a way as to increase the number of extremely poor neighborhoods by a large amount, because the biggest increase in the

poverty rate was concentrated in neighborhoods that were already moderately poor to begin with. Many residents of moderately poor neighborhoods may be in a last-hired, first-fired situation and thus be most likely to be influenced by cyclical variations in labor demand.

This result may suggest why Jargowsky (1997) finds such a strong relationship between changes in a metropolitan area's overall poverty rate and the number of extremely poor neighborhoods. If changes in poverty rates tend to be disproportionately concentrated in neighborhoods with moderately high rates of poverty to begin with, then cyclical variations in a metropolitan area's economy will tend to be strongly related to the number of extremely poor neighborhoods.

Results for Whites

The results for whites are shown in Tables 6, 7, and 8. I discuss results for whites living in white nonpoor (Table 6), white moderately or extremely poor (Table 7), and racially mixed neighborhoods (Table 8). For the predominantly black neighborhood types, the white sample sizes are too small to support an analysis.

The results for white PSID respondents often but not always mirror those for blacks. There is evidence of increases in the proportion of the white nonpoor population living in white nonpoor census tracts due to movement only for the 1985–90 period. The neighborhood change coefficients more closely mirror the results for African Americans: Neighborhood changes move both nonpoor whites and poor whites out of predominantly white nonpoor neighborhoods. The flows are not, however, as substantial for whites as they are for African Americans. The racial disparity is especially substantial considering that a much larger share of the white population than the black population lives in white nonpoor neighborhoods. From the pooled estimates and estimates of population proportions in neighborhood types (Table 1) I calculate that the nonpoor black population living in white nonpoor neighborhoods is declining by about 2.5 percent per year due to neighborhood change, while the white nonpoor population

TABLE 6
Average Net Population Flows per Year, Whites in Nonpoor White Neighborhoods

	1970–74		1979–84		1985–90	
	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year
A: Nonpoor Whites						
Movement	-.151	-.150	-.142	-.149	.277*	.431*
	(.1210)	(.1101)	(.1005)	(.0870)	(.0507)	(.0739)
Neighborhood change	-.047		-.180*		-.281*	
	(.1454)		(.0429)		(.0413)	
Poverty status change	.192*	.176*	-.191*	-.213*	.083*	.030
	(.0952)	(.0805)	(.0389)	(.0372)	(.0349)	(.0262)
Multiple changes (e.g., movement + poverty status)	-.031*	.019*	-.065*	-.063*	-.007	.012*
	(.0180)	(.0291)	(.0156)	(.0184)	(.0108)	(.0130)
Total net flow (sum)	-.036	.044	-.578*	-.425*	.072	.474*
	(.1327)	(.1870)	(.1253)	(.0866)	(.0772)	(.0903)
B: Poor Whites						
Movement	-.042*	-.054	.066	.013	.013	.002
	(.0178)	(.0392)	(.0427)	(.0366)	(.0285)	(.0164)
Neighborhood change	-.010		-.005		-.023	
	(.0183)		(.0021)		(.1571)	
Poverty status change	-.192*	-.176*	.191*	.213*	-.083*	-.030
	(.0952)	(.0805)	(.0389)	(.0372)	(.0349)	(.0262)
Multiple changes (e.g., movement + poverty status)	.052*	.031	-.040*	-.018*	.030	.041
	(.0206)	(.0177)	(.0189)	(.0067)	(.0268)	(.0285)
Total net flow (sum)	-.191	-.199*	.213*	.209*	-.063	.012
	(.1084)	(.0623)	(.0629)	(.0311)	(.0440)	(.0518)

Notes: The figures are given in percentages of the total white population, so that 0.5, for instance, represents 0.5% more of the white population entering than exiting that neighborhood type. Nearest census year estimates are based on matching PSID geocodes to the nearest census year and do not allow for neighborhood change; tract-to-tract methods use linear interpolation of census tract characteristics for intercensal years; estimates using the place-to-place method are shown in Appendix Table 3. For explanation of the tract-to-tract and place-to-place methods, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

TABLE 7
Average Net Population Flows per Year, Whites in White Moderately and Extremely Poor Neighborhoods

	1970–74		1979–84		1985–90	
	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year
A: Nonpoor Whites						
Movement	.011	-.014	-.091	-.102*	-.077	-.115*
	(.0642)	(.0361)	(.0515)	(.0486)	(.0534)	(.0520)
Neighborhood change	-.080		.095*		.197*	
	(.0881)		(.0290)		(.0229)	
Poverty status change	.036	.034	-.031	-.049*	.029	.027
	(.0370)	(.0419)	(.0244)	(.0185)	(.0308)	(.0191)
Multiple changes (e.g., movement + poverty status)	-.023*	-.003	.040*	.009	.010	-.018
	(.0089)	(.0064)	(.0186)	(.0048)	(.0158)	(.0279)
Total net flow (sum)	-.057	.017	.012	-.141*	.158*	-.106*
	(.1210)	(.0286)	(.0882)	(.0530)	(.0368)	(.0410)
B: Poor Whites						
Movement	.029	-.006	-.016	-.006	.007	.016
	(.0235)	(.0516)	(.0374)	(.0243)	(.0150)	(.0203)
Neighborhood change	-.011		-.007		.023*	
	(.0068)		(.0121)		(.0079)	
Poverty status change	-.036	-.034	.031	.049*	-.029	-.027
	(.0370)	(.0419)	(.0244)	(.0185)	(.0308)	(.0191)
Multiple changes (e.g., movement + poverty status)	.002	-.008	.020*	.014*	.016	.002
	(.0122)	(.0103)	(.0089)	(.0068)	(.0123)	(.0118)
Total net flow (sum)	-.015	-.047	.028	.057*	.017	-.009
	(.0329)	(.0334)	(.0288)	(.0228)	(.0383)	(.0235)

Notes: The figures are given in percentages of the total white population, so that 0.5, for instance, represents 0.5% more of the white population entering than exiting that neighborhood type. Nearest census year estimates are based on matching PSID geocodes to the nearest census year and do not allow for neighborhood change; tract-to-tract methods use linear interpolation of census tract characteristics for intercensal years; estimates using the place-to-place method are shown in Appendix Table 3. For explanation of the tract-to-tract and place-to-place methods, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

TABLE 8
Average Net Population Flows per Year, Whites in Racially Mixed Neighborhoods

	1970–74		1979–84		1985–90	
	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year
A: Nonpoor Whites						
Movement	-.062	-.056	-.025	-.045	-.024	-.067*
	(.1200)	(.0798)	(.0392)	(.0333)	(.0232)	(.0283)
Neighborhood change	.107		.082		.080*	
	(.0638)		(.0531)		(.0337)	
Poverty status change	.030	.014	.003	.004	.021	.024
	(.0244)	(.0138)	(.0251)	(.0171)	(.0197)	(.0167)
Multiple changes (e.g., movement + poverty status)	.007	.009	-.003	.010	.002	-.000
	(.0094)	(.0086)	(.0024)	(.0059)	(.0078)	(.0073)
Total net flow (sum)	.083	-.032	.057	-.031	.079	-.044*
	(.0703)	(.0717)	(.0681)	(.0275)	(.0411)	(.0223)
B: Poor Whites						
Movement	-.004	.004	.007	.012	-.008	-.022
	(.0186)	(.0167)	(.0026)	(.0138)	(.0130)	(.0083)
Neighborhood change	.019		.008		-.009	
	(.0227)		(.0081)		(.0097)	
Poverty status change	-.030	-.014	-.003	-.004	-.021	-.024
	(.0244)	(.0138)	(.0251)	(.0171)	(.0197)	(.0167)
Multiple changes (e.g., movement + poverty status)	-.003	-.016	.004	.003	-.002	.009
	(.0014)	(.0147)	(.0083)	(.0062)	(.0089)	(.0083)
Total net flow (sum)	-.018	-.027	.015	.011	-.040*	-.037*
	(.0224)	(.0381)	(.0224)	(.0181)	(.0208)	(.0162)

Notes: The figures are given in percentages of the total white population, so that 0.5, for instance, represents 0.5% more of the white population entering than exiting that neighborhood type. Nearest census year estimates are based on matching PSID geocodes to the nearest census year and do not allow for neighborhood change; tract-to-tract methods use linear interpolation of census tract characteristics for intercensal years; estimates using the place-to-place method are shown in Appendix Table 3. For explanation of the tract-to-tract and place-to-place methods, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

living in nonpoor white neighborhoods is declining by only about 0.4 percent per year due to neighborhood change.

What type of neighborhoods do nonpoor whites tend to end up in when their neighborhoods change? The results in Tables 7 and 8 indicate that white moderately poor or extremely poor neighborhoods and racially mixed neighborhoods receive flows in from neighborhood change. The pattern of neighborhood change leading to increasing the population of poor neighborhoods holds among whites as well as African Americans, although it has a larger influence on African Americans.

As with African Americans, we see the pattern of increasing rates of poverty for whites in the 1979–84 period and declining rates for 1970–74 and 1985–90. Again, this is roughly consistent with national poverty trend statistics. As with African Americans, there is no evidence of a systematic tendency for poverty rates among white stayers in poor neighborhoods to increase over time. Unlike the case with African Americans, residents of white poor neighborhoods did not experience larger increases in their poverty rates during the recessionary period of 1979–84 than residents of nonpoor neighborhoods. In fact, poverty rates increased more among white stayers in white nonpoor neighborhoods than in white poor neighborhoods.

CONCLUSIONS

Some expected and some surprising results have emerged from this analysis. The basic conclusions include the following:

- The transition probabilities in the PSID data indicate that blacks, especially nonpoor blacks, move into white nonpoor neighborhoods at a sufficiently rapid pace to substantially increase their presence there.
- The data suggest, however, that there is substantial movement of African Americans out of white nonpoor neighborhoods due to neighborhood change. When flows out of white neighborhoods are considered simultaneously with movement, overall the rates of change imply that the share of blacks living in white nonpoor areas remains about constant or increases slightly. These results suggest that if neighborhoods would stay white as nonpoor blacks move in, then the proportion

of nonpoor blacks living in white nonpoor neighborhoods would increase. But white populations tend to drop as blacks move in, and they do so at a fast enough rate to keep the proportion of black families in predominantly white neighborhoods at about a stable level.

- The black nonpoor population in black and poor tracts is steady or increasing primarily because neighborhoods change around them, not because black nonpoor respondents have net positive movement into black and poor tracts.

- There is no indication in the PSID data that stayers in black and/or poor neighborhoods experienced increases in their poverty rates in the 1970s and 1980s, except during the recession of the early 1980s. During this recession, increases in the poverty rate among the nonpoor were spatially concentrated in black moderately poor neighborhoods. Since these neighborhoods were already moderately poor to begin with, this suggests that increasing poverty rates in the early 1980s had a strong effect in increasing the number of extremely poor neighborhoods.

Perhaps the most significant contribution of this paper is to provide an explanation and empirical evidence regarding the contradictory results of tests of Wilson's black middle-class out-migration thesis. I find that nonpoor African Americans are moving into white areas fairly rapidly, as Wilson suggests. But the numbers of nonpoor African Americans in white and nonpoor areas have not increased much over time, as Massey and Denton (1993) have shown, because of the decline in white population in these neighborhoods.[20] When considered as part of a dynamic system, the movement of blacks into white nonpoor neighborhoods and high continuing rates of racial segregation are not mutually exclusive.

Considered with the findings of prior studies, especially the work of Jargowsky (1994, 1997), my results provide further detail about the processes by which poor urban areas form. Few nonpoor residents of poor neighborhoods move into ghettos on their own; instead, poor neighborhoods move in on them. The primary process that increases the black nonpoor population in neighborhoods that are poor and predominantly black is neighborhood change. This result is consistent with other studies showing that most census tracts that became poor lost population, especially nonpoor population (Jargowsky and Bane

[20]A likely cause of this decline in white neighborhood population is white flight, but it could also be accomplished by reductions in the number of whites moving in even if the number of whites moving out remains stable. It is also possible that whites are moving out largely because of characteristics that tend to be correlated with large black neighborhood populations but which are essentially nonracial (e.g., Harris 1997a, 1997b).

1991; Greene 1991). Neighborhoods in transition to high-poverty status empty first of whites, then of many middle-class blacks, leaving more-disadvantaged and less-populous areas. The overall result is that high-poverty neighborhoods have been becoming geographically larger and less densely settled (Jargowsky 1997).

Modern poor urban neighborhoods, formed after 1970 or so, thus stand in sharp demographic contrast to poor and minority neighborhoods earlier in the century. Accounts of racial succession of neighborhoods in the 1950s indicate that neighborhoods undergoing racial transition tended to increase in population density, especially in passing through a late phase in racial succession referred to as “piling up,” in which previously white-owned homes and apartments were subdivided into smaller dwellings to accommodate the housing demands of black immigrants (Duncan and Duncan 1957). Although the affluent have always made efforts to segregate themselves from the poor, immigration into cities before about 1970 was proceeding at too rapid a pace to allow inner city neighborhoods to drop substantially in population as part of this process. Indeed, a chief reason blacks desired to exit predominantly black areas of the city before 1970 was because the housing supply in black neighborhoods was insufficient to keep up with demand (Aldrich 1975). With the end of black immigration to urban areas, poor African-American neighborhoods have changed from densely packed communities of recently arrived immigrants to areas gradually abandoned by the nonpoor. The cessation of the flow of black immigrants to the nation’s cities, and the corresponding decline in the population density of poor neighborhoods, may be one unexplored factor responsible for the change in the nature of poor African-American neighborhoods in the early 1970s that Wilson (1987) describes.

By most indications, the process of ghetto creation by abandonment is continuing. It seems almost inevitable that at some point poor neighborhoods will have to begin contracting in size rather than expanding. But we have not reached that point yet, and we may not reach it any time soon.

APPENDIX TABLE 1
Average Net Population Flows per Year Based on the Place-to-Place Method, African Americans in White Nonpoor and Racially Mixed Neighborhoods

	White Nonpoor Neighborhoods		Racially Mixed Neighborhoods	
	1970–74	1979–84	1970–74	1979–84
A: Nonpoor Blacks				
Movement	.233	.412*	.231	.029
	(.1914)	(.1863)	(.2463)	(.1969)
Neighborhood change	-.577*	-.283	.371	-.123
	(.2073)	(.1888)	(.2212)	(.2276)
Poverty status change	-.006	-.073	-.022	-.306
	(.1119)	(.0674)	(.0943)	(.1575)
Multiple changes (e.g., movement + poverty status)	.154*	.022	.034	.007
	(.0560)	(.0868)	(.0625)	(.0957)
Total net flow (sum)	-.195	.078	.613*	-.392
	(.3401)	(.2019)	(.2713)	(.3355)
B: Poor Blacks				
Movement	-.113*	.077	.201*	.393*
	(.0357)	(.0538)	(.0776)	(.1316)
Neighborhood change	-.214	-.051*	.153	-.050
	(.1452)	(.0151)	(.1204)	(.0261)
Poverty status change	.006	.073	.022	.306
	(.1119)	(.0674)	(.0943)	(.1575)
Multiple changes (e.g., movement + poverty status)	.006	-.005	-.039	-.043
	(.0828)	(.0573)	(.0387)	(.0391)
Total net flow (sum)	-.315*	.094	.337	.606*
	(.1453)	(.0760)	(.1752)	(.1737)

Notes: The figures are given in percentages of the total black population, so that 0.5, for instance, represents 0.5% more of the black population entering than exiting that neighborhood type. For explanation of the place-to-place method, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

APPENDIX TABLE 2
Average Net Population Flows per Year Based on the Place-to-Place Method of Imputation, African Americans in Black Neighborhoods

	Black Nonpoor Neighborhoods		Black Moderately Poor Neighborhoods		Black Extremely Poor Neighborhoods	
	1970–74	1979–84	1970–74	1979–84	1970–74	1979–84
A: Nonpoor Blacks						
Movement	.220	-.366*	-.566*	.433	-.170	-.199
	(.2183)	(.1782)	(.2297)	(.2995)	(.1290)	(.1399)
Neighborhood change	-1.133*	-.122	1.343*	.379*	.152	.094*
	(.4603)	(.0732)	(.521)	(.1408)	(.2537)	(.0240)
Poverty status change	.017	-.012	.110	-.502*	.113	.030
	(.1294)	(.0379)	(.2069)	(.2145)	(.1046)	(.1350)
Multiple changes (e.g., movement + poverty status)	-.070*	-.029	.086	-.010	-.009	-.034
	(.0299)	(.0226)	(.0464)	(.0612)	(.1186)	(.0362)
Total net flow (sum)	-.967	-.528*	.973*	.300	.086	-.107
	(.5210)	(.1686)	(.4394)	(.2627)	(.3697)	(.1703)
B: Poor Blacks						
Movement	.154*	-.028	-.198	-.153	.214	-.119*
	(.0420)	(.0649)	(.1908)	(.2344)	(.1616)	(.0448)
Neighborhood change	-.237	-.000	.302	-.206	.008	.309
	(.1694)	(.0293)	(.1899)	(.2215)	(.0583)	(.2161)
Poverty status change	-.017	.012	-.110	.502*	-.113	-.030
	(.1294)	(.0379)	(.2069)	(.2145)	(.1046)	(.1350)
Multiple changes (e.g., movement + poverty status)	-.157*	-.035	-.027	.097*	-.043	.117
	(.0619)	(.0355)	(.1203)	(.0427)	(.0213)	(.0641)
Total net flow (sum)	-.257	-.051	-.032	.239	.066	.277
	(.2068)	(.0491)	(.2078)	(.2927)	(.2002)	(.2264)

Notes: The figures are given in percentages of the total black population, so that 0.5, for instance, represents 0.5% more of the black population entering than exiting that neighborhood type. For explanation of the place-to-place method, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

APPENDIX TABLE 3
Average Net Population Flows per Year Based on the Place-to-Place Method of Imputation, Whites

	White Nonpoor Neighborhoods		White Poor or Extremely Poor Neighborhoods		Racially Mixed Neighborhoods	
	1970–74	1979–84	1970–74	1979–84	1970–74	1979–84
A: Nonpoor Whites						
Movement	-.177	-.072	.033	-.098*	-.063	-.062
	(.1296)	(.1142)	(.0339)	(.0422)	(.1023)	(.0322)
Neighborhood change	-.105	-.138*	-.123	.075*	.211*	.069
	(.1206)	(.0300)	(.0875)	(.0237)	(.0484)	(.0390)
Poverty status change	.176*	-.223*	.043	-.038	.024	.006
	(.0854)	(.0338)	(.0432)	(.0195)	(.0198)	(.0193)
Multiple changes (e.g., movement + poverty status)	.014	-.075*	-.018	.027*	.009	-.000
	(.0320)	(.0164)	(.0074)	(.0079)	(.0087)	(.0021)
Total net flow (sum)	-.091	-.508*	-.064	-.035	.181*	.013
	(.1377)	(.1183)	(.0805)	(.0659)	(.0836)	(.0461)
B: Poor Whites						
Movement	-.046	.025	-.003	.003	.000	.013
	(.0357)	(.0284)	(.0500)	(.0320)	(.0156)	(.0145)
Neighborhood change	-.004	-.017*	-.031	.007	.034	.008
	(.0171)	(.0023)	(.0329)	(.0098)	(.0443)	(.0065)
Poverty status change	-.176*	.223*	-.043	.038	-.024	-.006
	(.0854)	(.0338)	(.0432)	(.0195)	(.0198)	(.0193)
Multiple changes (e.g., movement + poverty status)	.041*	-.029	.000	.0299*	-.024	-.000
	(.0189)	(.0103)	(.0139)	(.0126)	(.0208)	(.0102)
Total net flow (sum)	-.185*	.201*	-.077	.078*	-.013	.014
	(.0707)	(.0255)	(.0506)	(.0205)	(.0269)	(.0267)

Notes: The figures are given in percentages of the total white population, so that 0.5, for instance, represents 0.5% more of the white population entering than exiting that neighborhood type. For explanation of the place-to-place method, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

APPENDIX TABLE 4
Average Net Population Flows per Year, African Americans in Racially Mixed Neighborhoods

	1970–74		1979–84		1985–90	
	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year	Tract-to-Tract	Nearest Census Year
A: Nonpoor Blacks						
Movement	.399	.072	.079	.038	-.068	-.071
	(.2415)	(.2137)	(.2616)	(.1772)	(.1679)	(.1471)
Neighborhood change	.463		-.270		.204	
	(.2523)		(.1566)		(.1406)	
Poverty status change	.074	-.158	-.246	-.250	.159	.162
	(.1051)	(.1513)	(.1783)	(.1432)	(.1503)	(.1385)
Multiple changes (e.g., movement + poverty status)	-.010	-.052	.013	-.003	-.069	.076
	(.0733)	(.0825)	(.0760)	(.1117)	(.0524)	(.0941)
Total net flow (sum)	.926*	-.137	-.424	-.215	.227	.167
	(.2597)	(.2122)	(.4078)	(.1775)	(.1979)	(.1526)
B: Poor Blacks						
Movement	.113	.163	.298*	.310*	-.018	-.018
	(.0928)	(.0912)	(.0913)	(.0955)	(.1254)	(.1216)
Neighborhood change	.139		-.039		.218	
	(.1314)		(.0171)		(.3347)	
Poverty status change	-.074	.158	.246	.250	-.159	-.162
	(.1051)	(.1513)	(.1783)	(.1432)	(.1503)	(.1385)
Multiple changes (e.g., movement + poverty status)	-.050	-.055	-.057	.024	-.013	-.028
	(.0440)	(.0988)	(.0403)	(.0361)	(.0593)	(.0407)
Total net flow (sum)	.128	.265	.448*	.584*	.028	-.209
	(.2023)	(.1876)	(.1838)	(.1870)	(.1760)	(.1113)

Notes: The figures are given in percentages of the total black population, so that 0.5, for instance, represents 0.5% more of the black population entering than exiting that neighborhood type. For explanation of the place-to-place method, see the Methods section of the text. Numbers in parentheses are standard errors.

* = null hypothesis rejected at $p < .05$ level, two-tailed test.

References

Aldrich, Howard. 1975. “Ecological Succession in Racially Changing Neighborhoods: A Review of the Literature.” *Urban Affairs Quarterly* 10: 327–348.

Denton, Nancy A., and Douglas S. Massey. 1988. “Residential Segregation of Blacks, Hispanics, and Asians by Socioeconomic Status and Generation.” *Social Science Quarterly* 69: 797–817.

Duncan, Otis Dudley, and Beverly Duncan. 1957. *The Negro Population of Chicago: A Study of Residential Succession*. Chicago: University of Chicago Press.

Farley, Reynolds. 1991. “Residential Segregation of Social and Economic Groups among Blacks, 1970–80.” In *The Urban Underclass*, edited by Christopher Jencks and Paul E. Peterson. Washington, DC: Brookings Institution.

Farley, Reynolds, and William Frey. 1994. “Changes in the Segregation of Whites from Blacks during the 1980s: Small Steps toward a More Integrated Society.” *American Sociological Review* 59: 23–45.

Freeman, Richard. 1991. “Employment and Earnings of Disadvantaged Young Men in a Labor Shortage Economy.” In *The Urban Underclass*, edited by Christopher Jencks and Paul E. Peterson. Washington, DC: Brookings Institution.

Gamlich, Edward, Deborah Laren, and Naomi Sealand. 1992. “Moving into and out of Poor Urban Areas.” *Journal of Policy Analysis and Management* 11: 273–287.

Greene, Richard. 1991. “Poverty Area Diffusion: The Depopulation Hypothesis Examined.” *Urban Geography* 12 (6): 526–541.

Harris, David R. 1997a. “The Flight of Whites: A Multilevel Analysis of Why Whites Move.” University of Michigan Population Studies Center Research Report No. 97-386, April 1997.

Harris, David R. 1997b. “‘Property Values Drop When Blacks Move In, Because . . .’ : Racial and Socioeconomic Determinants of Neighborhood Desirability.” University of Michigan Population Studies Center Research Report No. 97-387, April 1997.

Harrison, Bennett, and Barry Bluestone. 1988. *The Great U-Turn: Corporate Restructuring and the Polarizing of America*. New York: Basic Books.

Hill, Martha. 1992. *The Panel Study of Income Dynamics: A User’s Guide*. Newbury Park: Sage.

Holzer, Harry J. 1994. “Black Employment Problems: New Evidence, Old Questions.” *Journal of Policy Analysis and Management* 13: 699–722.

Hughes, Mark Alan. 1990. “Formation of the Impacted Ghetto: Evidence from Large Metropolitan Areas: 1970–1980.” *Urban Geography* 11: 265–284.

Jakubs, John F. 1986. “Recent Racial Segregation in the U.S. SMSAs.” *Urban Geography* 7: 146–163.

Jargowsky, Paul A., and Mary Jo Bane. 1991. “Ghetto Poverty in the United States, 1970–1980.” In *The Urban Underclass*, edited by Christopher Jencks and Paul E. Peterson. Washington, DC: Brookings Institution.

Jargowsky, Paul A. 1994. “Ghetto Poverty among Blacks in the 1980s.” *Journal of Policy Analysis and Management* 13: 288–310.

Jargowsky, Paul A. 1996. “Take the Money and Run: Economic Segregation in U.S. Metropolitan Areas.” *American Sociological Review* 61: 984–998.

Jargowsky, Paul A. 1997. *Poverty and Place: Ghettos, Barrios, and the American City*. New York: Russell Sage Foundation.

Jaynes, Gerald David, and Robin M. Williams, Jr., eds. 1989. *A Common Destiny: Blacks and American Society*. Washington, DC: National Academy Press.

Jencks, Christopher, and Susan Mayer. 1990. “Residential Segregation, Job Proximity, and Black Job Opportunities.” In *Inner-City Poverty in the United States*, edited by Laurence E. Lynn, Jr., and Michael McGeary. Washington, DC: National Academy Press.

Kain, John F. 1968. “Housing Segregation, Negro Employment, and Metropolitan Decentralization.” *Quarterly Journal of Economics* 82: 175–197.

Kalton, Graham. 1977. “Practical Methods for Estimating Survey Sampling Errors.” *Bulletin of the International Statistical Institute* 47 (3): 495–514.

Kasarda, John. 1990. “Urban Industrial Transition and the Underclass.” *Annals of the American Academy of Political and Social Science* 501: 26–47.

Keyfitz, Nathan. 1977. *Applied Mathematical Demography*. New York: Wiley.

Korenman, Sanders, John Sjaastad, and Paul A. Jargowsky. 1995. “Explaining the Rise of Ghetto Poverty in the 1980s: A Replication and Extension.” Manuscript, Humphrey Institute for Public Affairs, University of Minnesota.

Lamison-White, Leatha. 1997. “Poverty in the United States: 1996.” Current Population Reports, Series P60-198. Washington, DC: U.S. Government Printing Office.

Massey, Douglas S. 1990. “American Apartheid: Segregation and the Making of the Underclass.” *American Journal of Sociology* 96: 329–357.

Massey, Douglas S., and Nancy A. Denton. 1987. “Trends in the Residential Segregation of Blacks, Hispanics, and Asians.” *American Sociological Review* 52: 802–825.

Massey, Douglas S., and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.

Massey, Douglas S., and Mitchell L. Eggers. 1990. “The Ecology of Inequality: Minorities and the Concentration of Poverty, 1970–1980.” *American Journal of Sociology* 95: 1153–1188.

Massey, Douglas S., and Mitchell L. Eggers. 1993. “The Spatial Concentration of Affluence and Poverty during the 1970s.” *Urban Affairs Quarterly* 29: 299–315.

Massey, Douglas S., Andrew B. Gross, and Kumiko Shibuya. 1994. “Migration, Segregation, and the Geographic Concentration of Poverty.” *American Sociological Review* 59: 425–445.

Preston, Samuel H., and Cameron Campbell. 1993. “Differential Fertility and the Distribution of Traits: The Case of IQ.” *American Journal of Sociology* 98: 997–1019.

Rodgers, Joan R., and John L. Rodgers. 1993. “Chronic Poverty in the United States.” *Journal of Human Resources* 28: 25–54.

Rogers, Andrei. 1968. *Matrix Analysis of Interregional Population Growth and Distribution*. Berkeley: University of California Press.

StataCorp. 1997a. *Stata Statistical Software: Release 5.0*. College Station, TX: Stata Corporation.

StataCorp. 1997b. *Stata Statistical Software Release 5.0 User’s Guide*. College Station, TX: Stata Press.

U.S. Bureau of the Census. 1983a. *Census of Population and Housing, 1980: 1980–1970 Tract Comparability File*. Washington, DC: Bureau of the Census.

U.S. Bureau of the Census. 1983b. *Census of Population and Housing, 1980: 1980–1970 Tract Comparability File Technical Documentation*. Washington, DC: Bureau of the Census.

U.S. Bureau of the Census. 1992a. *Census of Population and Housing, 1990: Tiger/Census Tract Comparability File*. Washington, DC: Bureau of the Census.

U.S. Bureau of the Census. 1992b. *Census of Population and Housing, 1990: Tiger/Census Tract Comparability File Technical Documentation*. Washington, DC: Bureau of the Census.

U.S. Bureau of the Census. 1995. “Poverty Areas.” Statistical Brief 95-13. Washington, DC: Bureau of the Census.

White, Michael J. 1987. *American Neighborhoods and Residential Differentiation*. New York: Russell Sage Foundation.

Wilson, William Julius. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago: University of Chicago Press.

Wilson, William Julius. 1996. *When Work Disappears: The World of the New Urban Poor*. New York: Knopf.

Wolter, Kirk M. 1985. *Introduction to Variance Estimation*. New York: Springer-Verlag.