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Spatial Dynamics of White Flight: The Effects of Local and Extralocal Racial Conditions on Neighborhood Out-Migration

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Using data from the Panel Study of Income Dynamics and three U.S. censuses, we examine how the composition of extralocal areas—areas surrounding a householder's neighborhood of residence—shapes the likelihood that Whites will move out of their neighborhoods. Net of local neighborhood conditions and other predictors of residential mobility, high concentrations of minorities in surrounding neighborhoods reduce the likelihood that Whites will move, presumably by reducing the attractiveness of nearby residential alternatives. Notably, this effect also suppresses the influence of the racial composition of the immediate neighborhood on White out-migration. Recent growth in the size of an extralocal minority population increases the likelihood of White out-migration and accounts for much of the influence previously attributed to racial changes in the local neighborhood. High levels of minority concentration in surrounding neighborhoods also exacerbate the positive effect of local minority concentration on White out-migration. These results highlight the importance of looking beyond reactions to local racial conditions to understand mobility decisions and resulting patterns of segregation.

Growing recognition of the detrimental effects of racial residential segregation and spatially concentrated poverty has spurred recent research to focus on residential mobility out of and into neighborhoods of varying racial and socioeconomic status (e.g., Crowder and South 2005; Massey, Gross, and Shibuya 1994; Quillian 2002; South, Crowder, and Chavez 2005). To date, this research has focused mainly on the influences of individual- and family-level characteristics on the likelihood of moving and destination choices. While characteristics of the immediate neighborhood of residence are occasionally considered as predictors of out-migration (Boehm and Ihlandfeldt 1986; Crowder 2000; Lee, Oropesa, and Kanan 1994), prior work tends to treat neighborhoods as isolated islands, largely divorced from their broader social, geographic, and economic context. Despite theoretical arguments that patterns of residential change are influenced as much by conditions in surrounding areas as those in an immediate neighborhood (Sampson, Morenoff, and Earls 1999; Wilson and Taub 2006), data limitations and methodological complexities have prevented researchers from examining how these conditions of *extralocal areas*—areas surrounding a neighborhood of residence—affect individual migration behavior. Similarly, we know little about how the effects of established individual- or neighborhood-level characteristics complement and interact with the sociodemographic characteristics of other geographically and socially linked areas. Consequently, our understanding of individual

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migration behaviors, and the broader population distributions they shape, is incomplete.

The lack of sensitivity to extralocal contextual conditions is especially problematic when attempting to understand residential segregation by race. Key theoretical arguments imply that individual householders' migration-related decisions, and the patterns of neighborhood change and segregation that they produce, are affected not only by the racial composition of the immediate neighborhood, but also by the composition of surrounding areas. The White flight thesis and related models of neighborhood change imply that Whites not only tend to flee neighborhoods with large shares of minorities (Krysan 2002a), but that they may be especially sensitive to such compositional characteristics when surrounding areas contain large shares of minorities or are undergoing significant racial change (Denton and Massey 1991; Molotch 1972).

In this article, we examine how the racial composition of extralocal areas affects the migration behavior of White households. Using individual-level data from the Panel Study of Income Dynamics (PSID), neighborhood-level data from three U.S. censuses, and spatial data analysis, we address several interrelated questions: (1) Does the racial composition of populations in surrounding neighborhoods influence the likelihood that White householders will leave their neighborhoods, independent of racial and socioeconomic conditions in their local neighborhoods? (2) If extralocal neighborhood conditions are important, does the static composition of the population or changes in this composition have the stronger influence on neighborhood out-migration? (3) And finally, does high minority concentration in geographically proximate neighborhoods exacerbate the effect of local minority concentration on White out-migration?

THE WHITE FLIGHT THESIS

In its simplest form, the White flight thesis suggests that aversion to living in racially-integrated settings leads Whites to vacate neighborhoods with large or growing minority populations, with such an exodus bolstering residential segregation by race. This argument is generally consistent with the results of a number of studies showing a weak preference for integrated neighborhoods among White survey respondents. Indeed, despite generally more liberal attitudes over time (Farley et al. 1994), a sizable portion of White participants in the Detroit Area Study and the Multi-City Study of Urban Inequality, conducted in the 1990s, expressed a reluctance to remain in a moderately integrated neighborhood. Moreover, the percentage of Whites reporting that they would move out of a hypothetical neighborhood increases with the concentration of Blacks (Charles 2006; Krysan 2002a). Based on both an aversion to living near Black neighbors and exaggerated estimates of crime and other problems in racially-integrated neighborhoods (Quillian and Pager 2001), White respondents tend to rate integrated neighborhoods as substantially less desirable than predominantly White neighborhoods (Krysan 2002b).

Most current evidence on the veracity of the White flight thesis comes from studies that rely on aggregate data to identify patterns and processes of neighborhood turnover. A number of these studies note important variations in the pace and timing of the process of neighborhood turnover. This literature, though, provides fairly consistent evidence that White populations tend to decline following the introduction of racial and ethnic minorities to a neighborhood (Denton and Massey 1991; Duncan and Duncan 1957; Guest and Zuiches 1972; Lee and Wood 1991; Taeuber and Taeuber 1965). Importantly, however, only indirect evidence for the White flight thesis is offered by this research as aggregate data make it difficult to distinguish the influence of a local neighborhood's racial composition from the effects of other factors that might influence aggregate population change or individual migration behavior.

A number of authors argue that the same life-cycle and housing characteristics that motivate moving in general primarily drive White migration from integrated neighborhoods; the racial composition of neighborhoods plays only a minor role (Ellen 2000; Frey 1979; Guest and Zuiches 1972; Molotch 1972). Similarly, some researchers suggest that it is a reaction to nonracial characteristics of a neighborhood, and not an aversion to sharing a neighborhood with minority-group members per se, that motivates Whites to devalue or leave integrated neighborhoods (Harris 1999; Keating 1994; Taub, Taylor, and Dunham 1984). Specifically, these authors suggest that Whites' migration from racially-integrated neighborhoods reflects their desire to avoid areas with unstable populations, large numbers of poor residents, weak ties between neighbors, or other undesirable social and economic conditions that may be concentrated in minority neighborhoods.

To provide more direct evidence on the individual-level implications of the White flight thesis, Crowder (2000) merged data from the 1979 to 1985 waves of the Panel Study of Income Dynamics to U.S. census data and then examined the net impact of neighborhood racial composition on the likelihood of individual Whites moving from their neighborhoods of residence. He found that Whites' likelihood of moving out of a neighborhood increases modestly, but significantly, with the relative size of a neighborhoods' minority population. Providing some evidence of racially-motivated White flight, the effects of local neighborhood racial composition are significant, even when individual-level predictors of residential mobility and indicators of neighborhood social and economic conditions are accounted for. Consistent with previous studies of aggregate neighborhood change (e.g., Denton and Massey 1991), Crowder also found that the likelihood of White out-migration is especially high in areas where multiple racial and ethnic groups make up the minority population. This suggests that Whites are reluctant to remain in racially and ethnically diverse neighborhoods. Finally, Crowder found that White out-migration is positively associated with recent increases in the size of the Black population in an area, again supporting the possibility that Whites perceive neighborhood compositional changes as clues about the future trajectory of an area.

EXTRALOCAL CONTEXT OF WHITE FLIGHT

Although prior research provides some support for the White flight thesis, it leaves unexplored the broader context in which migration decisions are made. Most importantly, both local *and* extralocal neighborhood conditions must be considered in relation to Whites' mobility decisions. Past studies provide some clues that conditions in surrounding areas may be important. For example, Sampson and colleagues (1999:637) note that, because housing values and appreciation rates in a given neighborhood are partially dependent on the characteristics of nearby communities, housing-related mobility decisions will be influenced by the "quality of a neighborhood relative to the quality of neighborhoods that surround it." Similarly, the White residents in Wilson and Taub's (2006) ethnographic study clearly express concerns over changing racial conditions in nearby neighborhoods.

Aggregate-level studies have found that a neighborhood's proximity to areas with established Black populations is among the strongest predictors of the pace of White population loss and the likelihood of neighborhood racial change. Indeed, proximity to minority neighborhoods exerts an influence on par with the minority composition of a local neighborhood (Denton and Massey 1991; Massey and Mullan 1984). The predictive power of these extralocal racial conditions leads Denton and Massey (1991:55) to conclude that Whites are "highly cognizant" of the distribution of Blacks in neighborhoods near their own and make their migration decisions accordingly.

According to these arguments, the size of the minority population in surrounding neighborhoods is important for Whites' assessments of the relative desirability of a neighborhood. Similarly, the growth of minority populations in adjoining neighborhoods may provide residents with important clues about the future of their own neighborhoods. Large or increasing minority populations in surrounding areas indeed may be interpreted as a precursor to invasion and succession in one's own neighborhood (Denton and Massey 1991; Molotch 1972). In turn, this may significantly influence individual decisions to remain in a neighborhood or to move out in advance of impending changes.

Following similar theoretical arguments, most prior studies of spatial dynamics anticipate and find reinforcing effects of extralocal and local conditions. For example, Morenoff and Sampson (1997) find that levels of homicide in both the immediate and surrounding neighborhoods are positively related to population loss. Burnell (1988) finds that the minority compositions of both local and contiguous neighborhoods are inversely associated with housing values. Similarly, conditions in extralocal areas may spill over into a local neighborhood with minority concentrations in both areas exerting parallel positive influences on White out-migration. According to this spillover thesis, prior studies that focus solely on the racial characteristics of the immediate neighborhood (Crowder 2000; Harris 1997) may understate the extent of White flight from communities with large or increasing minority populations.

In contrast to the spillover thesis, local and extralocal characteristics may have opposing effects on Whites' propensity to leave a neighborhood. Specifically, the concentration of minorities in extralocal neighborhoods may deter, rather than encourage, the migration of Whites from their immediate, local neighborhoods. South and Crowder (1997) describe the housing availability model of interneighborhood migration, which posits that families' decisions to leave their original neighborhoods are shaped in part by the supply of neighborhoods perceived to be more attractive than the original neighborhood. The perceived attractiveness of residential alternatives likely depends partly on the racial characteristics of surrounding neighborhoods. Most residential moves involve fairly short distances (Lee 1966; Long 1988), so individuals are likely to consider nearby options first when weighing possible destinations. If most of these nearby options are unattractive to Whites because of their large minority concentrations, Whites may be motivated to remain in their current neighborhoods. By the same token, White residents may be particularly likely to move if they are surrounded by neighborhoods with few minority residents. Such neighborhoods will likely be viewed as more attractive than one's current neighborhood. According to this distance-dependence argument, the size and growth of minority populations in extralocal areas may *decrease* the likelihood of neighborhood out-migration among Whites, even while similar conditions in a local neighborhood propel White out-movement.

In addition to these additive effects, the racial characteristics of surrounding neighborhoods likely modify the influence of *local* neighborhood conditions on White migration. Living in a neighborhood with a large or growing minority population may be especially inimical to White residents if the neighborhood is surrounded by other areas in which minorities make up a sizable or increasing share of residents. The combination of these local and extralocal features may send a strong message to White residents about the population trajectory of the broader area. In this sense, the size and growth of the minority population in surrounding areas may interact with and magnify similar conditions in the local neighborhood. The absence of appropriate cross-level spatially-referenced data has prevented an assessment of these interactive effects. Existing research may thus significantly understate or overstate overall levels of White flight.

DATA AND METHODS

SOURCES

Our analyses of the effects of extralocal racial conditions on neighborhood out-migration draw from the Panel Study of Income Dynamics (PSID) data, linked to contextual data drawn from the U.S. Census. The PSID is a longitudinal survey of U.S. residents and their families that began in 1968 with approximately 5,000 families (about 18,000 individuals). Members of panel families were interviewed annually between 1968 and 1995 and every two years thereafter. New families were added to the panel as children and other members of original panel families formed their own households.

The PSID is well suited to examining the effects of local and extralocal neighborhood conditions on migration behavior. The longitudinal nature of the data makes it possible to assess prospectively the migration behavior of individual householders. In addition, the PSID contains rich information on a variety of individual- and household-level characteristics that influence residential mobility decisions, thereby improving our ability to isolate the effects of neighborhood-level influences on mobility behaviors.

Most important for this study is the availability of restricted-access Geocode Match Files—files that allow us to link the records of individual PSID respondents to census codes describing their place of residence at each interview. We can then trace the migration of PSID respondents across neighborhoods between successive interviews and attach detailed census data about these neighborhoods at each annual interview. The PSID Geocode data also allow us to identify conditions in the extralocal neighborhoods—those neighborhoods in close proximity to the tract in which PSID respondents resided at each interview. We use standard GIS tools to determine the physical proximity of the census tract of residence to all other census tracts in the country. By attaching information on the characteristics of surrounding tracts, we can construct reliable measures of both local and extralocal neighborhood conditions for PSID respondents at each interview.

We follow much prior work in this area (e.g., Massey et al. 1994; Quillian 2002) by using census tracts to represent neighborhoods. Although census tracts are imperfect operationalizations of neighborhoods (Tienda 1991), they undoubtedly come the closest of any commonly available spatial entity in approximating a neighborhood (Jargowsky 1997; White 1987). Furthermore, as of the 2000 Census, census tracts were designated for the entire United States, providing the basis for characterizing neighborhoods consistently for all PSID respondents. Potential problems associated with changes in tract boundaries across decennial censuses are mitigated by our use of the Neighborhood Change Database (NCDB), constructed through a collaboration of GeoLytics Corporation and the Urban Institute (GeoLytics 2006). We use linear interpolation to estimate values for tract characteristics in non-census years.

SAMPLE

Our sample consists of 7,622 non-Latino White heads of PSID households who were interviewed between 1980 and 2003 and resided in a census-defined metropolitan area (MA) at the time of the interview. Because most residential moves are undertaken by families, a decision to move made by a household head (or made jointly by a family) perforce means a move by other family members. The focus on household heads allows us to avoid counting as unique and distinct those moves made by members of the same family (e.g., children and spouses). We do include moves by family members who were not the household head at the beginning of the interval but became the head by the end of the interval (e.g., a child who left the parental home or an ex-spouse who established a new residence). We focus on PSID households residing in MA's to take into consideration the effects of the broader geographic context on residential mobility, to remove the influence of substantial variations in the geographic scale of census tracts between metropolitan and non-metropolitan areas, and to align our results more closely with the results of studies of residential segregation.[1] We focus on observations beginning in 1980 because incorporating earlier observations would require the use of 1970 Census data, in which racial and ethnic categories are inconsistent with those in later censuses.

ANALYTIC STRATEGY

As Anselin (2002) points out, techniques of spatial data analysis are common in modeling spatial autocorrelation. In these situations, models include a spatially lagged measure of the outcome variable of interest as a predictor to assess the degree to which the value of the dependent variable is determined by the value of the dependent variable in nearby areas (e.g., Morenoff, Sampson, and Raudenbush 2001; Tolnay, Deane, and Beck 1996). Our theoretical models point to a parallel, but somewhat less common, application of spatial regression techniques. Since our hypotheses center on the influence of local and extralocal racial composition on out-migration from the neighborhood of origin, we are interested in producing and modeling spatially lagged versions of a key set of *independent* variables. Sometimes referred to as spatial cross-regressive models, these models rely on methodology that is similar to spatial autoregressive models but somewhat simpler to estimate without the use of specialized software (Anselin 2003).[2]

Consider the following extension of the basic linear regression model:

$$y = X\beta + WX\gamma + \varepsilon$$

where y is the familiar n by 1 vector of observations on the dependent variable, X is an n by k matrix of observations on the contextual explanatory variables of interest, and β is the familiar k by 1 vector of regression coefficients. Less familiar are WX and γ. Here W represents a spatial weights matrix, with dimensions deter-

[1] About 94 percent of the householders in our sample remained in the same metropolitan area between consecutive interviews. Results using a sample that excludes householders who moved between metropolitan areas are similar to those reported here.

[2] Anselin (2001, 2003) provides a more extensive discussion of these methodologies.

mined by the total number of tracts in the system. It summarizes the presumed relationship between each individual tract (row) and each of the other tracts in the system (columns). In other words, the weights that comprise the components of this matrix specify, for each tract, the magnitude of the effects of conditions in all other tracts on outcomes among individuals originating in the tract of interest. By convention, the weights matrix is typically row standardized so that the elements of each row sum to one (Anselin 1988). Thus, *WX,* referred to by Anselin (1988, 2001) as a spatial lag operator, can be easily interpreted as a weighted average of values on the explanatory variable for all potentially influential extralocal tracts. Furthermore, γ is the k–1 by 1 vector (matching the column dimension of *WX*) that represents the effect of these extralocal conditions on the value of the dependent variable. In the analysis of the effects of extralocal racial conditions on residential out-mobility for a given observation in tract *i,* the spatial lag $\Sigma_j w_{ij} X_j$ represents the weighted average of the racial composition (i.e., percent minority) in all extralocal tracts. A key advantage of this approach is that it specifies separate effects of local and extralocal conditions. The spatial lag operator is treated as a separate contextual characteristic with possible additive and interactive effects on the outcomes of interest.

The spatial weights matrix is essential for specifying which tracts are most important in defining extralocal neighborhood conditions and, therefore, the presumed dependence of events in a given tract on the conditions in other tracts in the system. Following Downey's (2006) argument that spatial dependence tends to decline with distance, we employ a spatial-weighting strategy in which the influence of conditions in an extralocal area on individual mobility decisions is assumed to be inversely related to the distance of the extralocal tract from the individual's tract of residence. Under this distance-decay strategy, the elements of the spatial weights matrix are defined as $w_{ij} = 1/d_{ij}$ where d_{ij} is the geographic distance between the centroid of the tract of residence *i* and the centroid of the extralocal tract *j.* Given the implausibility that the demographic characteristics of every tract in the nation directly affect the decisions of residents of all other tracts, we constrain to zero the influence of tracts that are more than 100 miles away from the focal tract.[3]

Under this strategy, nearby neighborhoods are weighted most heavily in creating extralocal measures because we assume they are comparatively more important in shaping mobility decisions (thus, the spatial weight linking a tract 10 miles from the tract of residence is one-tenth as large as the weight characterizing a tract one mile away). This is consistent with theoretical models of neighborhood change (e.g., Park, Burgess, and McKenzie 1925) that imply that processes of invasion and succession originate from adjacent neighborhoods in such a way that conditions in nearby tracts provide the most important cues about the potential influx of minority populations. More generally, this weighting assumes that nearby areas are most influential in individual assessments of the broader racial–residential context that surrounds a local neighborhood. To the extent that these perceptions shape neighborhood satisfaction and definitions of place utility (Wolpert 1966), the conditions in the most proximate neighborhoods likely have the strongest effect on decisions to leave an area. The greater weight applied to geographically proximate neighborhoods is also consistent with observations that mobility is highly distance dependent (Lee 1966); proximate neighborhoods are the most likely destinations for movers.

The distance-decay function holds important theoretical and practical advantages over a simpler adjacency approach in which all tracts that do not share a border with the tract of residence are presumed inconsequential for mobility decisions. Both share an emphasis on nearby tracts, but the distance-decay function produces measures of extralocal context based on (distance weighted) conditions in a larger set of surrounding areas, including tracts not directly adjacent but still in close proximity to the tract of residence, as well as areas individuals visit or travel through in the course of their daily activities. This is consistent with the theoretical argument that householders consider conditions in a broad range of geo-

[3] Even without this constraint, spatial weights determined by inverse distance are quite small beyond distances of about 10 miles.

graphic areas when weighing their residential options. This assumption is supported by recent research that suggests White householders are well aware of the racial composition of neighborhoods across the metropolitan area and adjust their residential search strategies accordingly (Krysan 2002b, 2008). In addition, the distance-decay approach does not require arbitrary criteria for assigning adjacency (Anselin 2002). It avoids the definition of presumably influential extralocal areas that vary dramatically in geographic size depending on the size of the tracts in and around an individual's area of residence (Downey 2006).[4]

Despite these advantages, the distance-decay approach produces only rough estimates of the extralocal conditions that may influence individual mobility decisions. Notably, because of the limited geographic precision of the PSID Geocode data, our measures of extralocal and local context rely on fairly large geographic units and do not account for the precise location of individual households within a census tract. These limitations can have profound implications for the ability to construct meaningful contextual variables (Downey 2006). Furthermore, our spatial weights do not incorporate information about many factors that may affect residents' actual exposure to conditions in different neighborhoods, including connections via residential streets (Grannis 1998), the existence of natural and manmade barriers, and actual travel times between tracts. The geographic dispersion of our sample limits our ability to consider these types of factors. Consequently, our measures of extralocal conditions likely include information about some tracts that are relatively unimportant to individual mobility decisions while deemphasizing conditions in more important areas. To the extent that this imprecision introduces (presumably random) measurement error into our measures of extralocal context, we consider our results conservative estimates of the effects of these extralocal conditions on individual mobility behavior.

In comparison to more typical autoregressive forms of spatial data analysis, the general cross-regressive strategy requires few modifications to standard estimation procedures (Anselin 2002) and is sufficiently flexible to accommodate a variety of methodological techniques. We take full advantage of this flexibility, the longitudinal nature of the PSID data, and the tract-coded residential addresses available for PSID respondents at each interview. We segment each respondent's data record into a series of person-period observations, with each observation referring to a two-year period between PSID interviews. Although we could define annual mobility intervals for most years of the PSID, the switch to a biennial interview schedule after 1995 necessitates a two-year interval.[5] On average, the individuals in the sample contribute just under 6.4 person-period observations for a total sample size of 48,508 person-period observations. We use logistic regression to examine the additive and interactive effects of local and extralocal neighborhood conditions and individual-level characteristics on the odds of moving to a different census tract between interviews. These models violate the usual stochastic independence of error terms underlying significance tests because the same PSID respondent can contribute more than one person-period to the analysis and interneighborhood migration is a repeatable event (McClendon 2002). We correct for this non-independence of observations using the cluster procedure[6] available in Stata

[4] We compared the inverse-distance weighting strategy to results using several other alternatives: (1) the adjacent-tracts approach in which $w_{ij} = 1$ when tracts i and j share a common border and $w_{ij} = 0$ otherwise; (2) a strategy in which we define spatial weights as the squared distance between census tracts so that more distant extralocal tracts are less influential relative to nearby tracts; (3) a strategy in which spatial weights are a function of logged distance so that distant tracts exert more influence on extralocal measures; and (4) a structure in which conditions in all tracts in a metropolitan area have the same influence on individual mobility decisions. Of these strategies, the inverse-distance approach produced results that best fit the data. This supports the idea that the dependence of Whites' intertract mobility on conditions in extralocal areas corresponds best with the weighting strategy employed here.

[5] Analyses using single-year mobility intervals for data years prior to 1995 produce results that are substantively similar to those reported in this article.

[6] With our data, random intercepts models lead to

to compute robust standard errors (StataCorp 2005).[7]

Dependent Variable

The dependent variable is a dichotomous variable indicating whether a respondent *moved out of the census tract of origin* between PSID interviews. It takes a value of 1 for those who moved during the migration interval and a value of 0 for those who remained in the same tract.

Explanatory Variables

Our primary explanatory variables refer to the racial and ethnic composition of the population in and around the tract of residence at the beginning of the migration interval. Following past research (Crowder 2000; Denton and Massey 1991), we focus on three dimensions of the racial/ethnic composition of the tract of origin. We measure the overall *local minority concentration* as the percentage of the population in the tract of residence that is of Latino origin or non-White.[8] The *local multiethnic indicator* is a simple dichotomous variable that takes a value of 1 if the following three groups each represent at least 10 percent of the total minority population in a neighborhood: Latinos, non-Latino Blacks, and non-White others. We measure c*hange in the minority concentration* in a local neighborhood as the absolute difference between the percent minority in the year of observation and five years prior. We use linear interpolation, with endpoints defined by the most recent preceding census year and the nearest subsequent census, to estimate the racial/ethnic composition of census tracts in non-census years.

We use a parallel set of variables to characterize the racial/ethnic composition of the population in extralocal neighborhoods. As noted, with row standardization of the spatial weights matrix, the racial/ethnic composition of extralocal neighbors refers to the distance-weighted average characteristics in surrounding tracts. We use these spatially weighted data as the basis for constructing three separate variables related to extralocal racial conditions: the overall *minority concentration,* an *extralocal multiethnic indicator,*[9] and the *change in the extralocal minority concentration* during the five years prior to the observation year.

To better isolate the influence of racial conditions in and around the tract of residence, we control for a number of other potential individual-, family-, and tract-level determinants of geographic mobility. Key demographic predictors include *age* and age-squared, which captures the non-monotonic dependence of migration on age (Long 1988). The *sex* of the householder is captured as a dummy variable scored 1 for females. *Marital status* takes a value of 1 for respondents who were married or permanently cohabiting. We measure *children* as the total number of people under age 18 in a family. We also control for the *education* of the householder, measured by years of school completed, and the total family taxable *income,* measured in thousands of constant 2000 dollars. We code *home ownership* as 1 for those in an owner-occupied housing unit. We also include household *crowding,* measured as the number of persons per room, and *length of residence,* which is coded 1 for respondents who had lived in their home for at least three years. Except for

substantive conclusions identical to those reported here.

[7] The multilevel structure of our data would ordinarily call for using multilevel modeling strategies (Teachman and Crowder 2002). However, the low level of clustering of individual PSID respondents within census tracts undermines the utility of such models.

[8] Given the racial hierarchy in neighborhood preferences (Charles 2000) and higher levels of White segregation from Blacks than from other racial/ethnic minorities (Logan, Stults, and Farley 2004), we also estimated models in which we measured local and extralocal racial characteristics using separate terms for three broad minority groups: Latino, non-Latino Black, and non-Latino other. These models led to substantive conclusions similar to those reported here and provide little evidence that White householders' mobility behaviors are primarily responsive to any single minority group.

[9] We calculate the extralocal multiethnic indicator based on the spatially-weighted average concentrations of specific minority groups in surrounding neighborhoods. It takes a value of 1 if the spatially-weighted average of the minority population in surrounding areas is made up of at least 10 percent of each of the three main minority groups (i.e., Latino, Black, and other).

gender, all of these variables are time-varying and refer to conditions at the beginning of the mobility interval. Finally, we include the *year of observation* in all models to account for trends in interneighborhood migration.

To further isolate Whites' responsiveness to area racial characteristics, we control for several tract-level characteristics that may be correlated with both the racial composition of a population and the likelihood of moving. We control for the *poverty level* in the tract of residence, measured as the percentage of the population in families with incomes below the federal poverty line. This accounts for the possibility that White residents are more responsive to socioeconomic characteristics than to the racial composition of a neighborhood. We also control for the local *level of home ownership,* measured as the percent of households in the tract of residence that were owner-occupied. This factor may influence mobility decisions by affecting the social and economic stability of a neighborhood. Finally, we control for the local *concentration of single-mother families,* measured as the percent of families with children that were headed by single women. Although these variables do not represent an exhaustive list, they are likely correlated with a number of other contextual factors (e.g., economic conditions, social cohesion, crime, and structural deterioration) that may influence migration decisions (Crowder 2000).

RESULTS

Table 1 provides means, standard deviations, and descriptions of the measurement strategies for all variables used in the analysis. About 27 percent of White householders moved to a different tract during the typical two-year observation period. The average respondent was just over 43 years of age, had completed about 13 years of education, and had a family income of about $54,700 (adjusted to 2000 dollars) at the beginning of the typical interval. Over 80 percent of the householders were employed for pay at the beginning of the migration interval. About one-fourth of householders are women and the households contained an average of just under one child. At the beginning of the typical mobility interval, about 65 percent of householders owned their homes, and 38 percent had lived in their homes for at least three years. On average, the households had a ratio of members-to-rooms of just under one-half.

The statistics describing the conditions of the local neighborhood indicate that the average householder originated in a predominantly non-Latino White neighborhood. At the beginning of the average mobility interval, these householders resided in tracts that were only about 18 percent minority. The minority concentrations had grown by an average of about 3 percentage points in the five years preceding the mobility interval. In about 46 percent of the observation periods, the householder's neighborhood was multiethnic (i.e., Latinos, Blacks, and non-White others each made up at least 10 percent of the total minority population). The poverty rate in the tract at the beginning of the typical observation period was just under 10 percent. About 66 percent of the residents in the average tract owned their homes, and about 20 percent of the families with children were headed by single mothers.

The statistics for extralocal conditions in Table 1 indicate that tracts surrounding the respondents' immediate neighborhoods had a spatially-weighted average of just under 27 percent minorities. In about 52 percent of the observation periods, householders lived in neighborhoods in which the average population in surrounding areas was multiethnic. The minority percentage increased by an average of about 3 percentage points in these extralocal areas in the five years preceding the mobility interval.

The similarity in the means for local and extralocal racial conditions is consistent with fairly high correlations between these measures. For example, the bivariate correlation between the minority concentration in the immediate neighborhood and that in surrounding tracts is .59, clearly reflecting high levels of residential segregation by race in most metropolitan areas. However, the fact that this correlation is not higher points to the considerable dissimilarity between local and extralocal conditions faced by many White householders. This highlights the potential for independent effects of these local and extralocal conditions on individual migration behavior.

Table 2 presents results of logistic regression models that explore the additive effects of extralocal neighborhood population conditions on Whites' decisions to leave their neighbor-

Table 1. Descriptive Statistics for Variables in Models of Residential Mobility between Census Tracts: White PSID Householders, 1980 to 2003

Variable	Definition	Mean	SD
Dependent Variable			
Moved out of the census tract	Whether R changed census tracts from time t to t+2 (1 = yes)	.267	.442
Independent Variables			
Extralocal Neighborhood Conditions			
Minority concentration in distance-weighted surrounding neighborhoods	Distance-weighted average percent Latino or non-White in tracts within 100 miles of R's tract of residence at time t	26.692	14.865
Multiethnic indicator for distance-weighted surrounding neighborhoods	Whether distance-weighted average minority population in tracts within 100 miles of R's tract of residence at time t contained at least 10 percent Black, 10 percent Latino, and 10 percent other races (1 = yes)	.520	.500
Change in minority concentration in distance-weighted surrounding neighborhoods	Difference between times t and t–5 in distance-weighted average percent minority in tracts within 100 miles of R's tract of residence at time t	2.935	1.632
Local Neighborhood Conditions			
Minority concentration in neighborhood	Percent Latino or non-White in R's tract of residence at time t	18.285	22.249
Multiethnic indicator for neighborhood	Whether minority population of R's tract of residence at time t contained at least 10 percent Black, 10 percent Latino, and 10 percent other races (1 = yes)	.459	.498
Change in minority concentration in neighborhood	Difference between times t and t–5 in percent minority in R's tract of residence at time t	3.023	4.561
Poverty level in neighborhood	Percent of population in R's tract of residence at time t living in families with incomes below poverty line	9.512	8.695
Level of home ownership in neighborhood	Percent of housing units in R's tract of residence at time t occupied by the homeowner	66.635	21.320
Level of single motherhood in neighborhood	Percent of families with children in R's tract of residence at time t headed by a single woman	19.521	10.960
Micro-Level Characteristics			
Age	Age of R in years at time t	43.280	16.450
Female	Whether R is female (1 = yes)	.249	.432
Education	Total years of school completed by R by time t	13.206	2.970
Family income (in $1,000's)	Total taxable income of household head and spouse at time t, in thousands of constant 2000 dollars	54.764	66.954
Employed	Whether R was working for pay at time t (1 = yes)	.833	.373
Married	Whether R had spouse or long-term cohabitor present at time t (1 = yes)	.642	.480
Children	Number of children under age 18 in household at time t	.810	1.107
Homeowner	Whether R was living in owner-occupied housing unit at time t (1 = yes)	.653	.476
Household crowding	Number of persons per room in housing unit at time t	.478	.256
Long-term resident	Whether R had lived in house for three or more years at time t (1 = yes)	.384	.486
Year	Year of interview, time t	1989.436	5.946
N of person-period observations		48,508	
N of persons		7,622	

Table 2. Logistic Coefficients for Regression Analyses of Residential Mobility Out of Census Tract of Origin: White PSID Householders, 1980 to 2003

	Model 1		Model 2	
Independent Variables	b	SE	b	SE
Extralocal Neighborhood Conditions				
Minority concentration in distance-weighted surrounding neighborhoods			–.0092***	.0021
Multiethnic indicator for distance-weighted surrounding neighborhoods			–.0971**	.0350
Change in minority concentration in distance-weighted surrounding neighborhoods			.0445**	.0163
Local Neighborhood Conditions				
Minority concentration	.0159**	.0053	.0231***	.0059
Squared minority concentration	–.0003*	.0001	–.0004**	.0002
Cubed minority concentration[a]	.0002*	.0001	.0002*	.0001
Multiethnic indicator	.0884**	.0332	.0848*	.0335
Change in minority concentration	.0075*	.0038	.0019	.0049
Poverty level	–.0056	.0032	–.0067*	.0033
Level of homeownership	–.0030**	.0011	–.0037***	.0011
Level of single motherhood	.0010	.0023	–.0010	.0023
Micro-Level Characteristics				
Age	–.1347***	.0062	–.1351***	.0063
Age squared	.0010***	.0001	.0010***	.0001
Female	.0634	.0506	.0549	.0506
Education	.0310***	.0067	.0323***	.0068
Family income (in $1,000's)	.0007***	.0002	.0009***	.0002
Employed	–.0486	.0616	–.0545	.0618
Married	–.2298***	.0442	–.2370***	.0442
Children	–.1055***	.0161	–.1069***	.0161
Homeowner	–1.0504***	.0380	–1.0622***	.0381
Household crowding	.0357***	.0071	.0347***	.0071
Long-term resident	–.2442***	.0384	–.2357***	.0383
Year (1980 = 0)	.0419***	.0033	.0427***	.0034
Constant	–80.367***	6.695	–81.687***	6.810
Wald chi-square	4228.38		4290.20	

Note: N of observations = 48,508; N of persons = 7,622.
[a] Coefficients and standard errors multiplied by 100.
* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

hoods. The first model is a baseline that focuses on the effects of racial conditions in the immediate neighborhood of residence, along with a set of tract- and individual-level controls that help to isolate the influence of local racial conditions. The results are consistent with the hypothesis that the concentration of minorities in an area influences Whites' likelihood of moving from the neighborhood. This effect is also non-linear, which is consistent with studies that use data from a more limited time period (Crowder 2000) and that examine aggregate neighborhood change (Galster 1990). The combination of the positive coefficient for the linear term (b = .0159) with the small but significant coefficients for the squared and cubed terms (b = –.0003 and b = .000002, respectively) indicates that the odds of out-migration increase as the concentration of minority residents increases from 0 to about 35 percent. The effect softens in the middle of the distribution before becoming more pronounced after the minority concentration surpasses about 60 percent. Also consistent with earlier research (Crowder 2000; Denton and Massey 1991), the presence of multiethnic minority populations is a significant mobility motivator for Whites. The odds of moving from one's tract of origin are over 9 percent higher ($[e^{.0884} – 1]*100 = 9.243$) for Whites living in neighborhoods with multiethnic minority populations than for those in areas with more homogeneous minority populations. Finally, independent of the overall size and specific composition of the minority population in a neighborhood, recent changes in the minority population's size increase the odds of exit for White householders. This result is consistent with the idea that Whites view growing minority concentrations as an indication of an undesirable future trajectory for a neighborhood, and that some householders will opt to move in advance of these changes.[10]

Model 1 reveals that the effects of local racial conditions hold even when controlling for individual-level characteristics and non-racial tract conditions. The concentration of homeowners in a neighborhood negatively affects the likelihood of out-migration, presumably by affecting the stability and structural quality of the neighborhood. The likelihood of moving decreases significantly with age, but this decline tapers off at older ages. Educational attainment and family income are both significantly and positively associated with the likelihood of moving out of the origin tract. Married respondents are less likely than the unmarried to change tracts, and the number of children in a household is inversely associated with intertract migration. The likelihood of moving to a different tract increases significantly with household crowding but is significantly lower for those who own their homes and for long-term residents.

While the results in Model 1 show that the relative size and composition of neighborhood minority populations significantly influence Whites' migration behavior, our central goal is to assess whether these effects extend beyond the borders of an immediate neighborhood to surrounding areas. To this end, Model 2 of Table 2 adds variables that describe the racial conditions of extralocal areas. The results show that all three dimensions of the extralocal racial context exert an independent influence on White out-migration. The negative coefficient for minority concentration in extralocal neighborhoods indicates that the likelihood of out-migrating is lower for Whites living in areas surrounded by neighborhoods with large minority populations than for individuals surrounded by Whiter neighborhoods.[11] Note that this effect holds controlling for conditions in the immediate neighborhood and other predictors of mobility. To illustrate, a 10-point increase in the distance-weighted average minority percentage in extralocal areas is predicted to decrease the odds of neighborhood out-migration by almost 9 percent ($[e^{-.0092\times10} - 1]*100 = -8.789$). Similarly, the significant negative coefficient for multiethnic populations indicates that, even when controlling for the minority population size in surrounding tracts, a sizable representation of all three minority groups within this population decreases the odds of out-migration for Whites by just over 9 percent ($[e^{-.0971} - 1]*100 = -9.253$).

These negative effects of the relative size and composition of the minority population in surrounding areas are consistent with arguments based on the distance-dependence of migration. Because most geographic moves cover short distances,[12] unfavorable conditions in nearby areas tend to reduce the likelihood of out-migration. If nearby alternative neighborhoods are relatively unattractive, White householders will be less likely to move.

[10] The variance inflation factor (VIF) scores involving the measures of local minority concentration, changes in minority concentration, and the multiethnic indicator are between 1 and 1.4. This indicates that multicollinearity does not substantially influence the inferences about the effects of local racial conditions (Menard 1995).

[11] Additional models that include polynomial versions of the distance-weighted minority concentration in surrounding neighborhoods provide no evidence that the effect is non-linear. We also found that controlling for the relative size of the minority population in a metropolitan area does not attenuate the effects of extralocal racial conditions. Similarly, the relative availability of predominantly White (at least 90 percent) tracts in a metropolitan area exerts a significant positive effect on mobility among White householders. Nevertheless, the observed effects of extralocal conditions remain significant when these metropolitan-level characteristics are controlled. These results suggest that the extralocal effects do not simply reflect the influence of broader metropolitan features that may shape mobility decisions.

[12] Among those moving to a different tract within a metropolitan area, the average distance is 6.38 miles, with a median of 4.22 miles. About 90 percent of these movers relocate to a tract within 15 miles of their origin tracts.

Notably, controlling for the negative effects of the size and composition of the minority population in extralocal areas substantially enhances the influence of local racial conditions. The positive linear coefficient for local minority concentration increases by about 45 percent (from .0159 in Model 1 to .0231 in Model 2) when these extralocal conditions are introduced. This suppression stems from the fairly strong positive association between local and extralocal neighborhood characteristics: neighborhoods of similar racial characteristics cluster, but they exert countervailing influences on Whites' out-migration. Controlling for the *negative* impact of minority concentration in surrounding neighborhoods on Whites' out-migration thus reveals a stronger *positive* effect of local minority concentrations on Whites' propensity to move.[13]

Figure 1 illustrates this suppression by graphing the effect of local minority concentration on the probability that Whites will move from their census tracts with and without controls for the level of minority concentration in extralocal areas.[14] The difference between the two lines in this figure is most acute at lower levels of local minority concentration—the very types of neighborhoods in which most Whites reside. For example, without controlling for extralocal minority concentration, the predicted probability that Whites will leave their neighborhoods over the subsequent two-year period increases from .15 to about .19 as the percent minority in the immediate neighborhood increases from 0 to 30 percent. This is an important but not overwhelming difference. However, when the concentration of minorities in extralocal neighborhoods is controlled, the predicted probability of out-migration increases from .15 in local neighborhoods with no minorities to about .22 in neighborhoods that are 30 percent minority. The observed influence of local minority concentration on Whites' out-migration—and hence support for the core claim of the White flight thesis—is thus enhanced considerably when the impact of racial conditions in surrounding neighborhoods is taken into account.

In contrast to the mobility-deterring effects of extralocal minority concentrations and multiethnic structures, recent growth of the minority population in surrounding areas appears to encourage White out-migration.[15] The positive coefficient in Model 2 indicates that the odds of leaving a tract of origin increase by about 4.6 percent for each percentage point increase in the distance-weighted average minority concentration in surrounding areas during the five years leading up to the mobility interval ($[e^{.0445} - 1]*100 = 4.550$). Controlling for extralocal racial concentrations reduces the coefficient for changes in the minority composition of the local neighborhood so that it is no longer significant (from .0075 in Model 1 to .0019 in Model 2). Changes in the minority population in surrounding areas thus appear to be more important in prompting White out-migration than are recent changes in the racial composition of the local neighborhood. This finding is consistent with theoretical arguments that suggest changes in surrounding areas may provide the strongest clues about the future trajectory of a local area. Thus, when controlling for the size and specific composition of a local population, growing minority populations in surrounding neighborhoods are a powerful impetus for Whites to move. By failing to consider the impact of extralocal racial conditions and changes, past studies of White flight (e.g., Crowder 2000; Ellen 2000) may not only underestimate the effects of *static* population concentrations on White out-migration, but they may also overstate the importance of *changes* in local racial conditions.

[13] Supplemental models that add the three measures of extralocal racial conditions individually to Model 1 confirm that the extralocal minority concentration is primarily responsible for the suppression of the effect of local minority concentrations.

[14] In generating these predicted probabilities, the values of all other variables are set at their sample means.

[15] The highest VIF score for the variables in this model is 3.2, well below the 10.0 threshold generally indicative of severe multicollinearity (Menard 1995).

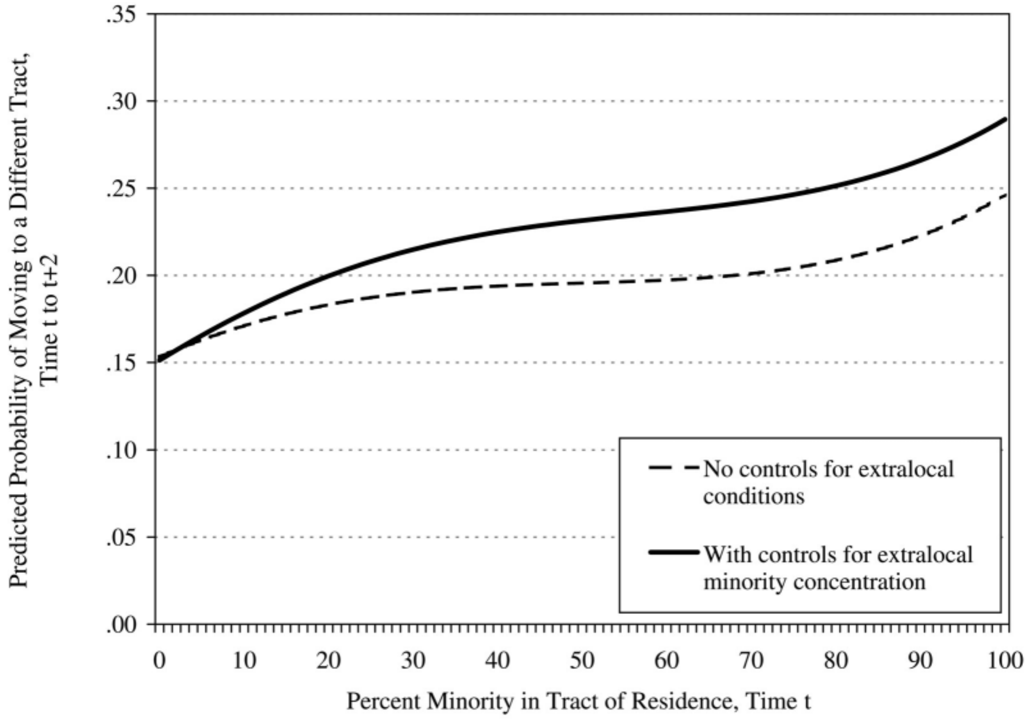

Figure 1. Predicted Probability of Migration Out of Census Tract of Origin by Local Minority Concentration

SUPPLEMENTAL TEST OF THE DISTANCE-DEPENDENCE ARGUMENT

As noted above, the results in Table 2 support the argument that high concentrations of minorities and multiethnic populations in surrounding neighborhoods deter White out-mobility by reducing the attractiveness of the most likely destinations. Following the logic of this distance-dependence thesis, Whites may avoid unattractive extralocal areas not only by remaining in their current neighborhoods, but also by choosing more distant destinations when they do decide to move. To further test the distance-dependence argument, Table 3 provides a supplemental analysis of the distance moved (in miles) by those Whites who changed tracts between interviews. We calculate these distances by applying the Haversine equation (Sinnott 1984) to the latitude and longitude coordinates for the centroids of the tracts of origin and destination. We apply Ordinary Least Squares (OLS) regression to predict these distances as a function of extralocal neighborhood conditions while controlling for the racial conditions of the immediate neighborhood of residence and micro-level factors that affect mobility decisions.

This supplemental analysis confirms that micro-level factors, such as education, housing status, and family composition, influence the distance that Whites move. Most importantly, even after controlling for these predictors, the coefficients for both extralocal minority concentration and extralocal multiethnicity are positive and statistically significant. These results are consistent with the distance-dependence function: when Whites do move away from neighborhoods surrounded by relatively large and diverse concentrations of minorities, they tend to bypass these geographically close neighborhoods in favor of neighborhoods farther away.

THE MODERATING EFFECTS OF EXTRALOCAL CONDITIONS ON WHITE MIGRATION

The previous analyses present evidence that racial conditions in surrounding neighborhoods

Table 3. Ordinary Least Squares Regression Analysis of Distance in Miles between Tracts of Origin and Destination: Mobile White PSID Householders, 1980 to 2003

Independent Variables	b	SE
Extralocal Neighborhood Conditions		
Minority concentration in distance-weighted surrounding neighborhoods	1.0691*	.4633
Multiethnic indicator for distance-weighted surrounding neighborhoods	21.6281**	8.0017
Change in minority concentration in distance-weighted surrounding neighborhoods	.5004	3.7016
Local Neighborhood Conditions		
Minority concentration	3.3355**	1.2712
Squared minority concentration	–.0461	.0351
Cubed minority concentration[a]	.0040	.0267
Multiethnic indicator	13.2241	7.8416
Change in minority concentration	–3.7950	2.1420
Micro-Level Characteristics		
Age	–2.1787	1.4001
Age squared	.0293	.0154
Female	–9.4519	9.3750
Education	16.7378***	1.4809
Family income (in $1,000's)	.0010	.0737
Employed	–39.7071**	15.0570
Married	32.7062***	9.3084
Children	–1.9736	4.0790
Homeowner	25.6266**	9.0579
Household crowding	–1.6489*	1.8695
Long-term resident	–37.7173***	9.8580
Year (1980 = 0)	–3.7113***	.8576
Constant	–28.9374	34.1047
R-square	.0240	

Note: N of observations = 12,934; N of persons = 4,686.
[a] Coefficient and standard error multiplied by 100.
* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

significantly affect Whites' likelihood of moving. We will now examine the extent to which these extralocal racial conditions alter Whites' reactions to conditions in their own neighborhoods. Table 4 reports partial results from logistic regression models predicting the log-odds of neighborhood out-migration that test for these interactive effects. These models include a series of product terms involving specific indicators of both local and extralocal racial conditions.

In Model 1 of Table 4, we include interactions between the percent minority in the local neighborhood of residence and its polynomials with the three measures of extralocal conditions (minority concentration, multiethnic indicator, and recent changes in minority concentration). Although few of these coefficients are statistically significant, the results highlight some important ways that local and extralocal conditions interact to affect mobility behavior. The positive coefficient for the interaction between local and extralocal minority concentrations suggests that high concentrations of minorities in surrounding neighborhoods tend to increase the positive influence of local minority concentrations on White out-mobility. In other words, the combination of high concentrations of minorities in an immediate neighborhood with high concentrations in surrounding areas appears to be especially inimical to White householders.

Figure 2 illustrates how the concentration of minorities in extralocal areas modifies the impact of local minority concentration on White neighborhood out-migration. The three lines in the figure represent the estimated probability of out-migration across the values of local minority concentrations when minority percentages in surrounding areas are at the 10th percentile (top line in the figure), median (middle line), and 90th percentile (bottom line). Values for all other variables are set at their means.

The differences in intercepts for the three lines in Figure 2 show the generally negative

Table 4. Coefficients for Interactions between Local and Extralocal Conditions from Logistic Regression Analyses of Residential Mobility Out of Census Tract of Origin: White PSID Householders, 1980 to 2003

	Model 1		Model 2		Model 3	
	b	SE	b	SE	b	SE
Extralocal Neighborhood Conditions						
Minority concentration in distance-weighted surrounding neighborhoods	–.0135***	.0029	–.0066*	.0026	–.0106***	.0025
Multiethnic indicator for distance-weighted surrounding neighborhoods	–.1637***	.0456	–.0407	.0459	–.1317**	.0437
Change in minority concentration in distance-weighted surrounding neighborhoods	.0592**	.0231	.0244	.0206	.0636***	.0197
Local Neighborhood Conditions						
Minority concentration	.0204**	.0068	.0235***	.0059	.0220***	.0064
Squared minority concentration	–.0005*	.0003	–.0004**	.0002	–.0004*	.0002
Cubed minority concentration[a]	.0003	.0002	.0002*	.0001	.0002*	.0001
Multiethnic indicator	.0793*	.0340	.1745*	.0790	.0823*	.0336
Change in minority concentration	.0005	.0050	.0019	.0049	.0041	.0125
Local–Extralocal Interactions						
Local minority concentration						
by extralocal minority concentration	.0002*	.0001				
by extralocal multiethnic indicator	.0030*	.0015				
by extralocal change in minority concentration	–.0004	.0006				
Squared local minority concentration						
by extralocal minority concentration	–.0000	.0000				
by extralocal multiethnic indicator	.0000	.0000				
by extralocal change in minority concentration	.0001	.0001				
Cubed local minority concentration						
by extralocal minority concentration	–.0000	.0000				
by extralocal multiethnic indicator	–.0000	.0000				
by extralocal change in minority concentration	–.0000	.0000				
Local multiethnic indicator						
by extralocal minority concentration			–.0061	.0035		
by extralocal multiethnic indicator			–.1240*	.0617		
by extralocal change in minority concentration			.0460	.0302		
Local change in minority concentration						
by extralocal minority concentration					.0003	.0003
by extralocal multiethnic indicator					.0087	.0072
by extralocal change in minority concentration					–.0040	.0024

Notes: All coefficients based on models containing all micro-level and tract characteristics controlled in Table 2. N of observations = 48,508; N of persons = 7,622.
[a] Coefficients and standard errors multiplied by 100.
* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

effect of extralocal minority concentrations on the likelihood of out-migration. More important is the difference in slopes between these lines, a function of the interaction between local and extralocal minority concentrations shown in Model 1 of Table 4. When the spatially-weighted average extralocal population contains only 10 percent minorities, the likelihood of moving rises moderately with the level of minority concentration in the local neighborhood. As the concentration of minority residents in surrounding areas increases, though, the association between local minority concentration and out-migration becomes more pronounced. For example, when the minority concentration in surrounding areas is about 47 percent (the 90th percentile), the predicted probability of leaving a neighborhood is about .11 for Whites in a neighborhood with no minority neighbors. Under such extralocal conditions, this probability of out-migration doubles to about .22 for those in neighborhoods in which 50 percent of

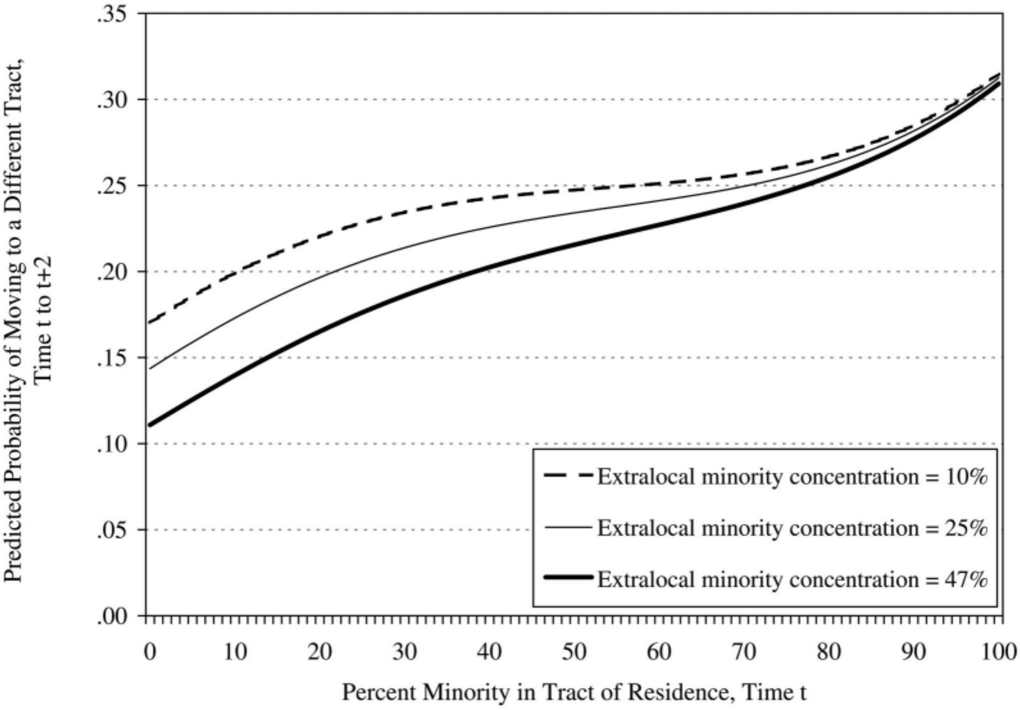

Figure 2. Predicted Probability of Migration Out of Census Tract of Origin by Local Minority Concentration and Extralocal Minority Concentration

the residents are members of minority groups. Moreover, the nonlinearity of the association between local minority concentrations and out-migration is less pronounced when surrounding tracts contain higher shares of minorities.

Model 1 of Table 4 also shows that the presence of diverse minority populations in surrounding neighborhoods enhances the generally positive influence of local minority concentrations (as shown by the coefficient involving the interaction for the extralocal multiethnic indicator). Thus, higher concentrations of minorities in surrounding areas, and the presence of multiethnic minority populations, increase Whites' sensitivity to the size of the minority population in their own neighborhoods. These interactions also indicate that while large concentrations of minorities and multiethnic minority populations in surrounding areas inhibit White out-migration by reducing the pool of attractive alternative destinations, these negative effects are weaker when the local neighborhood contains similarly unattractive concentrations of minority residents.

Models 2 and 3 present selected coefficients from models that include interactions of the three measures of extralocal racial conditions with the local multiethnic indicator and changes in the local minority composition, respectively. Only one coefficient is statistically significant. The negative interaction between the local and extralocal multiethnic indicators (Model 2) suggests that the generally positive effect of multiethnicity in the immediate neighborhood on White out-migration is weaker when the surrounding areas also have large multiethnic populations. In such situations, Whites may be less likely to leave multiethnic neighborhoods because surrounding areas fail to provide more attractive residential options. Like the significant interactions involving local and extralocal minority concentrations, this interaction suggests that understanding how the racial–residential context affects Whites' mobility decisions requires examining racial conditions within the neighborhood of residence relative to conditions in surrounding areas.

DISCUSSION AND CONCLUSIONS

A growing number of studies seek to understand the individual migration patterns that shape residential segregation by race, ethnicity, and economic status. These studies provide important clues about the processes through which broader population distributions develop, but most of this research focuses on the effects of individual-level characteristics and, in a few studies, the conditions of the immediate neighborhood of residence. Although compelling practical and theoretical arguments have been made regarding the ways broader contextual conditions may shape individuals' residential satisfaction and modify the effect of local conditions, systematic empirical assessment of extralocal influences are, by and large, lacking.

Like other recent studies of spatial dynamics (e.g., Morenoff 2003; Sampson et al. 1999), our approach explicitly acknowledges that neighborhoods are embedded in a larger mosaic of urban communities. We demonstrate that the conditions of nearby neighborhoods influence the behaviors of individuals in a given neighborhood. Growing concentrations of minority residents in nearby tracts significantly increase the likelihood that Whites will leave their local neighborhoods. All else being equal, changes in extralocal minority populations appear to exert a stronger influence on Whites' migration behavior than do changes in the size of the minority population in a local neighborhood of residence. In contrast, controlling for local neighborhood conditions and changes in surrounding areas, large and diverse minority populations in extralocal neighborhoods tend to reduce the likelihood that Whites will leave a neighborhood.

The disparate effects of extralocal racial conditions on out-migration likely reflect the fact that features of surrounding neighborhoods influence different aspects of the mobility decision-making process. Following Wolpert's (1966) classic place-utility model and Speare's (1974) residential satisfaction perspective, recent racial changes in surrounding neighborhoods are especially likely to influence the desire to leave one's neighborhood by creating a disparity between residential preferences (which likely influenced the original decision to settle in a neighborhood) and actual neighborhood contextual conditions. These changes also likely signal the racial trajectory of a neighborhood and provide clues about future rifts between residential preferences and neighborhood conditions. In turn, this prompts at least some Whites to consider a move. Once Whites make the decision to consider leaving a neighborhood, the size and diversity of the minority population in surrounding areas are likely important in determining the attractiveness of alternative locations. In the context of Whites' aversion to residing near large and diverse minority populations, and the fact that nearby neighborhoods tend to be the most likely residential destinations, large concentrations of minorities in surrounding neighborhoods may dissuade Whites from moving.

Importantly, controlling for the countervailing effects of extralocal areas reveals substantially stronger support than has previously been observed for the most essential element of the White flight thesis—that Whites leave neighborhoods containing large minority populations. Some observers dismiss the claim that White flight is important in shaping population patterns largely on the grounds of fairly weak effects of neighborhood racial composition on White out-migration (Ellen 2000; Taub et al. 1984). Yet by failing to consider the countervailing effects of racial conditions in local and extralocal neighborhoods, prior tests of the White flight thesis may substantially underestimate the causal impact of neighborhood racial composition on White out-migration. Our results suggest that White flight in its most basic form remains a defining feature of the U.S. urban landscape.

While additional attention to the residential choices of non-White groups and to the destinations of movers is still needed, the effects of extralocal conditions on White householders' mobility decisions have important implications for understanding the dynamics of neighborhood change and the processes that sustain high levels of racial residential segregation in U.S. cities. High levels of White migration from neighborhoods that contain large minority populations, in conjunction with Whites' tendency to relocate to neighborhoods that are "Whiter" than their origin neighborhoods (South and Crowder 1998), reinforce existing levels of segregation. This White flight likely helps to explain the part of racial segregation that results from different races occupying different broad swaths of a metropolitan area (Farley et al. 1993). Beyond White flight, the tendency for Whites to remain in neighborhoods that are surrounded by areas with large minority populations points to the stability of some White communities even in the face of growing minority populations in the broader metropolitan area. Our results imply that, provided such neighborhoods are not themselves "invaded" by minorities, Whites will often opt to remain in their local areas because of the restricted supply of "attractive" neighborhoods nearby.

Gated communities may represent one way that Whites cordon themselves off from surrounding areas, but Whites also appear likely to resist neighborhood racial change by relying on community solidarity and maintaining racially exclusive social organizations (Wilson and Taub 2006). From a spatial standpoint, these different migratory responses would appear to underpin the "checkerboard" dimension of segregation—pockets of White neighborhoods surrounded by minority areas (or vice versa) within cities and, to a lesser extent, suburbs. This process appears at least partly self-reinforcing: the more minorities populate surrounding neighborhoods, the less likely Whites are to leave their local neighborhoods, leaving fewer housing vacancies into which minorities might move. Whites' tendency to both move from neighborhoods with large minority populations and to remain in predominantly White neighborhoods that are surrounded by areas with large minority populations imply constraints on future declines in residential segregation between racial minorities and Whites.

Overall, our analysis appears to confirm theoretical arguments that Whites do consider the characteristics of surrounding neighborhoods when assessing the likely racial trajectory of their own neighborhoods. Whites also appear to consider these characteristics in deciding whether nearby neighborhoods are attractive residential options. Our results suggest that models of neighborhood racial change should attend not only to racial conditions in the immediate neighborhood, but to racial conditions in surrounding neighborhoods as well. We acknowledge, of course, that linear distance between neighborhoods—the basis of our distance-decay function—is a crude measure of Whites' actual or potential exposure to minorities. As noted earlier, physical barriers and the configuration of streets and highways shape Whites' exposure to minorities in other neighborhoods, just as they do *within* neighborhoods (Grannis 1998). Administrative boundaries, especially school zones, also shape Whites' exposure in ways that simple distances between neighborhoods do not capture (Saporito and Sohoni 2006). Future research would do well to explore results using spatial weighting schemes that take these factors into consideration by using more precise geographic data to further develop our understanding of extralocal neighborhood conditions. Regardless of how researchers approach these refinements, our results suggest that paying greater attention to extralocal areas' influence on interneighborhood migration behavior will substantially enhance our understanding of the spatial dynamics of White flight and broader patterns of neighborhood change.

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