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Neighborhood Diversity, Metropolitan Constraints, and Household Migration

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Abstract

Focusing on micro-level processes of residential segregation, this analysis combines data from the Panel Study of Income Dynamics with contextual information from three censuses and several other sources to examine patterns of residential mobility between neighborhoods populated by different combinations of racial and ethnic groups. We find that despite the emergence of multiethnic neighborhoods, stratified mobility dynamics continue to dominate, with relatively few black or white households moving into neighborhoods that could be considered multiethnic. However, we also find that the tendency for white and black households to move between neighborhoods dominated by their own group varies significantly across metropolitan areas. Black and white households' mobility into more integrated neighborhoods is shaped substantially by demographic, economic, political, and spatial features of the broader metropolitan area. Metropolitan-area racial composition, the stock of new housing, residential separation of black and white households, poverty rates, and functional specialization emerge as particularly important predictors. These macro-level effects reflect opportunities for intergroup residential contact as well as structural forces that maintain residential segregation.

Keywords

metropolitan area, neighborhood, race, segregation, stratification

Emerging patterns of residential segregation by race and ethnicity provide encouraging signs of progress toward stable racial integration, but also the basis for concern about persisting residential stratification. Recent increases in average levels of intergroup residential exposure and declines in racial segregation (Timberlake and Iceland 2007) have fueled considerable optimism for increased residential equity in U.S. metropolitan areas (cf. Glaeser and Vigdor 2003; Iceland 2009). At the same time, segregation of blacks from whites remains in the moderate to high range in most large metropolitan areas, and blacks' and whites' levels of residential separation from fast-growing Asian and Latino populations have remained steady or increased in recent decades (Iceland 2009;

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Logan, Stults, and Farley 2004). Thus, prospects for long-term, stable integration and amelioration of the negative repercussions of racial isolation remain uncertain (Massey and Denton 1993).

One indisputable trend is that racially and ethnically diverse neighborhoods have emerged as an important feature of residential space in central cities and suburban zones of many metropolitan areas in the United States (Fasenfest, Booza, and Metzger 2004; Friedman 2008; Logan and Zhang 2010). Between 1980 and 2000, the number of metropolitan neighborhoods containing sizable proportions of two or more groups increased by over two-thirds, while the number of all-white metropolitan neighborhoods declined by a similar proportion and the number of all-black tracts declined by nearly one-third (Friedman 2008). The increasing pervasiveness of multiethnic neighborhoods, reflecting in large measure the diversification of metropolitan populations (Fong and Shibuya 2005), represents a key harbinger of residential integration and has forced researchers to abandon old conceptions of black-white neighborhood change in favor of models that reflect the broader multiplicity of neighborhood types (Logan and Zhang 2010).

Yet, because most research on the topic takes neighborhoods as the units of analysis, there remain a number of important unanswered questions related to the proliferation of multigroup neighborhoods. First, the emergence of multiethnic neighborhoods is consistent with more extensive racial and ethnic residential integration, but it is not clear how this development has shaped the residential experiences of individuals and their families. Indeed, increasing numbers of racially and ethnically diverse neighborhoods will have little impact on overall levels of integration if most individuals continue to congregate in neighborhoods dominated by their own group or seek to leave integrated areas for more homogeneous neighborhoods. To date, research on inter-neighborhood mobility has relied primarily on neighborhood typologies defined solely by concentrations of black and/or white residents (e.g., Massey, Gross, and Shibuya 1994; Quillian 2002; South and Crowder 1998), providing little information about the micro-level mobility processes shaping the multiethnic neighborhoods that increasingly define metropolitan spatial arrangements.

Equally noteworthy is the dearth of knowledge about how broader geographic context shapes patterns of residential mobility between neighborhoods with distinct combinations of racial and ethnic groups. Evidence shows that the prevalence of and change in multiethnic neighborhoods vary sharply across metropolitan areas (Fasenfest et al. 2004), suggesting that broader social, economic, and ecological structures significantly shape the processes through which these neighborhoods emerge. We also know that inter-metropolitan variation in the levels of and changes in racial residential segregation covary with an array of metropolitan-area characteristics (Logan et al. 2004). However, despite the implications for shifting patterns of residential segregation, research has yet to focus on how metropolitan-area characteristics shape individual-level mobility behaviors that determine the emergence, stability, and composition of multiethnic neighborhoods.

In this article, we address these gaps in the research on residential segregation and neighborhood change by making use of individual-level longitudinal data from the Panel Study of Income Dynamics (PSID) linked to neighborhood- and metropolitan-level data from several sources. Our analysis of these data contributes to the understanding of inter-neighborhood migration, residential segregation, and neighborhood change in three main ways. First, moving beyond simplistic black-white measurements of neighborhood racial structure (e.g., South and Crowder 1998), we adopt a fine-grained conceptualization that acknowledges the emergence of multiethnic urban communities

and allows us to examine patterns of geographic mobility using a detailed taxonomy of origin and destination neighborhoods.

Second, while some theories of neighborhood attainment emphasize the role of socioeconomic resources and other individual-level characteristics (cf. Speare 1974), and other theories stress the importance of the broader metropolitan-area context (cf. South and Crowder 1997), the relative contribution of these sets of factors for explaining migration between neighborhoods of varying racial-ethnic composition is unknown. We make use of the fact that PSID respondents are nested within metropolitan areas by applying multilevel modeling strategies that illuminate how migration out of and into different types of neighborhoods varies within and between metropolitan areas.

Third, we incorporate a much richer battery of metropolitan-level explanatory variables than has been used in prior studies of inter-neighborhood migration. As reviewed below, existing theoretical arguments identify an array of salient metropolitan-level predictors that help explain inter-metropolitan variation in the level of and changes in racial residential segregation. Yet, few of these factors have been incorporated into models of actual migration between neighborhoods of varying racial-ethnic composition, despite the fact that these patterns of inter-neighborhood mobility (and immobility) are the primary proximate determinants of segregation. By including a wide range of explanatory variables at the individual and metropolitan levels, our analysis constitutes a more comprehensive investigation of these underlying dynamics.

BACKGROUND AND HYPOTHESES

High levels of racial residential segregation continue to define the U.S. urban landscape more than four decades after passage of the Fair Housing Act. The destructive social and economic consequences of racial residential segregation—for African Americans in particular—have been well-documented (Charles 2003; Massey and Denton 1993). Segregation has been linked to racial inequalities in educational and economic opportunities (Massey, Gross, and Eggers 1991), homeownership (Flippen 2001), health and health care (Kramer and Hogue 2009), and exposure to crime (Shihadeh and Flynn 1996) and environmental hazards (Crowder and Downey 2010). The persistence of segregation and its attendant pernicious consequences direct attention to the proximate causes of segregation and, in particular, the race-specific patterns of migration between neighborhoods of varying racial and ethnic composition that sustain the spatial separation of racial groups in U.S. cities.

Dominant theories of residential mobility implicate a wide range of micro-level and contextual influences (Speare 1974), but research to date has focused almost exclusively on individual- and household-level determinants of residential preferences and needs (cf. Alba et al. 1999; Crowder, Hall, and Tolnay 2011; South and Crowder 1998), paying relatively little attention to characteristics of the broader geographic context that might shape residential opportunities.

This common focus on micro-level influences over metropolitan constraints is likely fueled by the recognition that residential preferences are highly stratified across individual characteristics, especially race. For example, whites' tolerance for living near minority groups has apparently increased but remains somewhat limited, and whites tend to rate integrated neighborhoods as substantially less desirable than predominantly white neighborhoods (Charles 2006; Krysan and Bader 2007). Consistent with these preferences, the likelihood that white householders will move out of their neighborhood increases with the size of the minority population in the neighborhood (Crowder and South 2008), and mixed-majority neighborhoods containing larger shares of minorities

are most likely to experience white population loss in the aggregate (cf. Rawlings et al. 2004).

Some of this research indicates that white householders are particularly sensitive to the concentration of blacks in a neighborhood (Emerson, Chai, and Yancey 2001), while other survey results point to a clear hierarchy of preferences for residential contact with Asian, Latino, and black populations (Charles 2006). Research on individual mobility patterns (Crowder and South 2008; Pais, South, and Crowder 2009) and processes of neighborhood change (Denton and Massey 1991) also suggests that whites may be especially likely to leave neighborhoods containing combinations of multiple minority groups, although we do not know whether such neighborhoods are also unpopular destinations for white movers.

Black householders' residential preferences are somewhat more complex. In recent research, blacks express the strongest preferences for neighborhoods containing large concentrations of own-race neighbors (Clark 2009; Krysan and Bader 2007) and an increasing reluctance to be the extreme numerical minority in mostly white neighborhoods (Krysan and Farley 2002). Many black survey respondents also express somewhat negative attitudes toward Latinos and Hispanics (Charles 2006), and ethnographic research often points to black animosity toward other minority groups settling in predominantly black neighborhoods (Johnson, Farrell, and Guinn 1999; Wilson and Taub 2006). However, in comparison to whites, blacks express considerably greater tolerance for integration, preferring neighborhoods with substantially more non-black neighbors than those occupied by the typical black household (Charles 2006; Krysan and Bader 2007; Krysan and Farley 2002).

Yet, actual mobility outcomes are unlikely to represent the unconstrained actuation of residential preferences, and past research highlights a number of micro-level characteristics that are important in this regard. Like preferences themselves, the ability to realize residential aspirations appears to vary sharply by householder race, and external forces limit residential options for black households in particular (Crowder 2001). According to the place stratification perspective (Charles 2003; Logan and Molotch 1987), whites' aversion to sharing residential space with black neighbors reinforces discriminatory practices of real estate agents, landlords, and mortgage lenders (Roscigno, Karafin, and Tester 2009; Ross and Turner 2005), creating a racially segmented housing market that obstructs African Americans' residential aspirations, especially for those wishing to move to racially integrated neighborhoods. Moreover, white hostility toward black neighbors may increase black migration out of, and impede black migration into, neighborhoods with high concentrations of white neighbors (Krysan and Farley 2002). Given that Asian and Latino survey respondents also express reluctance to live near black householders (Charles 2006), similar dynamics may increase the likelihood that black respondents will leave racially and ethnically mixed neighborhoods and move to areas with larger black populations.

For black and white householders, the ability to act on residential preferences is also likely contingent on the availability of sufficient individual-level socioeconomic resources (Crowder 2001). According to the human capital perspective (South and Crowder 1997), higher levels of education and income should improve residential options in general, increasing the likelihood that white householders will move from racially mixed neighborhoods—especially neighborhoods containing large shares of minorities rated by whites as least desirable—into more homogenous white areas. Conversely, for black householders, socioeconomic resources should be associated with an increased likelihood of moving from racially isolated areas to generally more desired integrated neighborhoods.

Taken as a whole, past literature suggests that much of the variation in residential

mobility out of and into neighborhoods of varying racial composition is attributable to variations in individual and household characteristics that shape mobility in general, and points to several specific hypotheses:

Hypothesis 1: Based on stated residential preferences,

a. black householders will exhibit the highest level of mobility away from racially isolated neighborhoods; and
b. white householders will be more likely to leave neighborhoods with high concentrations of black, Asian, and Latino residents than to leave more homogeneously white areas.

Hypothesis 2: According to the place stratification perspective,

a. black householders will be less likely to leave, and more likely to move to, predominantly black neighborhoods than racially mixed and, especially, predominantly white neighborhoods; and
b. mobile white householders will be more likely to move to neighborhoods with large concentrations of whites than to neighborhoods with sizable concentrations of blacks and, to a lesser extent, Asians and Latinos.

Hypothesis 3: The human capital perspective suggests that high levels of education and income will

a. increase black householders' likelihood of moving to integrated and predominantly white neighborhoods; and
b. increase white householders' likelihood of moving into predominantly white neighborhoods.

Metropolitan Influences on Inter-neighborhood Migration

Despite the common focus on micro-level mobility determinants, at least two theoretical perspectives—the aforementioned place stratification model and the housing availability model (South and Crowder 1997)—suggest that metropolitan-level social, political, and economic characteristics may be crucial in defining opportunities for movement between neighborhoods of varying racial and ethnic compositions. A central tenet of the housing availability perspective is that the composition of the metropolitan-area population and characteristics of the local housing stock shape patterns of inter-neighborhood migration and resulting aggregate population patterns. For example, by increasing residential opportunities in general, and especially after the implementation of fair-housing legislation, a large supply of new housing in a metropolitan area is presumed to increase mobility and facilitate the movement of black and white households into diverse neighborhoods (Crowder and South 2005; Farley and Frey 1994; Logan et al. 2004).

The housing availability model also suggests that a metropolitan population's racial composition will affect residential outcomes for black and white householders by shaping the relative availability of neighborhoods with various combinations of racial and ethnic groups (Reibel and Regelson 2011). Thus, the likelihood of moving into a neighborhood with sizable shares of Latino, Asian, and black neighbors is contingent on the size of these populations in the metropolitan area as a whole. This effect is presumed to operate beyond micro-level residential determinants and to influence mobility outcomes similarly for black and white householders.

Moving beyond the demographic imperatives of the housing availability model, the logic of the place stratification perspective points to metropolitan characteristics that produce racially stratified residential outcomes by limiting black householders' mobility options and allowing white householders to shield themselves from residential proximity to minority populations. For example, the housing availability model implies that a high concentration of African Americans in a metropolitan area will increase opportunities for both black and white householders to move into neighborhoods with greater black representation, but the stratification approach suggests that for whites, this simple demographic effect may be

counterbalanced by an enhanced motivation to avoid having black neighbors in metropolitan areas with large black populations (Blalock 1967; Lieberson 1980). Similarly, large concentrations of Latinos or Asians in a metropolitan area may intensify whites' concerns about integration, decrease their likelihood of entering racially and ethnically mixed neighborhoods, and increase their likelihood of seeking out racially homogenous alternatives (White and Glick 1999). To the extent that whites' resistance to integration manifests in discriminatory barriers to minority homeseekers, large Asian and Latino concentrations in a metropolitan area may also reduce the likelihood that black householders will gain access to white or racially mixed areas.

According to the basic tenets of the place stratification perspective, a high level of racial residential segregation in a metropolitan area may reflect housing discrimination and the operation of stratified market conditions that impede black householders' ability to leave racially isolated neighborhoods for more integrated destinations, especially areas containing large shares of whites (Massey and Denton 1993). Racial segregation is also likely to maintain a substantial number of predominantly white neighborhoods—areas with characteristics matching residential preferences of the majority of whites (Charles 2006)—as potential destinations for white movers, thereby reducing whites' likelihood of moving into more racially diverse neighborhoods.

Along similar lines, the likelihood of moving into a multiethnic neighborhood is likely to vary with metropolitan-area population size. Compared to smaller metropolitan areas, larger metropolitan areas exhibit higher levels of residential separation of whites from Asians, Latinos, and African Americans (Logan et al. 2004), implying that minority residential options are more severely constrained in bigger metropolises. Given these constraints, metropolitan-area population size may be negatively associated with the likelihood that African American households move to areas containing sizable proportions of white residents, but it may increase this likelihood for white householders.

Metropolitan-area economic conditions, particularly the overall level of poverty, may also shape race-specific processes of residential mobility. Effects of weak economic conditions in a metropolitan area are likely to be unevenly distributed by race, such that high levels of poverty are associated with larger socioeconomic differentials between whites and blacks (cf. Jaret, Reid, and Adelman 2003). Extending the logic of the place stratification perspective, such economic differentials may motivate whites, and perhaps other groups, to maintain discriminatory practices that restrict opportunities for blacks to gain access to integrated neighborhoods and limit their own exposure to black neighbors. Similarly, because poverty and related social dislocations—deteriorated housing, high crime, and low-quality schools—tend to be concentrated in minority neighborhoods (Jargowsky 1997; Massey and Denton 1993), both black and white householders may seek to relocate to neighborhoods with fewer black residents and correspondingly more attractive residential amenities.

The stratification perspective also provides a framework for understanding the link between metropolitan functional specialization and patterns of residential segregation observed in aggregate-level studies (Farley and Frey 1994; Logan et al. 2004). Relatively low levels of segregation in metropolitan areas with large concentrations of government workers are thought to reflect the fact that these areas tend to boast highly educated and somewhat transient populations that may be least resistant to integration (Farley and Frey 1994). By contrast, in metropolitan areas dominated by manufacturing employment, population dynamics and social-structural characteristics shaped by decades of racial separation help maintain higher levels of segregation between multiple racial and ethnic groups (Logan et al. 2004) and may limit the likelihood of mobility into integrated neighborhoods.

Two other structural features of metropolitan areas—the extent of suburban development and the level of political fragmentation—may also help create contextual conditions conducive to racially disparate mobility outcomes. Suburbs have traditionally provided whites with exclusive neighborhoods from which to separate themselves from black populations (Massey and Denton 1993). However, given higher levels of suburbanization among Latinos and Asians than among blacks (Alba et al. 1999; Charles 2003), it is not clear that suburbanization provides for the same separation from non-black minority populations. The level of suburbanization in a metropolitan area is thus likely to be negatively associated with blacks' mobility into integrated neighborhoods but may have a weaker effect on, and even increase, whites' likelihood of entering a multiethnic neighborhood.

Farley and Frey (1994) argue that politically fragmented metropolitan areas encompass a multitude of suburban towns and cities that have traditionally utilized their autonomy to establish land use regulations and zoning ordinances that exclude minority-group members. The heretofore untested implication of this argument is that a high level of political fragmentation in a metropolitan area will diminish opportunities for black householders to gain access to largely white and integrated neighborhoods and may increase white mobility into relatively homogenous enclaves.

Taken together, the place stratification perspective and housing availability model suggest that a substantial proportion of the variation in mobility between increasingly diverse neighborhoods can be attributed to metropolitan areas' structural and social features. However, these two perspectives lead to distinct hypotheses:

Hypothesis 4: According to the housing availability model, among black and white householders,

a. mobility out of racially isolated areas and into more integrated neighborhoods will be positively associated with the supply of recently built housing in the metropolitan area; and
b. the likelihood of entering a neighborhood with a sizable presence of African Americans, Latinos, or Asians will be positively associated with the relative concentration of that group in the metropolitan population.

Hypothesis 5: The place stratification perspective implies that black householders' ability to escape racially isolated neighborhoods and gain access to whiter and more integrated areas will be lower in metropolitan areas with

a. larger concentrations of African Americans, Latinos, and Asians;
b. higher levels of segregation by race;
c. larger populations;
d. higher levels of poverty;
e. lower specialization in government employment;
f. higher specialization in manufacturing;
g. higher levels of suburbanization; and
h. higher levels of political fragmentation.

Hypothesis 6: The place stratification perspective also suggests that among white householders the likelihood of moving into more diverse residential neighborhoods, especially neighborhoods with large concentrations of black residents, will be lower in metropolitan areas with

a. larger concentrations of African Americans, Latinos, and Asians;
b. higher levels of segregation by race;
c. larger populations;
d. higher levels of poverty;
e. lower specialization in government employment;
f. higher specialization in manufacturing;
g. higher levels of suburbanization; and
h. higher levels of political fragmentation.

DATA AND METHODS

To test these hypotheses, we drew on multiple sources of data, including the Panel Study of Income Dynamics (PSID 2010) and the U.S. Censuses of Population and Governments. The PSID is a well-known survey of

U.S. residents and their families used frequently to study inter-neighborhood migration (e.g., Crowder and South 2005, 2008; Quillian 2002). Members of the initial panel of approximately 5,000 families were interviewed annually from 1968 through 1997 and biennially thereafter. New families were added to the panel as children and other members of original panel families formed their own households. By 2005, a cumulative total of more than 9,000 families had been included in the survey panel, providing information on more than 67,000 individuals over the course of the study.

For this study, we selected all black and white PSID respondents designated as a household head (or householders) in any survey year between 1977 and 2005.[1] Numbers of members of other racial and ethnic groups were too small, and their distribution across neighborhood types too sparse, to sustain a separate analysis. We focus on householders rather than all PSID family members to avoid counting more than once a residential move made by members of the same family. Given our focus on metropolitan influences on inter-neighborhood migration, we further selected only household heads that began and ended a migration interval (the period between successive PSID interviews) in the same metropolitan area. These selection criteria result in a sample of 5,562 black and 6,608 white householders nested within a total of 289 census-defined metropolitan areas. To make full use of the longitudinal information, we structured the data as a series of person-period migration intervals, each referring to the period between successive PSID interviews. Black householders contributed 44,808 person-intervals to the analysis and white householders contributed 57,415 intervals.

A valuable feature of the PSID is the supplemental Geocode Files that record each household's census tract and metropolitan area of residence at each survey wave. We used this information to append to each household's data record information describing the racial composition of their census tract at the beginning and end of each migration interval, as well as information describing characteristics of the broader metropolitan area. Census tracts are imperfect operationalizations of neighborhoods (Tienda 1991), but their use remains widespread in residential mobility research (e.g., Crowder et al. 2011), and they undoubtedly come closest of any commonly available spatial entity in approximating the usual conception of a neighborhood (Jargowsky 1997). We drew tract-level census data from the Neighborhood Change Data Base (NCDB), in which data from earlier censuses are normalized to tract boundaries defined for Census 2000, allowing us to produce consistent measures of census tract racial composition over the study period (GeoLytics 2008). To account for changes in tract characteristics produced, in part, by race-specific patterns of mobility, we used linear interpolation and extrapolation with endpoints defined by adjacent census years to estimate values of tract racial composition in each year between 1977 and 2005.

Measuring the dependent variables. Our analysis explores the influence of micro-level and metropolitan-area characteristics on two outcomes. The first dependent variable is a dichotomous indicator of whether PSID householders moved out of their census tract of origin between successive PSID interviews. In the typical observation interval, 18.4 percent of PSID householders moved from one census tract to another. Over the entire study period, 7,858 of the 12,170 PSID householders included in our analysis made at least one inter-tract move.

The second dependent variable is a multicategory classification of the racial composition of a householder's census tract of destination. In characterizing neighborhoods' racial composition, we drew on Fasenfest and colleagues' (2004) typology (for alternative but generally similar typologies, see Denton and Massey 1991; Friedman 2008; Galster 1998).[2] This typology, designed to capture

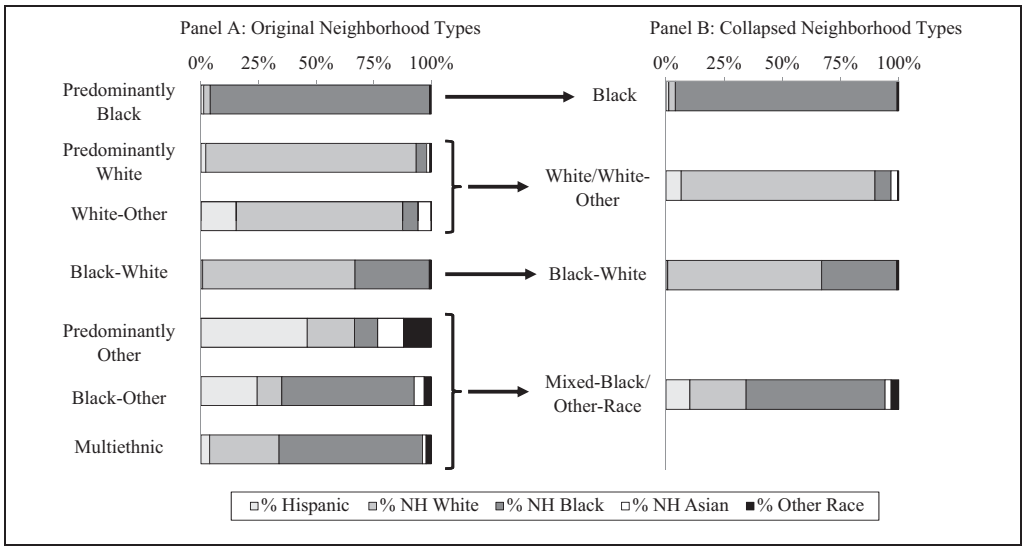

Figure 1. Average Racial/Ethnic Composition of Original and Collapsed Neighborhood Types Occupied by Black Household Heads from the Panel Study of Income Dynamics, 1977 to 2005
Note: NH = non-Hispanic.

emerging patterns of neighborhood integration, consists of seven categories: *Predominantly white* neighborhoods are tracts that are at least 80 percent non-Hispanic white and no racial/ethnic minority group represents over 10 percent of the population.[3] *Predominantly black* neighborhoods are at least 50 percent non-Hispanic black and no other racial/ethnic minority group represents over 10 percent of the population. *Predominantly other race* (hereafter *predominantly other*) neighborhoods are tracts that are at least 50 percent Hispanic or non-Hispanic Asian and no more than 10 percent non-Hispanic black. *Mixed white and other race* (hereafter *white-other race*) neighborhoods are between 10 and 50 percent Hispanic or Asian and less than 10 percent black.[4] *Mixed black and white* (hereafter *black-white*) neighborhoods are between 10 and 50 percent black, at least 40 percent white, and less than 10 percent Hispanic or Asian. *Mixed black and other race* (hereafter *black-other race*) tracts are at least 10 percent black, at least 10 percent Hispanic or Asian, and no more than 40 percent white. Finally, *mixed multiethnic* (hereafter *multiethnic*) tracts are at least 10 percent black, at least 10 percent Hispanic or Asian, and at least 40 percent white.

In Figures 1 and 2, Panel A illustrates this classification scheme; the panels display the average racial composition of the neighborhoods in which members of our PSID householder sample resided at the beginning of the observation period. For black (Figure 1) and white (Figure 2) respondents, over 93 percent of residents in the typical *predominantly black* tract were African American. White neighbors represented the largest of the remaining groups but constituted less than 3 percent of the population in the average *predominantly black* neighborhood. *Predominantly white* tracts occupied by all householders in the sample were, on average, over 90 percent white, but tracts occupied by black householders had slightly stronger African American representation (4.5 percent) than did those occupied by white householders (2.2 percent). Hispanics tended to make up the largest share of the average

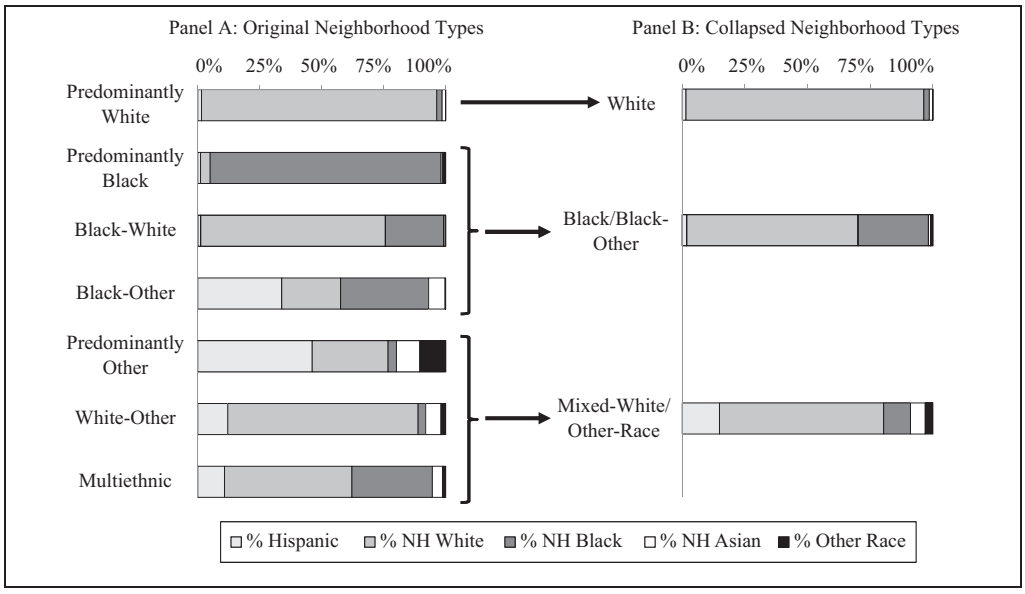

Figure 2. Average Racial/Ethnic Composition of Original and Collapsed Neighborhood Types Occupied by White Household Heads from the Panel Study of Income Dynamics, 1977 to 2005
Note: NH = non-Hispanic.

predominantly other tract occupied by both black and white householders, followed by whites and then, in roughly equal proportions, Asian and other race populations. By contrast, white residents represented a strong majority of the population at over 72 percent in *white-other* tracts occupied by both black and white householders, and Hispanics made up a large share of the remainder. Hispanics also made up the second largest share of *black-other* neighborhoods, but black householders in this type of neighborhood were exposed to higher percentages of black neighbors (57.5 percent) than were whites in similarly classified areas (35.49 percent). As expected, black and white populations made up the largest share of *black-white* tracts, with other groups represented in very small numbers. Blacks and whites were also the largest groups in the average *multiethnic* neighborhood, although the relative distribution of these groups varied by householder race, with each group sharing their multiethnic neighborhood with larger shares of their own race. Thus, even among respondents who occupied areas falling into the same compositional category, black and white householders experienced notable differences in neighborhood racial context.

Measuring the independent variables. Our focal explanatory variables measure the demographic and ecological structure of the metropolitan areas in which PSID householders resided, as well as a series of individual- and household-level characteristics shown in past research to affect residential mobility outcomes. Table A1 in the Appendix presents descriptive statistics for all of these variables. All predictors refer to characteristics as of the beginning of the specific migration interval.

Our primary measures of individual socioeconomic status refer to a householder's educational attainment, measured by completed years of schooling, and a family's total taxable income, in constant 2000 dollars, relative to their census-determined needs. A dummy variable distinguishes employed householders from

nonemployed householders. Householder's age is measured continuously in years and sex is a dummy variable scored 1 for female household heads. Married respondents (and long-term cohabitors) are distinguished from unmarried respondents by a dummy variable.[5] The number of children under age 18 years in a household is measured continuously. Homeowners are distinguished from renters with a dummy variable taking a value of 1 for respondents living in an owner-occupied dwelling. Household crowding is measured by the number of persons per room in the dwelling. To capture secular trends in migration, we include survey year as a continuous variable. We include a separate dummy variable for survey years beginning in 1995 to accommodate the PSID's shift to biennial interviews, because after this date migration intervals refer to a two-year, rather than single year, span. To facilitate interpretation of their effects, all continuous independent variables are grand mean centered.

Our analysis includes measures of several metropolitan-area characteristics. We measure metropolitan-area population size in logged form to reduce skewness. We also include percentages of the metropolitan-area population that are Hispanic, Asian, and non-Hispanic black, and the percentage living in households with an income below the poverty level. Our measures of metropolitan-area industrial structure refer to the percentage of the labor force employed in manufacturing and the percentage working in local, state, or federal government. We measure new housing construction by the proportion of housing units built in the prior 10 years. All of these variables are computed from the 1980, 1990, and 2000 U.S. Census of Population and Housing Summary Files (U.S. Department of Commerce 1984, 1992, 2004). We also use these data to measure local levels of residential segregation, using the index of dissimilarity to characterize residential separation of blacks from whites across tracts of the metropolitan area (Massey and Denton 1993).

The percentage of a metropolitan-area population residing in the suburban ring of the metropolitan area is taken from the U.S. Department of Housing and Urban Development's *State of the Cities Data Systems* (2009). Our measure of political fragmentation, adapted from Bischoff (2008), uses data on the number and size of municipal governments in each metropolitan area as given in the U.S. Census of Governments (U.S. Department of Commerce 2008). This measure captures the probability that two randomly selected individuals from the same metropolitan area live in different municipalities. A score of 1.0 on the measure represents complete fragmentation, in which all metropolitan-area residents live in different municipal districts, and a score of zero represents complete incorporation of all individuals into a single metropolitan-wide municipality.

Analytic strategy. Following past research treating residential mobility as a two-stage process (Massey et al. 1994), we estimate separate sets of models for the decision to leave a neighborhood and the choice of destinations. For the first stage, we estimate race-specific multilevel logistic regression models predicting the odds that householders will move out of their origin census tract over the interval.

For the second stage, we select householders who moved out of their census tract and estimate race-specific multilevel multinomial regression models of the racial composition of the destination tract. Use of a multinomial model is necessitated by the fact that our dependent variable consists of multiple unordered nominal neighborhood categories; use of a multilevel modeling strategy reflects the hierarchical structure of the data (Raudenbush and Bryk 2002) and our interest in disaggregating the relative effects of metropolitan and micro-level characteristics on household mobility patterns. Because models in the second stage of the analysis are based only on inter-tract movers, we include a Heckman correction (inverse Mills ratio)

Table 1. Residential Change Matrix: Black Household Heads from the Panel Study of Income Dynamics, 1977 to 2005

			Destination Neighborhood for Movers						
Origin Neighborhood	Total	Movers	Pred. White	Pred. Black	Pred. Other	White-Other	Black-White	Black-Other	Multi-ethnic
Pred. White	1,936	471	128	115	1	26	131	16	54
%			*27.2*	*24.4*	*.2*	*5.5*	*27.8*	*3.4*	*11.5*
Pred. Black	17,009	3,684	74	2,245	18	29	346	276	696
%			*2*	*60.9*	*.5*	*.8*	*9.4*	*7.5*	*18.9*
Pred. Other	510	130	2	16	31	10	2	61	8
%			*1.5*	*12.3*	*23.9*	*7.7*	*1.5*	*46.9*	*6.2*
White-Other	930	283	20	26	14	97	15	70	41
%			*7.1*	*9.2*	*5*	*34.3*	*5.3*	*24.7*	*14.5*
Black-White	6,809	1,505	143	593	3	15	527	44	180
%			*9.5*	*39.4*	*.2*	*1*	*35*	*2.9*	*12*
Black-Other	5,623	1,270	13	204	50	78	45	652	228
%			*1*	*16.1*	*3.9*	*6.1*	*3.5*	*51.3*	*18*
Multiethnic	11,991	2,597	114	1,141	14	75	476	221	556
%			*4.4*	*43.9*	*.5*	*2.9*	*18.3*	*8.5*	*21.4*
Total	44,808	9,940	494	4,340	131	330	1,542	1,340	1,763
%			*5*	*43.7*	*1.3*	*3.3*	*15.5*	*13.5*	*17.7*

Note: Entries are cell counts followed by row percentages. Neighborhood types are defined as follows:
1. Pred. White = predominantly white tract: ≥ 80% white; ≤ 10% each black, Hispanic, Asian, other race.
2. Pred. Black = predominantly black tract: ≥ 50% black; ≤ each 10% white, Hispanic, Asian, other race.
3. Pred. Other = predominantly other-race tract: ≥ 50% Hispanic or Asian; ≤ 10% black.
4. White-Other = mixed white and other-race tract: between 10% and 50% Hispanic or Asian; ≤ 10% black.
5. Black-White = mixed white and black tract: between 10% and 50% black; ≥ 10% Hispanic or Asian.
6. Black-Other = mixed black and other-race tract: ≥ 10% black; ≥ 10% Hispanic or Asian; ≤ 40% white.
7. Multiethnic = mixed multiethnic tract: ≥ 10% black; ≥10% Hispanic or Asian; ≥ 40% white.

for the selection of householders into the mover category. The model used to generate the sample selection term includes all of the individual-level predictors in the out-migration models. The multilevel models, estimated in Mplus, utilize a Full Information Maximum Likelihood estimator with a Huber-White covariance adjustment (Muthén and Muthén 2009) to account for any additional non-independence of observations.

RESULTS

Patterns of Inter-neighborhood Mobility

Table 1 presents the distribution of black householders across the various types of neighborhoods at the beginning of the observation period and a residential change matrix—the cross-classification of tract

racial-composition type at origin and destination. The change matrix includes only those black PSID householders in our sample who moved to a different tract during the interval. Observations on the diagonal thus represent moves between neighborhoods of the same compositional type, and those in the off-diagonal cells represent moves between different types of tracts.

The Total column in Table 1 shows that a plurality of black householders originated in tracts with relatively large concentrations of other blacks. Specifically, almost 38 percent (17,009/44,808) of black person-intervals originated in a *predominantly black* tract, 13 percent (5,623/44,808) originated in a *black-other* tract, and 27 percent (11,991/44,808) originated in a *multiethnic* tract where, according to results presented in Panel A of Figure 1, African Americans also represent the largest group. By contrast, very few black mobility intervals originated in a *predominantly white* (4 percent) or *white-other* (2 percent) tract.

Transition percentages in the body of Table 1 show that black mobility patterns tend to reinforce existing residential segregation. For example, of the black households originating in a *predominantly white* tract, over 24 percent (471/1,936) moved during the observation period and, of those, almost three-quarters [(471 – 128)/471] moved to something other than a *predominantly white* tract. Areas with the largest concentrations of African Americans—*predominantly black* (24.4 percent) and *black-white* (27.8 percent) tracts—were the most common destinations for black householders moving away from *predominantly white* tracts. By contrast, of the 21 percent (3,684/17,009) of black households originating in a *predominantly black* tract who moved during the interval, over 60 percent moved to another *predominantly black* tract, and relatively few moved to areas with strong representation of white neighbors. Fewer than 2 percent (n = 74) of these households moved to a *predominantly white* tract, fewer than 1 percent (n = 29) moved to a *white-other* tract, and fewer than 10 percent (n = 346) moved to a *black-white* area. When blacks did transition out of a *predominantly black* tract, their most likely destinations were *multiethnic* tracts (n = 696) where, according to statistics presented in Panel A of Figure 1, African Americans tend to be the largest group. Patterns of migration out of *black-white* tracts also tend to bolster black isolation. When black households move out of such tracts, they are almost four times as likely to move to a *predominantly black* tract (39.4 percent) as to a *predominantly white* tract (9.5 percent).

Table 2 shows parallel neighborhood transitions for white householders. The Total column shows that a majority [(36,335/57,415) x 100 = 63 percent] of white person-year intervals began in a *predominantly white* tract and very few originated in tracts with a sizable representation of black neighbors; about 11 percent (6,441/57,415) originated in a *black-white* tract and only about 1 percent began in either a *predominantly black* (.15 percent = 85/57,415) or a *black-other* (.91 percent = 520/57,415) tract. Table 2 shows somewhat greater exposure of white householders to non-black minorities. About 17 percent (9,879/57,415) of white observations originated in a *white-other* tract, representing the second largest origin-neighborhood category for white householders.

As with patterns of black inter-neighborhood migration, white transitions between neighborhoods of varying racial composition tend to sustain, and even exacerbate, residential segregation, especially between blacks and whites. For example, Table 2 shows that relatively few whites—about 14 percent (4,987/36,335)—moved out of a *predominantly white* tract during a typical mobility interval. When whites did move, they almost always relocated to a *predominantly white* (74.9 percent) or *white-other* (11.6 percent) tract—two neighborhood types in which whites tend to be the majority (see Panel A of Figure 2). Few whites moving from a *predominantly white* tract moved to a tract with

Table 2. Residential Change Matrix: White Household Heads from the Panel Study of Income Dynamics, 1977 to 2005

			Destination Neighborhood for Movers						
Origin Neighborhood	Total	Movers	Pred. White	Pred. Black	Pred. Other	White-Other	Black-White	Black-Other	Multi-ethnic
Pred. White	36,335	4,987	3,734	73	34	579	433	14	120
%			*74.9*	*1.5*	*.7*	*11.6*	*8.7*	*.3*	*2.4*
Pred. Black	85	12	5	1	0	1	4	1	0
%			*41.7*	*8.3*	*0*	*8.3*	*33.3*	*8.3*	*0*
Pred. Other	1,011	182	22	1	56	79	1	8	15
%			*12.1*	*.6*	*30.8*	*43.4*	*.6*	*4.4*	*8.2*
White-Other	9,879	1,803	442	8	99	1,045	33	34	142
%			*24.5*	*.4*	*5.5*	*58*	*1.8*	*1.9*	*7.9*
Black-White	6,441	1,070	574	64	8	50	313	7	54
%			*53.6*	*6*	*.8*	*4.7*	*29.3*	*.7*	*5.1*
Black-Other	520	113	19	0	11	36	3	15	29
%			*16.8*	*0*	*9.7*	*31.9*	*2.7*	*13.3*	*25.7*
Multiethnic	3,144	656	212	32	14	139	94	32	133
%			*32.3*	*4.9*	*2.1*	*21.2*	*14.3*	*4.9*	*20.3*
Total	57,415	8,823	5,008	179	222	1,929	881	111	493
%			*56.8*	*2*	*2.5*	*21.9*	*10*	*1.3*	*5.6*

Note: Entries are cell counts followed by row percentages. Neighborhood types are defined as follows:
1. Pred. White = predominantly white tract: ≥ 80% white; ≤ 10% each black, Hispanic, Asian, other race.
2. Pred. Black = predominantly black tract: ≥ 50% black; ≤ each 10% white, Hispanic, Asian, other race.
3. Pred. Other = predominantly other-race tract: ≥ 50% Hispanic or Asian; ≤ 10% black.
4. White-Other = mixed white and other-race tract: between 10% and 50% Hispanic or Asian; ≤ 10% black.
5. Black-White = mixed white and black tract: between 10% and 50% black; ≥ 10% Hispanic or Asian.
6. Black-Other = mixed black and other-race tract: ≥ 10% black; ≥ 10% Hispanic or Asian; ≤ 40% white.
7. Multiethnic = mixed multiethnic tract: ≥ 10% black; ≥10% Hispanic or Asian; ≥ 40% white.

a substantial presence of blacks. Of these households, only 1.5 percent went to a *predominantly black* tract, fewer than 1 percent went to a *black-other* tract, and 8.7 percent went to a *black-white* tract where, again, whites tend to be the largest group. More generally, white householders were more likely to move out of relatively diverse neighborhoods—especially *multiethnic* and *black-other* neighborhoods (20.8 and 21.7 percent out-mobility, respectively)—than more homogeneous areas—particularly *predominantly white* neighborhoods (13.7 percent out-mobility). And the most common destinations for mobile white householders from all types of origins tended to be *predominantly white* and *white-other* tracts (56.8 and 21.9 percent of all white moves, respectively).

Tables 1 and 2 show that although integrated neighborhoods have become increasingly common in metropolitan areas

(Fasenfest et al. 2004; Friedman 2008), most white and black householders reside outside of these neighborhoods, and moves into highly diverse neighborhoods are rare. Indeed, in a few instances we observe almost no moves between neighborhood types. For example, only a single black householder moved from a *predominantly white* to a *predominantly other-race* tract (Table 1), and no whites moved from a *predominantly black* to a *predominantly other-race* tract (Table 2). Given these sparse transition patterns, it is substantively questionable and analytically impractical to examine each of the neighborhood types highlighted by Fasenfest and colleagues (2004) and others separately in the multivariate analyses of mobility behavior.

Consequently, in subsequent analyses we collapsed these neighborhood types into a smaller set of categories. In doing so, we grouped tracts that shared key compositional characteristics (Figures 1 and 2), that were affected by similar patterns of race-specific migration (Tables 1 and 2), and for which key theoretical arguments held similar implications. For blacks, we combined the *predominantly white* and *white-other race* neighborhood types into a category called *white/white-other* to retain the test of theoretical arguments related to black access to "whiter" neighborhoods. We combined *predominantly other, black-other race*, and *multiethnic* types into a category called *mixed-black/other-race*. The *predominantly black* (hereafter referred to simply as *black*) and *black-white* categories remained separate and unchanged. Panel B of Figure 1 presents the average racial compositions of these re-categorized neighborhood types for black householders.

As summarized in Panel B of Figure 2, for whites, we combined three neighborhood types that, by definition, contain sizeable representation of blacks—*predominantly black, black-white*, and *black-other race*—into a single category called *black/black-other*. The *predominantly other, white-other race*, and *multiethnic* neighborhood types were grouped into a category called *mixed-white/other-race*. The *predominantly white* neighborhood type was left unchanged and is referred to hereafter as *white*.

Determinants of Neighborhood Out-Migration

The remainder of the analysis tests hypotheses related to factors that shape mobility between these types of neighborhoods. Table 3 presents results of the binary logistic multilevel regression models predicting the log-odds that a PSID household will move out of the origin tract over the migration interval as a function of micro-level characteristics, neighborhood racial composition (as measured by the collapsed neighborhood categories), and metropolitan structural conditions.

A comparison of the two models in Table 3 shows that a common set of individual-level characteristics predicts neighborhood out-migration for black and white householders in ways consistent with past research on the topic. For both black and white householders, the odds of moving from the census tract of origin declined significantly with education but increased significantly with relative income, likely reflecting the greater residential opportunities available to households with more economic resources. Likelihood of moving also declined significantly with age and number of children and was significantly lower for married householders, homeowners, and employed persons. Net of the effects of these and other predictors, there was a significant upward secular trend in the rate of inter-tract migration, as indicated by the significant positive coefficient for *year*. The coefficient for the dummy variable *year 1995+* indicates that the likelihood of moving was greater in observation periods after 1995, when the change in the frequency of PSID interviews necessitated a shift to two-year migration intervals from the one-year intervals in earlier years of the study.

Coefficients for origin-tract characteristics indicate that for blacks and whites, the

Table 3. Multilevel Logistic Regression Models of Migration Out of Origin Neighborhood, by Race: Black and White Household Heads from the Panel Study of Income Dynamics, 1977 to 2005

	Black Householders		White Householders	
Independent Variables	β	(s.e.)	β	(s.e.)
Micro-Level Characteristics				
Education (in years)	−.013*	(.006)	−.031***	(.006)
Ratio of Family Income to Need	.025*	(.011)	.016**	(.005)
Age	−.046***	(.002)	−.049***	(.001)
Female (1 = yes)	.038	(.059)	.129***	(.042)
Married (1 = yes)	−.233***	(.053)	−.378***	(.038)
Number of Children	−.056**	(.016)	−.155***	(.017)
Homeowner (1 = yes)	−1.183***	(.044)	−1.166***	(.040)
Persons per Room	.254***	(.030)	.322***	(.037)
Employed (1 = yes)	−.068*	(.028)	−.241***	(.040)
Year	.030***	(.007)	.017**	(.005)
Year ≥ 1997 (1 = yes)	.649***	(.053)	.726***	(.057)
Origin Tract Characteristics				
White/White-Other (ref. Black)	.180**	(.065)		
Black-White (ref. Black)	.334***	(.071)		
Mixed-Black/Other-Race (ref. Black)	.087	(.049)		
Black/Black-Other (ref. White)			.119*	(.056)
Mixed-White/Other-Race (ref. White)			.150**	(.053)
Metropolitan Area Characteristics				
% Hispanic	−.005	(.005)	−.006	(.004)
% Asian	−.028**	(.010)	−.001	(.007)
% Black	−.002	(.006)	−.007	(.004)
Black-White Residential Segregation	−.005	(.005)	.002	(.003)
% in Poverty	−.006	(.016)	.004	(.010)
% of Labor Force in Manufacturing	.007	(.009)	.003	(.005)
% of Labor Force in Local, State, or Federal Government	−.010	(.010)	−.001	(.006)
% New Housing	.013**	(.005)	.018***	(.004)
% Pop. Living in Suburban Area	−.001	(.002)	.000	(.002)
Municipal Fragmentation	.050	(.221)	−.318	(.165)
Population Size (ln)	.164**	(.058)	.089*	(.038)
Intercept	−1.263***	(.077)	−1.112***	(.060)
MSA Variance Components	.106		.063	
N Level-One	44,808		57,415	
N Level-Two	174		283	

Note: Neighborhood types are defined separately for black and white observations (see Figures 1 and 2). See Table 1 note for descriptions of original categories.
*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

likelihood of moving was significantly associated with racial composition of the origin neighborhood. Consistent with Hypothesis 2a but contradicting competing Hypothesis 1a, black householders initially living in *white/white-other* and *black-white* tracts were significantly more likely than those living in isolated *black* tracts to move out of their neighborhood, even net of significant micro-level determinants of mobility. Supporting

Hypothesis 1b, white households living in *black/black-other* or *mixed-white/other-race* tracts were significantly more likely than white households living in *white* tracts to move out, and this does not appear to be a function of differences in individual- or household-level characteristics of respondents residing in different types of tracts. The similarity of the coefficients for the two neighborhood-origin types suggests that whites were about as likely to leave ''black'' neighborhoods as they were to leave non-black minority neighborhoods.

Net of the influence of origin-tract characteristics and micro-level mobility determinants, three of the ten metropolitan-area characteristics were significantly associated with out-migration. Households in metropolitan areas with large populations and substantial supplies of new housing were significantly more likely to move from their neighborhoods. Black householders were also less likely to move if their metropolitan area contained large shares of Asian residents.

Modeling Destination Neighborhood Racial Composition

The theoretical arguments guiding our analysis suggest that neighborhood out-migration is only part of the story; how micro-level and metropolitan characteristics affect the likelihood of moving to a destination neighborhood of a particular racial composition is crucial for understanding the factors shaping change and stability in integrated neighborhoods and, by extension, broader patterns of segregation. Accordingly, Table 4 presents results of the race-specific multinomial, multilevel regression models of destination tract racial composition. As noted earlier, these models are based only on households that moved from their origin tract, but they include a correction for selection into this mover status (captured by the inverse Mills ratio [λ]).

Model 1 of Table 4 shows results for mobile black householders. In this multinomial model, mobility into a *white/white-other* tract, a *black-white* tract, and a *mixed-black/other-race* tract are each contrasted separately with mobility to a *black* tract (on average over 95 percent black). Results show that the most consistent individual-level predictors of destination-tract racial composition for blacks were those related to individual socioeconomic conditions. In line with the human capital perspective (Hypothesis 3a), education and relative income were significantly and positively associated with the likelihood of moving into a more integrated neighborhood—a *white/white-other* or a *black-white* tract—than into a racially isolated destination. For example, a one-standard-deviation difference in the family income-to-needs ratio was associated with a 29 percent increase ($e^{.173x1.49} = 1.294$) in the odds that a mobile black householder would move to a *white/white-other* tract instead of a predominantly *black* neighborhood. Highly educated black householders were also more likely than those with less education to move to a *mixed-black/other-race* tract than to a *black* tract.

Net of socioeconomic characteristics and contextual conditions, few other micro-level controls significantly affected black movers' destinations. Number of children in a household was significantly and inversely associated with moving to a *white/white-other* tract rather than a *black* tract, and the odds of moving to a *black-white* tract versus a *black* tract were 15 percent lower ($e^{-.163} = .850$) among households headed by black women than among those headed by black men. As indicated by the positive and significant coefficient for the sample selection term (inverse Mills ratio [λ]) in contrasts 1 and 2 of Model 1, black households with a high latent probability of moving were more likely to move to a *white/white-other* or a *black-white* tract than to a *black* tract.

Given the social and physical proximity of racially similar neighborhoods, it is not surprising that the tract of origin's racial composition was significantly associated with

Table 4. Multilevel Multinomial Regression Models of the Racial Composition of Destination Neighborhood, by Race: Mobile Black and White Household Heads from the Panel Study of Income Dynamics, 1977 to 2005

	Model 1: Black Movers						Model 2: White Movers			
	(1) White/White-Other vs. Black		(2) Black-White vs. Black		(3) Mixed-Black/ Other-Race vs. Black		(1) Black/Black-Other vs. White		(2) Mixed-White/ Other Race vs. White	
Independent Variables	β	(s.e)	β	(s.e)	β	(s.e)	β	(s.e)	β	(s.e)
Micro-Level Characteristics										
Education (in years)	.091***	(.024)	.046**	(.017)	.048**	(.017)	–.003	(.017)	–.020	(.018)
Ratio of Family Income to Need	.173***	(.037)	.139***	(.031)	.052	(.039)	–.132***	(.029)	–.047**	(.018)
Age	–.027	(.015)	–.016*	(.008)	.007	(.011)	.018	(.011)	.006	(.010)
Female (1 = yes)	–.207	(.107)	–.163*	(.068)	–.078	(.095)	–.123	(.099)	.152*	(.070)
Married (1 = yes)	.040	(.125)	–.118	(.088)	.004	(.112)	–.064	(.132)	.042	(.110)
Number of Children	–.141**	(.046)	–.036	(.044)	.007	(.032)	.019	(.052)	–.014	(.047)
Homeowner (1 = yes)	–.116	(.325)	–.113	(.216)	.370	(.284)	.390	(.272)	.133	(.247)
Persons per Room	.109	(.154)	.124	(.094)	.067	(.084)	.078	(.116)	.055	(.115)
Employed (1 = yes)	.102	(.125)	.176	(.109)	.035	(.091)	–.011	(.118)	–.084	(.122)
Year	–.001	(.025)	.002	(.016)	–.031	(.020)	–.028*	(.012)	–.001	(.013)
Inverse Mills Ratio	1.465*	(.693)	1.014**	(.384)	–.452	(.562)	–1.018	(.530)	–.414	(.462)
Origin Tract Characteristics										
White/White-Other (ref. Black)	2.523***	(.285)	1.358***	(.180)	.286	(.268)				
Black-White (ref. Black)	1.364***	(.204)	1.011***	(.145)	.009	(.186)				
Mixed-Black/Other-Race (ref. Black)	.853***	(.180)	.671***	(.103)	.613***	(.146)				
Black/Black-Other (ref. White)							.631***	(.121)	.359**	(.117)
Mixed-White/Other-Race (ref. White)							.623***	(.125)	1.085***	(.142)
Metropolitan Area Characteristics										
% Hispanic	.080***	(.017)	–.109***	(.025)	.102***	(.018)	.059**	(.018)	.098***	(.010)
% Asian	.027	(.045)	–.124*	(.057)	.096*	(.044)	.021	(.067)	.172***	(.028)
% Black	–.091***	(.016)	–.035**	(.012)	–.048**	(.016)	.117***	(.009)	.007	(.008)
Black-White Residential Segregation	–.060***	(.015)	–.066***	(.010)	–.057***	(.016)	–.010	(.010)	–.029***	(.007)

(continued)

Table 4. (*continued*)

	Model 1: Black Movers						Model 2: White Movers			
	(1) White/White-Other vs. Black		(2) Black-White vs. Black		(3) Mixed-Black/Other-Race vs. Black		(1) Black/Black-Other vs. White		(2) Mixed-White/Other Race vs. White	
Independent Variables	β	(s.e)	β	(s.e)	β	(s.e)	β	(s.e)	β	(s.e)
% in Poverty	−.186***	(.038)	−.100***	(.029)	−.181**	(.052)	−.034	(.022)	−.033	(.022)
% of Labor Force in Manufacturing	−.043*	(.019)	−.065***	(.018)	−.064**	(.023)	.019	(.011)	−.033**	(.011)
% of Labor Force in Local, State, or Federal Government	−.046	(.026)	−.043*	(.017)	−.120**	(.037)	.025	(.015)	−.007	(.017)
% New Housing	−.031*	(.012)	−.018	(.010)	−.024*	(.012)	.012	(.011)	.030***	(.008)
% Pop. Living in Suburban Area	−.028***	(.008)	−.026***	(.006)	−.033***	(.008)	.000	(.004)	−.002	(.003)
Municipal Fragmentation	−.251	(.620)	.706	(.498)	−.203	(.696)	.342	(.383)	−.020	(.302)
Population Size (ln)	−.546**	(.159)	−.343**	(.107)	−.262	(.176)	−.105	(.116)	.181	(.094)
Intercept	−3.582***	(.751)	−2.568***	(.401)	.351	(.582)	−.837	(.531)	−.885*	(.436)
MSA Variance Components	.734		.331		.816		.442		.288	
MSA Covariances	Cov (1,2) = .357 Cov (2,3) = .410 Cov (1,3) = .621						Cov (1,2) = −.190			
N Level-One	9,940						8,823			
N Level-Two	139						250			

Note: Neighborhood types are defined separately for black and white observations (see Figures 1 and 2). See Table 1 note for descriptions of original categories.
*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

destination type. Black households that originated in a *white/white-other, black-white*, or *mixed-black/other-race* tract rather than a *black* tract were significantly more likely to move into a *white/white-other* (contrast 1) or *black-white* (contrast 2) tract than to a *black* tract. Black households who began the interval in a *mixed-black/other-race* tract were significantly more likely than those who began in a *black* tract to move to a different *mixed-black/other-race* tract rather than to a *black* tract (contrast 3). Overall, households tended to move to destinations that were similar to their origins in terms of racial composition, although the divide was particularly stark between predominantly black neighborhoods and other types of neighborhoods.[6]

In contrast to the generally modest effects of the individual-level characteristics, most of the metropolitan characteristics in Model 1 are significant predictors of black movers' destinations. Consistent with basic tenets of the housing availability model (Hypothesis 4a), the relative concentration of Hispanics in a metropolitan area was negatively associated with the likelihood that mobile black householders entered a *black-white* neighborhood (contrast 2) but positively associated with the likelihood of entering an area with strong representation of non-black/non-white groups—either a *white/white-other* (contrast 1) or a *mixed-black/other-race* tract (contrast 3)—rather than a *black* tract. These effects were mirrored by similar, but generally weaker, effects of the percent Asian in the metropolitan area. Concentration of African Americans in a metropolitan area appears to decrease the likelihood of mobile blacks entering more integrated neighborhoods—that is, neighborhoods containing sizable shares of whites or members of other groups—rather than racially isolated neighborhoods.

Other metropolitan-level effects in Table 4 are more clearly in line with arguments drawn from the stratification perspective. Supporting Hypothesis 5b, the level of residential segregation in a metropolitan area was negatively and significantly associated with the likelihood that mobile black householders would gain access to any of the three more integrated neighborhood types versus moving to a *black* tract. This effect was quite strong. For example, a 10-point difference (just under one standard deviation) in the level of black-white residential segregation decreased the odds of moving into a *white/white-other* tract by about 45 percent ($1 - e^{-.060 \times 10} = .451$).

High metropolitan-area poverty rates had similar effects, significantly reducing blacks' likelihood of moving into *white/white-other, black-white*, or *mixed-black/other-race* tracts. These effects are consistent with the argument, summarized in Hypothesis 5d, that blacks face especially severe barriers to integration in metropolitan areas in which black populations and black neighborhoods are marked by economic disadvantage. Such barriers also appear more likely to arise under certain spatial and industrial arrangements. In metropolitan areas with high levels of manufacturing employment or relatively large suburban rings, black households were significantly less likely to move to a *white/white-other, black-white*, or *mixed-black/other-race* tract than to a *black* tract. These effects are consistent, respectively, with Hypotheses 5f and 5g and suggest that suburbanization and manufacturing activity increase levels of racial residential stratification in part by funneling black migrants into predominantly black destinations.

Contrary to results of aggregate-level studies, once micro-level characteristics and other features of metropolitan areas are controlled, an abundance of new housing in a metropolitan area was actually associated with a lower likelihood that mobile black householders would move into a *white/white-other* (contrast 1) or *mixed-black/other-race* (contrast 3) tract than into a *black* tract. Similarly, contrary to Hypothesis 5e, there was a net *negative* association between the concentration of government workers and the relative likelihood that mobile blacks would enter *black-white* (contrast 2) or *mixed-black/other-race* (contrast 3) destinations. However, even net of other metropolitan-area

characteristics, the size of the metropolitan-area population was significantly and inversely associated with black households' odds of moving to a *white/white-other* or a *black-white* neighborhood (contrasts 1 and 2). These effects are consistent with aggregate-level studies and Hypothesis 5c, derived from the place stratification perspective.

Model 2 of Table 4 presents the analysis of destination types for mobile white householders. This model contrasts the likelihood of moving to a *white* census tract (typically almost 95 percent white, as shown in Figure 2) with the likelihood of moving to a *black/black-other* tract (*predominantly black, black-white,* and *black-other* combined) and, separately, moving to a *mixed-white/other-race* tract (*predominantly other, white-other,* and *multiethnic* combined).

As among black householders, micro-level characteristics were fairly weak predictors of the racial composition of mobile whites' destination neighborhoods. In contrast to effects of economic resources among blacks, the negative coefficients for family income-to-needs indicate that white householders with greater economic resources were *less* likely than lower-income whites to move to an integrated neighborhood—either a *black/black-other* (contrast 1) or a *mixed-white/other-race* tract (contrast 2)—than to a *white* tract. Consistent with Hypothesis 3b, economic resources appear to enhance whites' ability to shield themselves from exposure to minority neighbors by providing access to *white* neighborhoods.

Other than income, only one other individual-level characteristic emerged as a significant predictor of white destinations: the odds of moving to a *mixed-white/other-race* versus a *white* neighborhood were about 16 percent ($e^{.152} = 1.164$) higher among households headed by white females than among households headed by white males.

Despite evidence of growing racial tolerance among white survey respondents (Charles 2006), we find, net of sociodemographic and contextual factors, a significant net downward trend in white households' propensity to move to a tract with significant shares of African Americans, as evidenced by the small but statistically significant coefficient for the year of observation in the contrast between *black/black-other* and *white* tracts (contrast 1).

As was the case among blacks, the origin tract's racial composition was a significant predictor of the destination tract's racial composition. In comparison to white households that began the migration interval in a *white* tract, the rare individuals who started in a *black/black-other* tract experienced 88 percent ($e^{.631} = 1.879$) higher odds of moving to a *black/black-other* tract (contrast 1) and about 43 percent ($e^{.359} = 1.432$) higher odds of moving to a *mixed-white/other-race* tract (contrast 2) than to a *white* tract. Similarly, originating in a *mixed-white/other-race* instead of a *white* tract almost doubled the odds of ending up in a *black/black-other* tract ($e^{.623} = 1.865$) and almost tripled the odds of moving to a *mixed-white/other-race* tract ($e^{1.085} = 2.959$) instead of a *white* tract.

Most of the metropolitan-area characteristics were also significantly associated with the racial composition of mobile white households' destination tracts, but more of these characteristics were related to moves into *mixed-white/other-race* tracts (versus *white* tracts) than moves into *black/black-other* tracts. Only the sizes of a metropolitan area's Hispanic and black populations were significantly (and positively) associated with the odds of moving to a *black/black-other* tract (contrast 1). Supporting expectations derived from the housing availability model (Hypothesis 4b), but not the place stratification theory (Hypothesis 6a), the likelihood that mobile white householders would enter a neighborhood with sizable shares of black neighbors, even in combination with other racial/ethnic populations, was significantly greater in metropolitan areas with larger black and Hispanic populations.

Several features of the metropolitan context affected the likelihood that whites would move into *mixed-white/other-race* tracts (contrast 2)—that is, areas containing significant shares of non-black minority populations (see Figure 2). These influences were consistent with theoretical predictions, with at least some reflecting the relative distribution of various types of neighborhood options as implied in Hypothesis 4b. For example, relative odds of moving to a *mixed-white/other-race* tract increased significantly with the size of the Asian and Hispanic populations in a metropolitan area, presumably because such demographic conditions increased the proportion of tracts in the area with significant shares of Asian and Hispanic residents.

Consistent with Hypothesis 4a, also derived from the housing availability model, the odds of whites moving into a *mixed-white/other-race* tract were higher in metropolitan areas with a relative abundance of new housing. This suggests that the net influence of new housing construction on residential integration observed in aggregate-level studies operates not by increasing the likelihood that white householders will move to neighborhoods with sizable black populations, but rather by increasing the likelihood that they will move to destinations with substantial non-black minority representation.

Other effects provide support for hypotheses drawn from the place stratification perspective. Consistent with Hypothesis 6b, the odds that white movers would enter an integrated neighborhood declined with the level of residential segregation in a metropolitan area, presumably because more segregated metropolitan areas provided ample predominantly-white neighborhood options in which white householders might shield themselves from non-white neighbors. Moreover, mirroring effects among black movers and supporting Hypothesis 6f, the likelihood that whites moved to an integrated neighborhood declined significantly with the concentration of manufacturing workers in a metropolitan area. A one-standard-deviation difference in the percent of the labor force employed in manufacturing was associated with a 24 percent reduction ($e^{-.033x8.21} = .763$) in the odds that a white householder moved to a *mixed-white/other-race* tract instead of a *white* tract.

Overall, results of the regression analyses suggest that metropolitan-area characteristics play pivotal roles in shaping mobility between neighborhoods of varying racial characteristics. This central finding is reinforced by the model fit statistics presented in Table 5. Here we exploit the multilevel nature of our data by decomposing the variance structure of the data to determine the extent to which the likelihood of moving, and the likelihood of choosing a particular type of destination, varied across rather than within metropolitan areas. In addition, comparison of statistics across nested models allows us to assess the extent to which predictors in our models explain the variation in our outcomes across metropolitan areas (level-two variance).

Both the intraclass correlation (ICC) and the median odds ratio (MOR) (Larsen and Merlo 2005) for the intercept-only model presented in Table 5 point to substantial variation in mobility patterns across metropolitan areas.[7] According to the ICC for the intercept-only models predicting out-migration, about 7 percent of the variance in the odds of changing tracts for black householders existed across metropolitan areas. Comparing level-two variance components across various model specifications shows that about 55 percent ([.259 – .117]/.259 = .548) of this between-metropolitan-area variation in neighborhood out-migration was accounted for by differences in individual-level characteristics of residents in different metropolitan areas. Metropolitan characteristics explain 9 percent ([.117 – .106]/.117 = .094) of the remaining variation. Similar levels of between-metropolitan-area variation and explanatory power of metropolitan characteristics were evident among white householders.

Inter-metropolitan variation in destination outcomes was much more pronounced than

Table 5. Selected Fit Statistics from Models of Inter-neighborhood Migration: Black and White Household Heads from the Panel Study of Income Dynamics, 1977 to 2005

Model Specifications	Level-Two Variance	ICC	MOR	AIC[a]
Out-Migration Models for Blacks				
1. Intercept-only model	.259	.073	1.625	46852.362
2. Individual characteristics	.117	.034	1.386	40920.683
3. Indiv. and metropolitan characteristics	.106	.031	1.364	40931.138
Out-Migration Models for Whites				
1. Intercept-only model	.179	.052	1.497	48799.315
2. Individual characteristics	.113	.033	1.378	40661.783
3. Indiv. and metropolitan characteristics	.063	.019	1.271	40653.580
Destination Models for Blacks				
White/White-Other vs. Black				
1. Intercept-only model	4.319	.568	7.260	21026.528
2. Individual characteristics	2.690	.450	4.780	19395.933
3. Indiv. and metropolitan characteristics	.734	.182	2.264	15490.940
Black-White vs. Black				
1. Intercept-only model	1.777	.351	3.566	
2. Individual characteristics	1.034	.239	2.638	
3. Indiv. and metropolitan characteristics	.331	.091	1.731	
Mixed-Black/Other-Race vs. Black				
1. Intercept-only model	2.277	.409	4.218	
2. Individual characteristics	2.323	.414	4.279	
3. Indiv. and metropolitan characteristics	.816	.199	2.367	
Destination Models for Whites				
Black/Black-Other vs. White				
1. Intercept-only model	2.050	.384	3.919	12913.899
2. Individual characteristics	1.718	.343	3.491	11981.385
3. Indiv. and metropolitan characteristics	.442	.118	1.885	11351.696
Mixed-White/Other-Race vs. White				
1. Intercept-only model	3.685	.528	6.241	
2. Individual characteristics	3.045	.481	5.283	
3. Indiv. and metropolitan characteristics	.288	.080	1.668	

[a]The Akaike Information Criteria (AIC) reflect the model fit of the entire multilevel multinomial destination model.

variation in out-migration, as were the proportions of this variance explained by our metropolitan-level predictors. For mobile black householders, almost 57 percent (ICC = .568) of the total variation in the odds of moving to a *white/white-other* versus a *black* tract existed across metropolitan areas and, according to the MOR statistic, metropolitan location affected the odds of this destination outcome by a factor of over seven. Inter-metropolitan-area variation in the other destination contrasts for blacks, and for both destination contrasts for white householders, were smaller but also substantial.

Much of this pronounced metropolitan-level variation in destination outcomes for blacks and whites can be accounted for by the individual- and metropolitan-level variables in our models. To illustrate, among mobile black householders, about 38 percent of the variation in the likelihood of moving to a *white/white-other* tract rather than a *black* tract was attributable to inter-metropolitan variation in individual characteristics

([4.319 – 2.690]/4.319 = .377), and 73 percent of the remaining variation was attributable to the metropolitan-area characteristics included in the models ([2.690 – .734]/2.690 = .727). As another example, among mobile white householders, 16 percent ([2.050 – 1.718]/2.050 = .162) of the variation in the likelihood of moving into a *mixed-white/other-race* tract instead of a *white* tract was attributable to variation in individual-level characteristics across metropolitan areas, and over 74 percent ([1.718 – .442]/1.718 = .742) of the remaining variation was attributable to the metropolitan-level characteristics included in the analysis. Also noteworthy here is that the Akaike Information Criteria (AIC) scores were lowest for destination models that included metropolitan-level variables, highlighting the importance of these contextual characteristics for explaining variation in the racial composition of destination neighborhoods.

DISCUSSION AND CONCLUSIONS

Recent aggregate-level studies point to the proliferation of racially integrated and multiethnic neighborhoods across metropolitan areas in the United States. A key implication of this work is that the availability of multiethnic neighborhoods has reordered the residential choices faced by individual householders in ways that are likely to engender strong integrationist tendencies. Yet past research offers little direct evidence on this matter and leaves unanswered important questions about the extent to which patterns of individual residential mobility between increasingly diverse neighborhood types are conditioned by the social, demographic, and economic conditions of the broader metropolitan context. In this unique multilevel analysis, we combined rich longitudinal information from the Panel Study of Income Dynamics with neighborhood- and metropolitan-level data drawn from three censuses and several other sources to examine the mobility of individual householders between neighborhoods defined by specific combinations of racial and ethnic populations.

Our findings show that despite increasing numbers of multiethnic neighborhoods, relatively few white or black householders originate in or move between neighborhoods that could reasonably be defined as multiethnic. While there is evidence that growing Asian and Hispanic populations have created residential buffers that increase interethnic contact for black and white populations (Logan and Zhang 2010), the vast majority of white and black householders continue to reside in neighborhoods with high concentrations of residents of their own race. When they move, these householders tend to relocate to similarly homogeneous neighborhoods. Although typologies utilized in recent neighborhood-level studies highlight the proliferation of a range of multiethnic neighborhood categories (Fasenfest et al. 2004; Friedman 2008; Logan and Zhang 2010), white and black householders' actual mobility behaviors appear to be largely constrained to a markedly simpler set of common origins and destinations—a pattern mirroring that observed by Sampson and Sharkey (2008) in their study of mobility among families from Chicago.

Nevertheless, prevailing patterns of interneighborhood migration do shed important light on the mechanisms through which residential segregation is maintained. Thus, a second key finding from this research is that mobility between neighborhoods containing different mixtures of racial and ethnic groups is shaped by a core set of individual- and household-level characteristics that define residential needs, preferences, and options. Most important in this regard are effects of education and income, which tend to increase the likelihood that black householders will avoid racial isolation and gain access to more integrated neighborhoods; these factors also improve whites' ability to shield themselves from residence in neighborhoods containing

many minority residents, especially neighborhoods containing significant shares of blacks.

However, a central conclusion arising from this analysis is that, to an extent largely unappreciated in past research, the metropolitan-area social, economic, and political context plays a crucial role in constraining opportunities for mobility between more- and less-integrated neighborhoods, beyond the influence of individual attributes. A considerable share of the variation in inter-neighborhood residential mobility patterns of both black and white householders is attributable to metropolitan-level characteristics, with several specific contextual conditions exerting especially strong influences on the types of destination neighborhoods chosen by members of these groups. Consistent with the housing availability thesis, the racial and ethnic composition of a metropolitan population strongly conditions the likelihood of moving into neighborhoods characterized by substantial representations of minority groups, presumably by shaping the relative supply of such neighborhoods. Other effects highlight the role of metropolitan social and economic characteristics that give rise to racially stratified residential opportunities. For example, in large metropolitan areas, areas with relatively heavy dependence on manufacturing, and areas with high levels of racial residential segregation, opportunities for individual black householders to gain access to integrated neighborhoods are especially constrained. Similarly, high levels of segregation and a paucity of recently built housing appear to shield white householders from growing metropolitan diversity by providing the opportunity to move to predominantly white neighborhoods.

Overall, our findings suggest that patterns of inter-neighborhood migration are much more place-specific than current theorizing acknowledges, and they challenge the largely implicit assumption that processes of residential attainment are more or less invariant across urban regions. Characteristics of metropolitan areas appear to constrain the choices of black and white movers to neighborhoods of particular racial-ethnic configurations, and these characteristics shape households' neighborhood choices over and above the influence of individual attributes. Moreover, given the inherently *spatial* nature of locational attainment processes, in tandem with substantial variation in ecological and demographic structures across metropolitan areas, it seems likely that patterns of neighborhood attainment—at least as measured by neighborhood racial-ethnic composition—vary substantially more across metropolitan areas than do more general patterns of socioeconomic attainment.

The key implication of this work is that the stability, change, and composition of integrated neighborhoods, and future trajectories of residential segregation, will likely be constrained by the specific economic, social, and spatial features of metropolitan areas. Future research on patterns of micro-level residential mobility and aggregate-level studies of neighborhood change would do well to consider these and a broader range of metropolitan characteristics. Especially fruitful would be analysis of factors related to specific demographic, historical, and economic dynamics of race relations in metropolitan areas; the specific social context of, and quality of life in, more- and less-integrated neighborhoods; and the spatial distribution of different types of neighborhoods relative to employment, transportation routes, and desirable amenities. Investigating how these metropolitan characteristics shape residential preferences, motivations, search processes, and patterns of mobility between increasingly diverse neighborhoods will certainly enhance our understanding of the underlying dynamics affecting shifting patterns of segregation.

APPENDIX

Table A1. Descriptive Statistics for Variables Used in the Analysis of Inter-neighborhood Migration, by Race: Black and White Household Heads from the Panel Study of Income Dynamics, 1977 to 2005

	Black Respondents		White Respondents	
	Mean	SD	Mean	SD
Micro-Level Characteristics				
Education (in years)	11.52	2.89	13.48	3.20
Ratio of Family Income to Need	1.79	1.49	3.75	3.73
Age	40.13	15.37	43.86	16.75
Female (1 = yes)	.48	.50	.24	.43
Married (1 = yes)	.38	.49	.65	.48
Number of Children	1.23	1.41	.80	1.10
Homeowner (1 = yes)	.36	.48	.68	.47
Persons per Room	.69	.46	.51	.34
Employed (1 = yes)	.64	.48	.77	.42
Year	1988.11	7.04	1988.46	7.11
Year $\geq$ 1997 (1 = yes)	.18	.38	.20	.40
Metropolitan Area Characteristics				
% Hispanic	6.98	9.98	7.38	10.04
% Asian	2.60	3.06	2.62	3.46
% Black	22.40	9.19	12.25	9.56
% in Poverty	10.80	5.12	10.21	4.57
Black-White Residential Segregation	69.13	10.91	65.19	13.74
% of Labor Force in Manufacturing	13.57	7.69	15.44	8.21
% of Labor Force in Local, State, or Federal Government	14.23	7.79	12.73	5.96
% New Housing	22.77	8.98	20.65	9.50
% Pop. Living in Suburban Area	54.69	25.60	54.43	25.58
Municipal Fragmentation	.69	.23	.74	.23
Population Size (ln)	14.38	.98	13.93	1.20
N of Person-Intervals	44,808		57,415	
N of Respondents	5,562		6,608	

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Notes

1. We did not include data from earlier waves of the PSID because doing so would necessitate matching to data from the 1970 Census, which does not provide information on neighborhood counts of nonwhite, non-black groups.
2. For our purposes, defining neighborhood integration based on absolute thresholds is preferable to an approach based on comparison of groups' neighborhood representation to the composition of the specific metropolitan area (cf. Logan and Zhang 2010) because the latter limits the ability to compare differences in mobility between different types of neighborhoods across metropolitan areas with

very different racial and ethnic compositions (Fasenfest et al. 2004).

3. Data characterizing the racial and ethnic composition of census tracts draw on information from both the census ethnicity/hispanicity and the census race items. All Hispanics, regardless of race, are combined into a single category while remaining populations of individuals reporting no Hispanic ethnicity are separated into non-Hispanic racial groups.
4. We found few white or black householders residing in tracts with large percentages of Hispanics or Asians, thereby limiting our ability to develop a typology that considers concentration of these groups separately.
5. Although mobility patterns of the growing number of interracial couples is worthy of additional attention, it is impossible to distinguish such couples in PSID data prior to the 1985 survey year.
6. Additional analyses show that controlling for the socioeconomic composition of destination tracts does not alter our central findings about patterns of inter-neighborhood mobility.
7. Although somewhat problematic in interpretation for categorical outcomes, the ICC provides a rough estimate of the proportion of variation in the outcome that exists across metropolitan areas. The MOR is equal to one when there is no variation between metropolitan areas and increases with the level of variation between metropolitan areas.

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