

The Racial Context of White Mobility: An Individual-Level Assessment of the White Flight Hypothesis

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Census data are attached to the individual records of the Panel Study of Income Dynamics to examine the effects of neighborhood racial conditions and metropolitan-level structural factors on the residential mobility of individual White householders. Supporting the White flight hypothesis, the results indicate that the annual likelihood of leaving the neighborhood increases significantly with the size of the minority population in the neighborhood, and Whites are especially likely to leave neighborhoods containing combinations of multiple minority groups. These neighborhood effects persist after controlling for a wide range of micro-level mobility predictors and do not appear to be rooted in the reaction to nonracial social and economic characteristics of the neighborhood. However, the effect of local racial conditions on the mobility of individual Whites is generally modest, significantly nonlinear, varies by several individual-level characteristics, and is conditioned by the relative availability of housing in predominantly White neighborhoods to serve as potential destinations. © 2000 Academic Press

The flight of Whites from racially integrated neighborhoods has long maintained a position of central importance in explanations of residential segregation by race. Studies of neighborhood turnover conducted as many as four decades ago have provided strong support for the idea that large and growing populations of Blacks spurred Whites to leave urban neighborhoods in which they would have otherwise remained (cf., Damerell, 1968; Duncan and Duncan, 1957; Mayer, 1960; Wolf, 1963). Based on observed processes of neighborhood change, “White flight” away from minority populations has been identified as a primary factor in the destabilization of integrated neighborhoods and their eventual resegregation as minority-dominated areas, and the unwillingness of Whites to remain in neighborhoods with large and growing minority populations

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has recently been implicated as a major bulwark for the persistence of high levels of racial and ethnic segregation in the nation's metropolitan areas (Galster, 1990; Massey and Denton, 1993).

But while we know that the high rate of White mobility out of integrated neighborhoods plays an important role in upholding the residential separation of Whites from other racial and ethnic groups (Massey et al., 1994; South and Crowder, 1998), we still know fairly little about the factors motivating these individual moves. Research has only begun to examine the determinants of mobility between various types of neighborhoods (South and Crowder, 1998) and, importantly, has yet to fully and directly assess whether the racial composition of the neighborhood *per se* affects the decisions of individual White householders to leave their current neighborhood.

The study presented here is intended to provide a more complete assessment of the existence and nature of White flight than has been offered in the past. Census data describing the demographic, social, and economic characteristics of the neighborhood and the structural conditions of the metropolitan area are attached to the individual records of the Panel Study of Income Dynamics (PSID). By tracing the mobility decisions of individual PSID respondents as they move between neighborhoods and by examining the net impacts of neighborhood racial and ethnic conditions on this mobility, this approach provides the first real opportunity to assess the White flight hypothesis at the individual level. Perhaps more importantly, this research aims to investigate the complex and contingent nature of White flight by examining a number of previously unexplored nuances of the relationship between neighborhood conditions and individual White mobility. Among the questions to be addressed: Does the size of the minority population in the neighborhood significantly affect the mobility decisions of Whites once the effects of other individual- and neighborhood-level determinants of mobility are taken into account? How strong are the substantive impacts of these characteristics? What role does the specific ethnic composition of the minority population play in these mobility decisions? Is it the static racial composition that matters, or are changes over time in neighborhood conditions more important? What is the functional form of the relationship between neighborhood racial conditions and White out-mobility? Do these effects vary across individual circumstances? And how do the structural characteristics of the metropolitan area and its housing market condition Whites' reaction to neighborhood racial and ethnic conditions? While the examination of these issues is crucial to a complete understanding of the processes of neighborhood racial change and the maintenance of residential segregation by race, they have yet to receive adequate attention in past research.

BACKGROUND AND THEORY

Despite intense interest in identifying the patterns, trends, causes, and consequences of residential segregation by race (cf., Farley and Frey, 1994; Lieberman

and Carter, 1982; Massey and Denton, 1993; Yinger, 1995), little attention has been focused on the individual-level behaviors shaping these aggregate population patterns. Particularly conspicuous by its absence has been a direct test of an important tenet of this residential segregation literature: that the aversion of White householders to living in integrated settings leads them to leave neighborhoods occupied by large and growing minority populations. In lieu of more direct evidence, support for this White flight hypothesis has come from two primary sources. First, guided by the principles of the Chicago school's invasion-succession model (Hawley, 1950; McKenzie, 1968; Park, 1936; Park and Burgess, 1925), an abundant body of research on the processes of neighborhood racial change has sought to determine the extent to which the introduction of Blacks and other minorities to a neighborhood leads to the eventual turnover of the area's population from White to minority. Early research by Duncan and Duncan (1957) supported the notion that once "penetrated" by Black residents, urban neighborhoods tend to progress through a well-defined process of racial turnover, culminating in the replacement of the White population with a consolidating Black population. Subsequent studies have generally confirmed the loss of White populations from integrated neighborhoods, although many of these studies have pointed to important variations in the pace, timing, and nature of these processes (Denton and Massey, 1991; Guest and Zuiches, 1972; Lee, 1985; Lee and Wood, 1991; Rapkin and Grigsby, 1960; Taeuber and Taeuber, 1965). Drawing a direct link between these aggregate population processes and the behaviors of individual Whites, Schelling's (1971, 1972) neighborhood "tipping model" described how the presence of only a few Black residents, combined with variable but generally low White tolerance for integration, can set into motion a perpetual process of racially induced White flight culminating in the eventual loss of even the most tolerant Whites.

Directly related to this model of neighborhood racial change is a substantial body of research on racial attitudes and neighborhood preferences that has provided the second major source of evidence regarding the effects of neighborhood racial conditions on White mobility. In general, these survey results support the idea that, despite the liberalization of Whites' racial attitudes over time (Farley et al., 1994; Schuman, Steeh, and Bobo, 1997), Whites' tolerance for living near Blacks is still quite limited. A strong majority of White respondents to the Farley et al., 1976 Detroit Area Survey reported that they would feel uncomfortable in a neighborhood that was only one-third Black, and 40% said they would try to leave the area (Farley et al., 1978). By the 1990s, a higher percentage of Whites expressed the willingness to remain in moderately integrated neighborhoods, but 15% still reported that they would move out of a neighborhood that was as much as 20% Black, and 41% said they would leave a neighborhood that was one-third Black (Farley et al., 1994). Similar results from surveys in other U.S. cities (Bobo and Zubrinsky, 1996; Clark, 1991) and from national opinion surveys (Schuman, Steeh, and Bobo, 1997) confirm the weak tolerance of integration among Whites and provide general support for

Wurdock's (1981) contention that White flight likely works as both an initiator and an accelerator of neighborhood racial turnover.

Whites' apparent intolerance for integration appears to extend to their attitudes toward other racial and ethnic groups as well. As Denton and Massey (1991) point out, the rapid growth of non-Black minority populations has dramatically increased the number of multiethnic neighborhoods in the nation's metropolitan areas and has rendered the simple Black-White dichotomy largely irrelevant. In fact, survey data indicate that Whites tend to exhibit negative stereotypes about all non-White groups (Bobo and Zubrinsky, 1996) and have limited preferences for neighborhoods containing significant numbers of Asians and Hispanics (Clark, 1992), suggesting that the presence of minority populations in general, and not just the presence of Blacks, may influence White mobility decisions.

But despite the evidence gleaned from studies of neighborhood succession and surveys of residential preferences, several authors have raised important doubts about the degree to which local racial conditions actually shape mobility decisions at the individual level. For example, Molotch (1969, 1972) has argued that White mobility from integrated neighborhoods is no greater than would be expected in the absence of integration and is driven by the same life cycle and housing characteristics that motivate mobility in general (see also Wolf and Lebeaux, 1969; Guest and Zuiches, 1972). Similarly, other studies have found that while racial factors may play a role in the destination decisions of White movers, racial conditions play little independent role in rates of White out-mobility from central cities to suburbs (Frey, 1979; Marshall, 1979; Marshall and O'Flaherty, 1987). According to these arguments, local racial conditions have little direct effect on the mobility decisions of Whites once more mundane predictors of mobility, such as life cycle position, family composition, and housing characteristics, are taken into account. Providing some general support for this argument, Harris (1997) found that once individual- and family-level influences on mobility were controlled the racial conditions of the neighborhood had little effect on mobility decisions for most Whites. It is important to note, however, that Harris essentially ignored the potential impact of non-Black minorities on White mobility decisions. More importantly, despite the fact that the White flight hypothesis focuses on the impacts of neighborhood racial conditions on the decisions of Whites to leave the neighborhood, Harris examined moves between dwellings, many of which likely involved moves within the same neighborhood.

Questions regarding the relative roles of neighborhood racial and nonracial characteristics in the mobility decisions of individual White residents also stand to challenge the efficacy of the White flight hypothesis. To the degree that neighborhood racial conditions are linked to other social and economic conditions, the mobility of Whites from these areas may reflect the desire to avoid residence in neighborhoods with unstable populations, large numbers of poor residents, weak ties between neighbors, or other deleterious social and economic conditions, rather than an aversion to living near minority group members *per se*.

In support of this contention, Taub, Taylor, and Dunham (1984) found that the association between fears of racial tipping and the intention to move largely disappears when perceptions about other neighborhood social and physical qualities are taken into account, and Keating (1994) found similar indications that other neighborhood factors may be more important than racial and ethnic considerations in shaping individuals' mobility decisions. Highlighting the questions regarding the relative impacts of local racial and economic conditions, Whites also tend to report somewhat less resistance to the idea of remaining in an integrated neighborhood if the minority residents of the area are of a similar socioeconomic status to themselves (Schuman and Bobo, 1988).

Unfortunately, existing research has failed to provide the information needed to address these outstanding questions regarding the net impact of neighborhood racial conditions on individual mobility. By definition, aggregate-level studies of neighborhood succession focus on changes in the total population of a neighborhood between two points in time and are therefore unable to either examine the characteristics of the individual movers accounting for these population changes, or to directly assess the net impact of neighborhood racial considerations on individual decisions. Research on neighborhood preferences and racial attitudes provides clues about the possible influence of racial considerations on individual mobility decisions, but is unable to distinguish their effects on actual behaviors once other facilitators and inhibitors of mobility are taken into account. Thus, existing literature provides some indirect evidence pointing to a link between neighborhood racial conditions and White mobility but has left open important questions regarding this basic individual-level White flight hypothesis.

HYPOTHESIS 1. Independent of individual-level mobility determinants and nonracial characteristics of the neighborhood, the likelihood of residential out-mobility among individual White householders increases with the size of the minority population in the neighborhood.

Just as important is the fact that the relationship between local racial conditions and individual White mobility is characterized by a number of potential complexities that have yet to be directly examined in previous research. For example, important questions regarding the functional form taken by this relationship remain unresolved. First introduced by Grodzins (1958), the concept of a racial "tipping point" refers to the idea that the out-flow of Whites from a neighborhood accelerates once the minority composition of the neighborhood crosses some crucial threshold in excess of White tolerance. While the location and even the existence of a threshold level of Black population at which neighborhoods move inextricably toward resegregation have been questioned extensively (cf., Goering, 1978; Pryor, 1971; Rapkin and Grigsby, 1960; Schwab and Marsh, 1980; Wolf, 1963; Wolf and Lebeaux, 1969), the possible existence of a racial tipping point implies that the relationship between neighborhood racial conditions and White out-mobility may be nonlinear. At lower levels of minority presence, the impact of local racial conditions may be fairly modest since, as

Clark (1991) points out, most Whites are likely to tolerate at least a small number of minority neighbors. At levels of minority presence beyond the tipping threshold, however, the likelihood of White out-mobility should increase rapidly with the total size of the minority population.

HYPOTHESIS 2. The effect of the size of the minority population on the likelihood of White out-mobility is nonlinear, becoming more pronounced at higher levels of minority concentration.

Second, despite the common research focus on simple Black–White population dynamics, there is ample reason to believe that the specific ethnic structure of the neighborhood population, in addition to the total size of the minority population, may be important in White mobility decisions. While Whites report limited tolerance for location near racial and ethnic minorities in general, they tend to rate both Asians and Hispanics somewhat more favorably than Blacks on a number of scales, including desirability as neighbors and report stronger preferences for neighborhoods containing Hispanics and Asians than for those containing Blacks (Bobo and Zubrinsky, 1996; Clark, 1992). Indeed, the presence of non-Black minority groups does not appear to engender the same rapid process of racial change in integrated neighborhoods that often accompanies the presence of Blacks (Bean and Tienda, 1987; Massey, 1983; Massey and Mullan, 1984; Rosenberg and Lake, 1976; White, 1984).

But while Whites may be more willing to tolerate minority populations made up of larger proportions of Asians and Hispanics, there is evidence to suggest that they may be especially likely to flee neighborhoods in which Asians, Hispanics, and Blacks reside in combination. Denton and Massey (1991) found that the likelihood of racial transition during the 1970s was greatest in neighborhoods containing multiple ethnic groups in combination, a finding the authors attribute to the reluctance on the part of Whites to live in multiethnic areas. Overall, the existing literature indicates that both the size *and* the specific composition of the neighborhood's minority population may help to determine the mobility reaction of White residents.

HYPOTHESIS 3. Independent of the total size of the minority population, the likelihood of White out-mobility will increase with the proportion of the minority population made up of Blacks and will be higher in those areas containing a combination of multiple minority groups.

The relative impacts of static neighborhood conditions and changes in these conditions over time represent a third unexplored complexity in the relationship between the racial composition of the neighborhood and the mobility decisions of individual White residents. As Lee and his colleagues (1994) point out, perceptions about the past, present, and future of the neighborhood may be crucial in shaping mobility decisions. In this regard, recent changes in the neighborhood characteristics not only provide an indication of the recent past, but

also may help to shape expectations about the future character of the neighborhood (Boehm and Ihlandfeldt, 1986; Taub, Taylor, and Dunham, 1984). Support for the idea that recent compositional changes affect Whites' mobility decisions comes from several studies of neighborhood transitions (Mayer, 1960; Rapkin and Grigsby, 1960; Taub, Taylor, and Dunham, 1984; Wolf, 1957, 1963). For example, Wolf (1963) argued that decisions among Whites to leave an area depend more on estimations of its future composition than on its current composition, and some research has revealed a strong link between Whites' perceptions about the future racial composition of the neighborhood and their intention to move (Wurdock, 1981).

HYPOTHESIS 4. In addition to static neighborhood racial conditions, recent growth in the size of minority populations will increase the chances of White out-mobility.

Finally, an important but unexplored question is the degree to which the effects of neighborhood racial conditions on mobility vary by individual- and family-level characteristics. Particularly important in this regard are micro-level life cycle, socioeconomic, and demographic characteristics that may affect individuals' assessment of neighborhood conditions in general (Brown and Longbrake, 1970), or their mobility-related responses to them. For example, because of their greater financial investment in their current dwelling, homeowners may be especially sensitive to the conditions of the neighborhood (Lee et al., 1994; McHugh, Gober, and Reid, 1990), possibly increasing their likelihood, relative to that of renters, of leaving minority-populated neighborhoods (Wolf, 1963). The social and psychological ties to the local community that often accompany long-term residence (Kasarda and Janowitz, 1974; Rossi, 1955; Speare et al., 1975) may also counterbalance the effects of unfavorable neighborhood conditions, leaving longer-term residents less likely than shorter-term residents to act on their dissatisfaction with the presence of larger minority populations. In a similar manner, the immobility associated with age may reduce the effect of neighborhood conditions on residential mobility, despite the fact that older Whites are generally less tolerant of the idea of integration than are younger Whites (Farley et al., 1994). To the degree that they increase social ties to the community (Long, 1988), the presence of school-age children may reduce the effects of objective neighborhood conditions on residential mobility. However, households with children may also be more sensitive to neighborhood conditions and, therefore, more likely to move in response to unfavorable surroundings (Harris, 1997; McHugh et al., 1990).

Individual socioeconomic characteristics may also moderate the effect of neighborhood racial conditions on mobility behaviors. Bobo and Zubrinsky (1996) found a significant positive relationship between education and stated tolerance for residential integration among Whites. However, income may interact positively with neighborhood racial conditions to affect White mobility since, as Berry (1979) noted, the White flight response to larger minority populations

is more likely to be utilized by wealthier Whites who are best able to afford to act on their intolerance for integrated living.

HYPOTHESIS 5. The effect of the neighborhood's racial composition on the likelihood of White out-mobility varies across a variety of individual- and family-level characteristics that shape individual reactions to local racial conditions and the ability to respond to such conditions.

The Importance of Metropolitan-Level Factors

While the racial and ethnic conditions of the neighborhood may spur White residents to flee the neighborhood, their ability to do so may be contingent upon prevailing conditions in the broader metropolitan area and region. In general terms, what South and Crowder (1997a) term the "housing availability model" implies that the ability of individuals to actuate their mobility desires is strongly affected by the quantity and quality of housing options present in the metropolitan area. Given Whites' preferences for predominantly White neighborhoods (Clark, 1991; Farley et al., 1994), the availability of housing and neighborhood options in predominantly White areas may be particularly important in determining the flight of Whites from integrated neighborhoods (Aldrich, 1975; Berry, 1979; Fishman, 1961; Goering, 1978; Wolf, 1963; Yinger, 1995). Those Whites living in metropolitan areas with a dearth of predominantly White neighborhoods to serve as destinations may be less likely to move and more likely to tolerate larger numbers of minority neighbors simply because more racially attractive neighborhood options are in relatively short supply. Similarly, in metropolitan areas in which housing vacancies are concentrated in minority areas—and the housing market in predominantly White neighborhoods is, therefore, relatively tight—Whites may be more likely to tolerate higher concentrations of minority residents in their neighborhood.

Other characteristics of the metropolitan area may also impact White mobility and shape individual reactions to prevailing neighborhood conditions. According to Frey (1979), the flight of Whites from minority-populated central cities during the 1950s and 1960s was greatly facilitated by the abundance of newly available housing options in the suburbs. Following this reasoning, recent housing construction in a metropolitan area may increase mobility propensities by increasing the supply of relatively attractive housing options to serve as potential destinations (South and Crowder, 1998) and may enhance the ability of Whites to flee neighborhoods with large minority populations.

Finally, regional differences in political, ecological, and social structures resulting from differences in the nature and timing of metropolitan development (Farley and Frey, 1994) appear to have important impacts on individual mobility patterns, with residents of the South and West moving more frequently than those in the Northeast and Midwest (Deane, 1990; South and Crowder, 1998; South and Deane, 1993). This greater mobility of Western and Southern residents may also alter the impact of neighborhood racial conditions on White mobility; the

same ecological and structural factors that allow for the greater residential mobility of residents of the South and West may also enable Whites in these regions to flee neighborhoods with large minority populations. On the other hand, Lee and Wood (1991) have demonstrated that integrated neighborhoods in the West appear to be somewhat *more* stable than those in other regions, and regional variations in racial attitudes (Firebaugh and Davis, 1988; Quillian, 1996; Schuman, Steeh, and Bobo, 1997) suggest that Whites in the South may be especially likely to leave neighborhoods with large minority populations.

HYPOTHESIS 6. The residential mobility of White residents and the effects of neighborhood racial conditions on this mobility vary by region and are conditioned by the structural characteristics of the metropolitan area and its housing market.

DATA AND METHODS

To explore the impacts of neighborhood racial conditions and metropolitan structural factors on White mobility, this research draws data from two main sources: the Panel Study of Income Dynamics (PSID) and census data for 1970 and 1980. The PSID is a nationally representative, longitudinal survey of U.S. residents and their families (Hill, 1992) initiated in 1968 with a panel of approximately 5000 families interviewed annually since then. Sample attrition has been modest since the survey's inception and has apparently not compromised the representativeness of the sample (Hill, 1992; Duncan and Hill, 1989). In addition to the original sample of families, new families have been added to the panel each year as children of original PSID families leave home to form their own households, as other members of PSID families split-off to form new households, and as new members are born or marry into panel families.

The PSID is a rich source of data for the study of residential mobility for two main reasons: First, it provides a wealth of information on a variety of individual- and family-level characteristics affecting residential mobility, including basic demographic characteristics, life cycle indicators, family structure, and socioeconomic characteristics of panel members. Second, the PSID's specially created Geocode Match Files make it possible to match addresses of individual PSID respondents at each interview year to census codes corresponding to a variety of geographic areas. In addition to allowing researchers to track the movement of PSID respondents across neighborhoods and other geographic areas, these codes make it possible to attach 1970 and 1980 census data describing the census tract, metropolitan areas and other geographic units to the records for individual PSID respondents at each annual interview (Adams, 1991). Thus, these data provide a unique opportunity to examine the impacts of neighborhood- and metropolitan-level contextual characteristics on the mobility of individual respondents.

The PSID sample is delimited in several ways for the current analysis. Specifically, only the intrametropolitan moves of White household heads undertaken in the years between 1979 and 1985 are examined. The restriction to moves made between 1979 and 1985 is made because geocodes linking addresses for

PSID respondents in some years prior to 1979 and years after 1985 to geographic units in the 1970 and 1980 census were not available at the time of this study. In order to accommodate the interest in examining how metropolitan-level structural characteristics shape individual mobility decisions, the analysis also focuses only on those respondents remaining in the same metropolitan area between successive annual interviews. Moves originating outside of a metropolitan area are excluded, as are moves from one metropolitan area to another.¹ Finally, the sample is limited to those who are designated as household heads at either the beginning or the end of the annual mobility interval in order to avoid counting several times (once for each family member) the moves undertaken by a single family in unison. Including those who are not the head of a household at the beginning of a mobility interval but become the head of a household by the end of the interval allows for an examination of the residential transitions made by individuals splitting off from a PSID family. Imposing these criteria results in a sample of 2368 White householders.

Following most previous research on interneighborhood mobility (cf., Gramlich, Laren, and Sealand, 1992; Massey, Gross, and Shibuya, 1994; South and Crowder, 1998), census tracts are used as the geographic approximation of neighborhoods. While imperfect operationalizations of neighborhoods (Tienda, 1991), census tracts appear to represent the best operationalization available for the current analysis because a wide variety of data are available for census tracts, because they have been used in this capacity in a wide range of research, and because, on average, they approximate fairly closely the average perceived scale of neighborhoods as reported by survey respondents (Lee and Campbell, 1997).

Residential mobility for this study is defined as a move out of the census tract of origin during the year between successive PSID interviews (referred to here as an annual mobility interval). Mobility is defined as a move between census tracts rather than between dwellings because the primary interest of this study is to examine neighborhood-level influences on mobility and because interneighborhood moves are central to the theoretical arguments being tested.

Measuring the Explanatory Variables

Explanatory variables for the analysis include static features of the tract of origin; measures of changes in these characteristics over time; various individual-level determinants of mobility behaviors including demographic, family, and socioeconomic characteristics; and metropolitan-level factors defining the availability of housing in certain types of neighborhoods. With the exceptions of individual sex, these factors are treated as time-varying covariates, referring to

¹ In this sample, about 83% of the moves originating in metropolitan areas occurred within the same metropolitan area. As a sensitivity check, the analyses were replicated including those moving to a different metropolitan area along with those remaining in the same metropolitan area and the results were quite similar to those presented here.

contextual and individual-level characteristics at the beginning of the given annual interval (time t).

The racial and ethnic characteristics of tracts at the beginning of the given mobility interval are estimated using a process of linear interpolation in which 1970 and 1980 census data serve as defining endpoints.² Neighborhood racial conditions are characterized along two dimensions (see also Denton and Massey, 1991): First, the *minority composition* of the neighborhood is measured simply as the percentage of the total tract population at the beginning of an annual interval (time t) made up of all non-Anglo minority group members. Second, the specific group composition or *ethnic structure* of the neighborhood's minority population is characterized by a set of variables indicating the proportion of the tract's total minority population made up of non-Hispanic Blacks, the proportion made up of non-Hispanic Asians,³ and the proportion made up of all Hispanics. Since, by definition, these group proportions sum to a total of 1, the Black proportion of the minority populations serves as the omitted category in the analysis. In order to examine the independent effect of multiethnic settings on White mobility, a dummy-coded variable is also included to indicate whether all three of the broad minority groups contributed at least 10% of the total minority population of the tract.⁴ Linear interpolation is also used to measure changes occurring in the racial composition of the neighborhood during the 10-year period preceding the given mobility interval (i.e., from time $t-10$ to t). Variables indicating the proportional

² This strategy requires the use of consistent tract boundaries for 1970 and 1980. In creating their Geocode Match Files, the PSID attempted to match all tract boundaries from the two censuses but were forced to leave unmatched those tracts undergoing drastic boundary changes (Adams, 1991). In order to assess the impact of excluding the individuals originating in these areas, the analysis was replicated using 1980 data to estimate static tract characteristics for each year. The results of this additional analysis led to conclusions identical to those presented here. Given this consistency, the interpolation procedure was retained because it helps to avert potential problems of endogeneity and allows for the examination of the effects of changes in tract conditions over time.

³ In 1970, the Census Bureau did not provide separate tabulations for Asian populations. Therefore, the size of the non-Hispanic Asian population is estimated by subtracting the total Black, White, and Hispanic populations from the total tract population. For the sake of consistency, the same technique was used to estimate the tract-level Asian populations for 1980. While the resulting residual category undoubtedly contains members of several groups, the vast bulk of this population is likely made up of Asians (Massey and Denton, 1987; Denton and Massey, 1991) and the group is referred to as Asian throughout the analysis.

⁴ Supplementary analyses using group population criteria of 5, 15, 20, and 25% to characterize multiethnic neighborhoods produce substantively similar results. In addition, several other strategies for modeling the effects of the minority population's ethnic structure were explored. These strategies included the estimation of models containing separate terms for the percentage of the total tract population made of each group, models containing only the variable indicating the proportion of the minority population made up of Blacks, models containing dummy variables indicating which group makes up the largest share of the population, and models using Denton and Massey's (1991) operationalization of ethnic structure based on specific combinations of minority groups. Each of these strategies led to substantive conclusions identical to those presented here.

change in the population counts of Blacks, Asians, and Hispanics in the tract are included to characterize these changes.⁵

Also examined are the effects of several nonracial, social and economic conditions of the neighborhood, included for their theoretical importance and for their availability in both 1970 and 1980 census data. The economic context of the area is captured with two variables: the *mean income level* of the tract's families at the beginning of the mobility interval (time t) and the *percentage change in this mean family income* occurring in the 10-year period preceding the mobility interval (time $t-10$ to t). These general economic conditions may affect mobility decisions directly by shaping the general status (Logan and Collver, 1983; Speare et al., 1975), physical upkeep, and quality of schools and other services available in the neighborhood (Margulis, 1977; D. Wallace, 1990; Wacquant and Wilson, 1989), and indirectly through their connection to such factors as neighborhood economic disinvestment (R. Wallace, 1991; Wacquant and Wilson, 1989), crime (Miethe and McDowall, 1993; Patterson, 1991; Taub, Taylor, and Dunham, 1984; Warner and Pierce, 1993), and various other social dislocations (Kasarda, 1993; Massey and Denton, 1993; Skogan, 1990; Wilson, 1987). Each of these factors appears to be related to residents' assessments of the overall quality of the neighborhood (Skogan, 1990) and mobility decisions (Speare et al., 1975; Taub, Taylor, and Dunham, 1984).

Other contextual factors that may affect the mobility decisions of an area's residents are those related to the level of community cohesion and relations between neighbors (Lee et al., 1994; Speare et al., 1975). Residents of areas with more stable populations tend to have more close social bonds within the area, tend to become involved in more community activities, and may be more socially integrated into the neighborhood in general (Lee et al., 1994; Rossi, 1955). For this analysis, neighborhood stability is measured with two variables: the *percentage of the tract's population living in the same location 5 years ago* (as of time t) and *changes in the percentage of long-term residents* occurring during the 10-year period preceding the given mobility interval (time $t-10$ to t). To the extent that the racial composition of the neighborhood and changes therein are related to the general stability of a neighborhoods' population, these factors may help to explain the reaction of white residents to local racial conditions. In a similar manner, the distribution of family types in the neighborhood may influence mobility decisions by affecting interactions between neighbors and the availability of social services and activities serving families and children that help to adhere residents to the community (Rossi, 1955; Speare et al., 1975).

⁵ Changes in population counts are used instead of changes in the *percentage* of the tract population made up of each group because changes in group percentages occurring between times $t-10$ and t are definitionally linked to the group percentage at time t , thereby making it difficult to distinguish the impacts of static neighborhood conditions and changes therein. Furthermore, changes in minority percentages may occur in the absence of actual changes in the minority population simply as a function of changes in the nonminority population.

Thus, also controlled in the current analysis are the *percentage of all families in the tract that include at least one child* (as of time t) and *changes in the percentage of families with children* during the 10-years preceding the mobility interval (time $t-10$ to t).

Also central to the test of the White flight hypothesis are controls for a wide variety of microlevel characteristics shown in previous research to significantly affect mobility decisions. To model the generally negative but nonlinear effect of age on mobility (Castro and Rogers, 1983; Goodman, 1974; Goldscheider, 1971; Long, 1988), both the respondents' *age* (in years) and the quadratic term *age-squared* are included in the analysis. Married persons tend to move less frequently than the unmarried (South and Deane, 1993), but recent changes in marital status, like other changes in life circumstances, may be more important than static marital status in determining mobility (Speare and Goldscheider, 1987; South and Crowder, 1997a). Thus, the effects of both *current marital status* (1 = married) and *changes in marital status* occurring during the past year (1 = yes) are examined. The addition of young children to the family often implies changes in housing and neighborhood needs that may precipitate a move (McHugh et al., 1990), but in general, the presence of children, and especially older children, tends to impede mobility by increasing ties to the local community and reliance on its institutions and resources (Rossi, 1955; Long, 1972; Speare, 1970). For the current study, both the *number of children ages 0 to 5* and the *number of children ages 6 to 17* are controlled. Because families headed by women tend to move more often than other families (Long, 1992; McLanahan, 1983), a dummy-coded variable for the *sex of the respondent* (1 = female) is also included. Greater *family income*, measured here in thousands of 1981 constant dollars, may increase mobility by improving the ability to act on any dissatisfaction with current residential conditions (Landale and Guest, 1985; Newman and Duncan, 1979) and by making available a wider range of alternative housing options. Similarly, *educational attainment*, measured here by the number of years of education completed, may increase residential mobility by expanding awareness of alternative residential options and by increasing social mobility in general (Deane, 1990; Long, 1973; South and Deane, 1993). *Current employment* (1 = yes) may reduce mobility by establishing individuals in a relatively stable life cycle position and by tying them to areas in close proximity to their place of work (Newman and Duncan, 1979; Speare, 1974), while a *change in employment status* (1 = change occurred between $t-1$ and t), including leaving a job, starting a job, or retiring, represent major life changes that may precipitate a move (Rossi, 1955; Long, 1988).

According to Rossi (1955), residential crowding, measured here as the number of *persons per room* in the household, tends to predispose individuals to moving and is often given as a reason for seeking a move. Homeowners tend to be more tied to the community by their more substantial financial investments in the current dwelling and by the greater cost and inconvenience of moving and are, therefore, generally less mobile than renters (Bach and Smith, 1977; Landale and

Guest, 1985; Rossi, 1955; Speare, 1974). Housing tenure is examined here using a variable indicating whether the respondent is a *home owner* (1 = yes). The generally negative relationship between length of residence and mobility (Rossi, 1955; Speare et al., 1975) is modeled with the inclusion of a dummy-coded variable indicating whether the respondent has been in the *same house for at least 3 years* (1 = yes).

Based on the assumption that crucial characteristics of metropolitan areas remain relatively stable over short periods of time, the structural characteristics of metropolitan areas at the beginning of each mobility interval are based on data from the 1980 census for Metropolitan Statistical Areas (MSAs). The *distribution of neighborhood types* in the metropolitan area is represented by a series of continuous variables reflecting the proportion of all tracts in each MSA that are predominantly White (90+% Anglo), the proportion that are racially and ethnically mixed (10–89% Anglo), and the proportion that are predominantly minority (0–9% Anglo).⁶ Since by definition these percentages at the MSA level sum to 100, the percentage of tracts that are racially mixed serves as the omitted category.⁷ The *concentration of housing vacancies in minority neighborhoods* is examined with a coefficient measuring the zero-order correlation between tract-level vacancy rates and neighborhood racial composition (percent minority) for the tracts in each metropolitan area, with larger positive correlations indicating greater concentration of vacant housing in minority-dominated neighborhoods. The supply of *new housing* in the metropolitan area is measured as the percentage of all housing units built between 1970 and 1980. Finally, the *region of residence* is measured with dummy variables for the four main census regions: West (omitted category), South, Midwest, and Northeast.

Analytic Strategy

In order to take full advantage of the longitudinal nature of the data and the fact that multiple moves (or nonmoves) can be ascertained for each PSID respondent between 1979 and 1985, the datafile utilized for this analysis is organized in person–year format, with each observation pertaining to the period between successive annual interviews. The datafile contains a total of 8,837 of these person–year observations.⁸ Binary logistic regression analysis is used to model the effects of the time-varying independent variables on the log-odds of moving out of the neighborhood of origin during the annual mobility interval. Estimated standard errors in all regression models are adjusted for the nonindependence of

⁶ Similar thresholds for characterizing neighborhood types are adopted by Lee and Wood (1991) and South and Crowder (1998).

⁷ For an example of a similar strategy of omitting a single proportion or percentage category to examine the effects of a set of interdependent variables, see Guest and Tolnay (1983).

⁸ Because some individuals leave the effective sample during the 6-year interval by moving to untraced and nonmetropolitan areas, changing their status as household heads, or leaving the PSID panel altogether, each person does not contribute six person–year observations.

multiple person-year observations contributed by the same individual using a technique first introduced by Liang and Zeger (1986) and demonstrated by Bye and Riley (1989).⁹ All regression models are based on unweighted data, although substantive conclusions based on weighted data are similar to those presented here.¹⁰

FINDINGS

Table 1 presents descriptive statistics for the variables included in the analysis of the mobility behaviors of White householders. The table shows that about 14% of the Whites in the sample moved to a different tract by the end of the annual mobility interval. This mobility rate is slightly lower than Long's (1988) estimate for the general population (15–20% annually), a difference created by the focus on moves between tracts rather than between dwellings, and by the exclusion from the sample of those individuals leaving the metropolitan area.¹¹

Most important to the purpose of this study are the variables characterizing the racial conditions of respondents' neighborhoods. Consistent with high levels of residential segregation by race and ethnicity in the country's metropolitan areas (Massey and Denton, 1993; Farley and Frey, 1994), the sample members are largely concentrated in tracts with only small minority populations. On average, these White respondents originate in tracts in which only about 13% of the total population is made up of all minorities combined and about 87% is made up of non-Hispanic Whites. The means for the ethnic composition variables indicate that blacks constitute the largest part of the total minority populations of tracts occupied by these White residents. On average, non-Hispanic Blacks make up about 44% of the total minority population of these tracts, Hispanics make up about 38%, and non-Hispanic Asians about 18%. The relatively high average Hispanic proportion among the minority populations of neighborhoods occupied

⁹ Estimated standard errors in the models may also be affected by the clustering of sample members within tracts and of tracts within metropolitan areas, a data structure that often calls for the estimation of hierarchical linear models that decompose the error structure of the models into its constituent parts at the individual level and higher levels of aggregation (see, e.g., Bryk and Raudenbush, 1992; DiPrete and Forristal, 1994; Hox and Kreft, 1994). For the data used here, however, such techniques are of minimal value because the level of clustering in tracts and MSA's is extremely low (see Duncan, Connell, and Klebanov, 1997). On average, there are 1.30 persons per tract and about 38 tracts per metropolitan area, with a minimum of 1 in both instances. This level of clustering makes it difficult to obtain stable estimates of within-cluster variation in the effects of variables at lower levels of aggregation, or to partial out that part of the error structure due to similarities between individuals within these geographic clusters.

¹⁰ Unweighted analyses are presented because PSID respondents who were not members of, or children born into, original panel families were not assigned weights. Furthermore, because the PSID sample weights are primarily a function of independent variables included in all models (socioeconomic characteristics being the most important), unweighted results are preferable (Winship and Radbill, 1994).

¹¹ Doing away with the intrametropolitan restriction, the rate of intertract mobility is about 16%, well within the range of Long's (1988) estimate.

TABLE 1
Descriptive Statistics for Variables in the Analysis of Residential Mobility
of White PSID Respondents, 1979–1985

	Mean	SD
Dependent variable		
Whether changed tracts, time t to $t + 1$ (1 = yes)	.14	.35
Independent variables		
Racial characteristics of tract		
% Minority	13.32	17.64
Black proportion of minority population	.44	.47
Asian proportion of minority population	.18	.17
Hispanic proportion of minority population	.38	.30
All three minority groups present (1 = yes)	.30	.46
Proportional change in Black population ($t-10$ to t)	13.68	108.81
Proportional change in Asian population ($t-10$ to t)	16.28	55.74
Proportional change in Hispanic population ($t-10$ to t)	10.11	52.80
Individual-level characteristics		
Age	42.03	16.76
Sex (1 = female)	.25	.43
Married (1 = yes)	.65	.48
Change in marital status (1 = yes)	.09	.29
Number of children ages 0–5	.31	.63
Number of children age 6 and up	.49	.88
Years of education	12.75	2.64
Family income (\$1000s)	24.86	20.99
Employed (1 = yes)	.77	.42
Change in employment status (1 = yes)	.16	.36
Home owner (1 = yes)	.62	.49
Persons per room	.53	.28
Same house for 3+ years (1 = yes)	.55	.50
Nonracial characteristics of tract		
Mean family income (\$1000s)	27.74	12.59
% Families with children	48.89	12.43
% In same house 5 years ago	52.56	16.48
% Change in mean family income ($t-10$ to t)	93.15	45.88
Change in % families with children ($t-10$ to t)	–7.44	9.58
Change in % same house 5 years ago ($t-10$ to t)	1.95	12.21
Metropolitan characteristics		
% MSA tracts minority	7.20	6.90
% MSA tracts racially mixed	37.16	22.26
% MSA tracts White	55.64	25.07
Vacancy concentration in minority tracts	.28	.23
% Housing units recently built	25.29	10.90
Region		
Northeast	.24	.43
Midwest	.27	.44
South	.26	.44
West	.23	.42

by Whites is likely due to the fact that some of these Hispanics are themselves White, and White Hispanics are subject to generally lower levels of residential segregation from Anglos than are Hispanics of other races (Massey and Denton, 1993). Finally, about 30% of the White respondents began in tracts in which the minority population is made up of at least 10% of each of the three minority groups.

The fact that the White respondents are concentrated in neighborhoods with relatively small minority populations belies the fact that, on average, these neighborhoods experienced substantial proportional increases in their specific minority group populations during the 10 years prior to the mobility interval. The Black population in the average tract occupied by White respondents increased by 14 times during the 10-year period prior to the mobility interval, and the Asian and Hispanic populations increased 16 and 10 times, respectively. However, since these variables represent proportions of the original group populations, these fairly large increases must be interpreted in light of the small size of the group populations at the beginning of the change interval (time $t-10$).

Table 2 presents a series of logistic regression models relating the effects of these explanatory variables to the log-odds of moving from the tract of origin during the annual mobility interval. An initial assessment of the operation of White flight at the individual level, as implied in Hypothesis 1, is presented in the first model where the effect of the tract's minority composition is displayed. Providing general support for this basic White flight hypothesis, the coefficient in column 1 indicates that the size of the neighborhood's minority population has a direct and statistically significant effect on the likelihood of out-mobility among individual Whites. In other words, while its magnitude appears to be fairly modest, the strong statistical significance ($p < .001$) of the coefficient in column 1 supports the contention that the likelihood of individual White out-mobility increases significantly with the size of the local minority population.¹²

While this effect is generally consistent with assumptions based on studies of aggregate neighborhood change and residential preferences, the current analysis is unique in that it provides an assessment of the *net* impact of neighborhood racial conditions on White mobility. According to some writings, White mobility from minority populated areas is simply a by-product of the fact that White residents of these areas have individual- and family-level characteristics that increase their mobility in general (cf., Molotch, 1972), or that Whites leaving these areas are simply reacting to social and economic contextual conditions that accompany larger minority populations. To address these possibilities, controls

¹² Demonstrating the generally greater level of White mobility out of tracts with larger minority populations, the coefficient for the size of the minority population is .0084 ($SE = .0017$; $p < .0001$) before controls are added. In combination with the constant from this baseline model, this coefficient implies that among Whites originating in tracts with no minority residents the probability of out-mobility is about .12. This probability increases to .18 for those originating in tracts with even mixtures of Whites and minorities, and is over .25 for those in essentially all-minority tracts.

TABLE 2—Continued

Independent variables	Model 1		Model 2		Model 3		Model 4	
	(1) b	(2) SE	(3) b	(4) SE	(5) b	(6) SE	(7) b	(8) SE
<i>Metropolitan characteristics</i>								
% MSA tracts minority	.013	.008	.013	.008	.013	.008	.012	.008
% MSA tracts racially mixed	Reference		Reference		Reference		Reference	
% MSA tracts white	.007**	.002	.009***	.002	.009***	.002	.008***	.002
Vacancy concentration in minority tracts	.367	.225	.368	.226	.362	.230	.364	.231
% Housing units recently built	.014*	.006	.014**	.006	.015**	.006	.015**	.006
Region								
Northeast	-.670***	.145	-.640***	.146	-.631***	.148	-.631***	.149
Midwest	-.379**	.127	-.320*	.129	-.301*	.132	-.322*	.133
South	-.293**	.106	-.260*	.107	-.256*	.117	-.255*	.118
West	Reference		Reference		Reference		Reference	
Constant	2.310***	.477	1.952***	.499	1.793***	.524	2.043***	.558
χ^2	1404.721***		1415.601***		1420.223***		1430.610***	
N	8337		8337		8337		8337	

^a Coefficients and standard errors multiplied by 1000.
 $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

for a wide range of micro-level characteristics, indicators of static nonracial neighborhood conditions, and indicators of the structural and housing-market conditions of metropolitan areas are also included in Model 1.

As expected, the log-odds of mobility decline with age, but at a reduced degree at the highest ages. Married household heads are less likely to change tracts during the mobility interval, while changes in marital status significantly increase the likelihood of moving. Larger numbers of young children also reduce the likelihood of intertract mobility, while family income, an important indicator of the resources available to households and of social mobility potential, significantly increases the odds of moving. However, with all other factors controlled, those household heads with higher levels of education are less likely to move to a different tract than are those with lower levels of education. Finally, each of the housing characteristics exerts a significant impact on the likelihood of intertract mobility: homeowners and longer-term residents are much less likely than renters and recent in-movers to leave their tract of origin, and household crowding significantly increases the annual odds of moving.

Model 1 also indicates that the effects of the nonracial characteristics of the neighborhood are less pronounced than the effects of micro-level predictors. After controlling for other mobility predictors in the model, only the percentage of families in the neighborhood with children exhibits a significant effect, reducing the log-odds of out-mobility among Whites. Given these and similar nonsignificant neighborhood effects revealed in past research (cf., Lee et al., 1994), the significant impact of local racial conditions are even more impressive.

Supporting the contention that the mobility of White residents is shaped by the racial structure of the metropolitan area, White residents are significantly more likely to leave their current neighborhood if the metropolitan area provides abundant options for residence in predominantly White neighborhoods. The intertract mobility of Whites is also significantly greater in metropolitan areas with larger proportions of recently built housing. Finally, in contrast to Whites living in the West, Whites in every other region of the country are significantly less likely to move to a different tract during the annual mobility interval.

Overall, the coefficients in Model 1 confirm the idea that mobility decisions are shaped by a wide variety of individual- and contextual-level factors that are independent of the size of the local minority population. Yet, in support of Hypothesis 1, the model also demonstrates that local racial conditions remain a salient influence on the mobility of White householders even after these other factors are taken into account.¹³ The fact that the size of the minority population continues to exert a significant influence on White mobility even after a vast array of micro-level factors are controlled appears to directly contradict the idea that White mobility out of minority-populated neighborhoods is driven simply by individual-, family-, and household-level factors that affect mobility in general. Similarly, this significant net racial effect is inconsistent with the idea that Whites leave minority-populated areas simply to avoid unfavorable social and economic conditions that may accompany large minority populations.¹⁴

As summarized in Hypothesis 2, the idea of a racial tipping point suggests that the odds of intertract mobility among White householders increases exponentially beyond a certain minority threshold representing the maximum tolerance level of most Whites. The second model of Table 2 adds polynomials of the tract's minority composition to test this second hypothesis. Both quadratic and cubic terms are included in the model to capture the full complexity of the relationship's functional form (Galster, 1990).

The coefficients in Table 2, column 3 provide strong evidence that the relationship between the minority composition of the neighborhood and the log-odds of out-mobility for individual Whites is indeed nonlinear. However, the nature of this nonlinearity appears to be considerably more complicated than the simple tipping point hypothesis implies. Illustrating the shape of this nonlinearity, Fig. 1 shows that at low levels of minority presence—below about 30% minority—the relationship between the minority percentage and the log-odds of White out-mobility is positive and the slope appears to be quite steep. At that

¹³ Supplemental analyses reveal that the slight attenuation of the coefficient reflected in Model 1 (from .0084 to .0072) is almost completely attributable to the introduction of controls for individual- and family-level characteristics.

¹⁴ In order to explore the possibility that the minority composition effect is actually an artifact of broader trends of decentralization focused on in previous research (c.f., Frey, 1979; South and Crowder, 1997b), additional models including a control for origin in a central city location were estimated. The inclusion of this variable did not attenuate the observed effect of the size of the minority population.

Log-odds of intertract mobility by tract percent minority. White PSID respondents, 1979–1985.

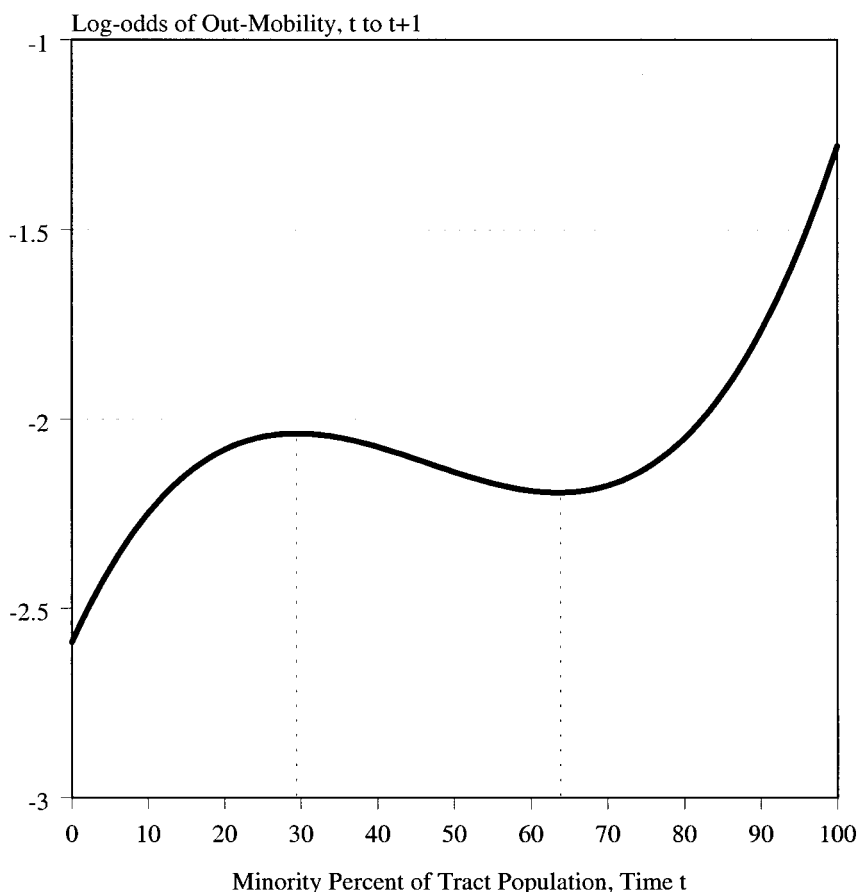


FIG. 1. Estimated log-odds assume means for all other predictors.

point the relationship reverses with the likelihood actually flattening or declining slightly between about 30 and 63% minority before reversing again with the likelihood increasing rapidly in the range above about 63% minority.¹⁵ Thus, there does appear to be an acceleration point in the relationship between the

¹⁵ Separate logistic regression models predicting out-mobility for Whites in three different ranges within the distribution of neighborhood racial composition indicate that the effect of the minority composition for those Whites in low minority tracts (0–30% minority) is quite pronounced and statistically significant. For those Whites in the middle range of minority composition (30 to 63% minority), the effect is far from statistically significant. For those in tracts with large minority concentrations (63% and above), the coefficient for the effect of the minority composition is large and positive but does not achieve statistical significance, likely because of the small number of observations in these tracts relative to the number of variables in the model.

neighborhood minority composition and the odds of individual out-mobility, but only after the relationship flattens markedly in the middle of the minority composition range.

Of course, in interpreting these results it is important to note that this nonlinearity represents the effect of local racial conditions net of the effects of other mobility determinants. Whites living in mixed tracts are more likely to move than are those originating in predominantly White tracts,¹⁶ but once other individual-level and contextual characteristics are taken into consideration, the likelihood of out-mobility among these mixed-tract residents does not vary with the relative size of the minority population. Even more important to remember is the fact that Whites in the sample are highly concentrated in the kinds of neighborhoods in which the relationship between the minority composition and White out-mobility is strong and positive. Over 87% of the Whites in the sample began the mobility interval in neighborhoods with minority percentages below 30%, just over 9% of the Whites began in neighborhoods that were between 30 and 63% minority, and only 3.2% began in tracts with minority compositions greater than 63%.

While inconsistent with the simplest interpretation of the tipping point hypothesis, the nonlinear partial relationship revealed in Model 2 might be reasonably reconciled with recent survey data on Whites' residential preferences and racial attitudes. This research consistently shows that a majority of Whites prefer neighborhoods that are all—or nearly all—White and are willing to tolerate only a very limited number of minority neighbors (cf., Clark, 1991; Farley et al., 1994), a fact that is consistent with the strong positive impact of the minority composition in the types of tracts in which the majority of Whites are concentrated. This survey research also reveals, however, that there is a small minority of White respondents who report a willingness to remain in largely integrated neighborhoods (see, e.g., Farley et al., 1994; Clark, 1991, 1992) and that these more tolerant Whites may be more concentrated in neighborhoods with relatively large minority populations (Bobo and Zubrinsky, 1996). Thus, the lack of an effect of neighborhood minority composition on White out-mobility in the middle range of minority presence may reflect the fact that Whites in these neighborhoods are simply selective of those more tolerant of integrated living for whom relatively higher percentages of racial and ethnic minorities, at least up to a certain limit, are unlikely to induce a move.

However, the sharp upturn in the effect of the neighborhood minority composition at levels of minority presence above about 60% indicates that, even if the Whites in these neighborhoods are selective of the more tolerant, their tolerance for integration has a definite limit. Recent surveys indicate that only a tiny

¹⁶ An examination of actual patterns of mobility shows that about 13% of the White householders originating in tracts that were between 0 and 30% minority actually moved to a different tract during the annual interval. In contrast, almost 17% of those originating in tracts with minority concentrations between 30 and 60%, and 22% of those from tracts with minority concentrations above 60% left their neighborhood during the annual interval.

fraction of White respondents report a preference for minority dominated neighborhoods, and a majority indicate that they would try to move out of a neighborhood in which Whites were outnumbered by minority residents. The findings here indicate that these preferences may very well play out in terms of actual mobility behavior and persist even when other crucial determinants of mobility are controlled. Of course, definitive word on whether variations in the tolerance for integration can explain the complex nonlinearity observed in the current study would require direct reference to the impact of racial-residential preferences on the actual mobility behaviors of individual householders.

To examine the impacts of the specific ethnic structure of the neighborhood's minority population (see Hypothesis 3), Model 3 of Table 2 adds variables indicating the proportion of the minority population made up of Hispanics and the proportion made up of Asians. Since these two groups in combination with Blacks comprise the entire minority population of these neighborhoods, the Black proportion of the minority population is omitted. Somewhat surprisingly, the effects of the proportion Hispanic and proportion Asian are both statistically nonsignificant, indicating that larger proportions of Asians and Hispanics making up the minority population appear to be no less or more aversive to White residents than are larger proportions of Black residents. Thus, it appears to be the size of the local minority population, largely regardless of the specific group composition of that minority population, that affects the mobility decisions of Whites.

That larger populations of Blacks do not appear to have a significantly greater effect on the out-mobility of Whites is an interesting but unexpected finding given Whites' apparently more negative assessment of Blacks as potential neighbors (Bobo and Zubrinsky, 1996) and their generally weaker stated preferences for neighborhoods containing Blacks versus those containing Hispanics and Asians (Clark, 1992).¹⁷ One possibility is that the nonsignificant effect of the proportion Black reflects a kind of neighborhood selection process. Given the earlier growth of the Black population in many metropolitan areas, White residents remaining in neighborhoods in which the minority population is made up of Blacks may be selective of those that are most tolerant of Black neighbors. In contrast, the adjustment process in which racially intolerant Whites leave the neighborhood may still be occurring in areas in which later arriving Asian and Hispanic groups make up the minority population. If accurate, the resulting high mobility from Hispanic and Asian populated areas may help to counteract the fact that, on average, Whites are less tolerant of living near Black residents.

Despite the null net effect of the relative size of the Black population, Model 3 does provide some evidence that the ethnic structure of the neighborhood is relevant to the mobility decisions of Whites. In partial support of Hypothesis 3,

¹⁷ The strong consistency between the results presented in Table 2 and those from models using the alternative measures of ethnic structure described in Footnote 4 contradict the idea that this unexpected finding is an artifact of the measurement scheme utilized here.

Whites appear to be significantly more likely to leave their neighborhood of origin if each of the three minority subgroups—Asians, Hispanics, and Blacks—comprise at least 10% of the total non-White population, and this effect is significant even when the total size of the minority population is controlled. In other words, individual White householders appear to be particularly averse to remaining in areas with greater racial and ethnic heterogeneity, a fact that seems to play a substantial role in the patterns of neighborhood turnover in multiethnic metropolitan areas (Denton and Massey, 1991).

Model 4 of Table 2 provides an assessment of Hypothesis 4, examining the impact of temporal changes in the racial composition of neighborhoods on the mobility decisions of White householders. The coefficients for these variables indicate that changes in the size of the Asian and Hispanic populations have no net effect on the mobility of White residents. In contrast, growing Black populations significantly increase the log-odds of out-mobility among White residents, independent of the minority composition and ethnic structure of the neighborhood population at the beginning of the mobility interval. Thus, these effects point to an additional layer of complexity in the relationship between local ethnic structures and individual mobility behaviors. While the greater aversion of Whites to living near Blacks does not manifest itself in the effects of static neighborhood ethnic structures, it does appear to be reflected in the fact that only recent increases in the Black population affect Whites' out-mobility. Most importantly, this impact of growing Black populations is significant even when other changes in the social and economic character of the neighborhood are controlled.

Further Exploring the Magnitude of Contextual Effects

In order to illustrate the substantive magnitude of the effects of neighborhood racial composition and metropolitan structural conditions on the mobility behaviors of Whites, Table 3 presents the estimated probabilities of annual intertract mobility corresponding to various values of several key independent variables. These predicted probabilities are derived from the coefficients in Model 4 of Table 2 and assume mean values for all of the variables in the models except those indicated in Table 3.

The first column of the table clearly demonstrates the generally positive, but also generally modest impact of the size of the neighborhood minority population on White mobility decisions. Net of all other factors and in comparison to Whites living in neighborhoods with no minority neighbors, the probability of leaving the neighborhood during a single annual interval is three percentage points higher for Whites living in neighborhoods in which only 15% of the population is non-Anglo. Reflecting the nonlinear relationship between the tract percent minority and the mobility of Whites, the probability of moving rises only slightly up to 30% and then declines slightly through about 60% minority before it begins to increase again above that point. Throughout this range, however, the probability of out-mobility remains substantially higher in comparison to those Whites

TABLE 3

Estimated Probabilities of Intertract Mobility by Values of Selected Independent Variables.
White PSID Respondents, 1979–1985^a

Independent variable	Probability of intertract mobility
Tract percent minority	
0%	.0719
15%	.1020
30%	.1093
45%	.1010
60%	.0915
75%	.0924
90%	.1182
All three groups present	
No	.0851
Yes	.0980
Proportional change in Black population	
–1	.0881
0	.0882
+2	.0883
+52	.0907
% MSA tracts White	
2%	.0638
32%	.0744
75%	.1026
93%	.1170
% MSA housing recently built	
9%	.0712
16%	.0783
34%	.0999
45%	.1155

^a Predicted probabilities are derived from Model 4 of Table 2. All predicted probabilities assume mean values for all variables except those indicated. Illustrative values represent the 5th, 25th, 75th and 95th percentiles of all variables except tract percent minority.

living in all-White neighborhoods. For Whites living in predominantly minority neighborhoods—those in which 90% of the population is non-Anglo—the probability of moving during any annual mobility interval is a full 64% higher than for those living in neighborhoods with no minorities present.

The net substantive impacts of other neighborhood characteristics are similarly moderate. Whites living in neighborhoods in which the minority population is made up of all three major minority groups have an almost 10% chance of leaving the neighborhood, compared to an 8.5% chance of moving for those Whites living in less diverse neighborhoods. Predicted probabilities for various magnitudes of change in the Black population also demonstrate that, after other mobility factors are accounted for, the likelihood of moving is only slightly greater for those Whites in neighborhoods in which the Black population in-

creased by 52 times (the 95th percentile value) than for those living in areas with an unchanged Black population total.

Thus, while the effects of neighborhood racial and ethnic conditions on the likelihood of White mobility are statistically significant, their net substantive impacts appear to be fairly modest, especially when compared to the impacts of some micro-level determinants of mobility such as age and home ownership. Taken at face value these small substantive effects appear to contradict the prevalent focus on White flight as a driving force behind neighborhood change (see, e.g., Massey and Denton, 1993). However, it is important to keep in mind that the figures in Table 3 represent only annual mobility probabilities—that is, the probability of moving in a single year. Compounded over just a few years, these probabilities imply rates of White out-mobility strong enough to have a profound impact on the composition of integrated neighborhoods, with constant downward pressure being applied to the representation of Whites in these areas.

Turning to the characteristics of the metropolitan area, the first column shows that for Whites the probability of moving increases substantially with the availability of predominantly White neighborhoods to serve as potential destinations for movers. The probability of moving among those Whites living in metropolitan areas in which 93% (the 95th percentile) of the neighborhoods are dominated by Whites is over 5 percentage points higher than for those in metropolitan areas in which only 2% of the tracts are predominantly White (the 5th percentile). Similarly, the probability of moving increases greatly with the availability of recently built housing. Whites living in metropolitan areas in which only 9% (the 5th percentile) of the housing was built in the past 10 years have just over a 7% chance of leaving their original neighborhood, but this probability increases by about one percentage point for every 10-point increase in the percentage of housing that was recently built.

Variations in the Effects of Neighborhood Minority Composition

While the results presented thus far indicate that neighborhood racial conditions significantly affect the mobility decisions of Whites in general, the size of the minority population may be especially salient for certain Whites and under certain structural conditions. Table 4 presents the logistic regression coefficients for multiplicative terms used to model the interactions implied in Hypotheses 5 and 6. Each of the logistic regression models from which these estimated coefficients are drawn also includes the full battery of variables included in the Model 4 of Table 2. In order to minimize the potential complications created by multicollinearity involving the various interaction terms, separate models are estimated for interactions with individual-, tract-, and metropolitan-level characteristics in addition to the model containing all interactions.¹⁸

¹⁸ Including all of the interaction terms simultaneously does significantly improve the fit of the model as a whole. Comparing Model 5 of Table 4 to Model 4 of Table 2, the improvement to chi-square is statistically significant at the .001 level ($1472.377 - 1430.610 = 41.767$; $df = 53 - 36 = 17$, $p < .001$).

TABLE 4

Logistic Coefficients for the Regression of Intertract Mobility of White PSID Respondents on Interactions between Tract Percent Minority and Individual-, Tract-, and Metropolitan-Characteristics, and Region^a

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	SE	b	SE	b	SE	b	SE	b	SE
Individual-level interactions										
% Minority × Age ^b	.020	.020	—	—	—	—	—	—	.020	.021
% Minority × Children age 0–5	.000	.003	—	—	—	—	—	—	–.002	.003
% Minority × Children age 6+	–.002	.002	—	—	—	—	—	—	–.003	.003
% Minority × Education	.000	.001	—	—	—	—	—	—	.000	.001
% Minority × Family income ^b	.030*	.010	—	—	—	—	—	—	.041**	.011
% Minority × Homeowner	.003	.005	—	—	—	—	—	—	–.001	.005
% Minority × In same house 3 + years	–.011*	.005	—	—	—	—	—	—	–.009	.005
Tract-level interactions										
% Minority × Mean Family Income ^b	—	—	–.001	.030	—	—	—	—	–.025	.033
% Minority × % Families with children ^b	—	—	.020	.020	—	—	—	—	.021	.024
% Minority × % In same house 5 years ago ^b	—	—	.001	.010	—	—	—	—	.012	.014
Metropolitan-level interactions										
% Minority × % MSA tracts minority ^b	—	—	—	—	–.004	.040	—	—	.045	.052
% Minority × % MSA tracts white ^b	—	—	—	—	.023*	.010	—	—	.028*	.011
% Minority × Vacancy concentration in minority tracts	—	—	—	—	–.029*	.013	—	—	–.013	.014
% Minority × % Housing units recently built ^b	—	—	—	—	–.014	.022	—	—	.021	0.34
Regional interactions										
% Minority × Northeast	—	—	—	—	—	—	–.022***	.007	–.026**	.009
% Minority × Midwest	—	—	—	—	—	—	–.013*	.006	–.012	.009
% Minority × South	—	—	—	—	—	—	–.018***	.005	–.023***	.006
χ ²	1445***		1432***		1438***		1447***		1472***	
df	43		39		40		39		53	
N	8837		8837		8837		8837		8837	

^a Also controlled in each model is the full range of individual-, tract-, and metropolitan-level variables included in Model 4 of Table 2.

^b Coefficients and standard errors multiplied by 100.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

In support of Hypothesis 5, the first model of Table 4 reveals a significant positive interaction between the size of the minority population and family income—an interaction that actually strengthens slightly when all interactions

are included. Thus it appears that the White flight response to larger minority populations is more likely to be utilized by wealthier Whites, likely because these householders are best able to act on their intolerance for living near minority neighbors. Regardless of its root cause, this income selectivity of White out-movers has potentially important implications for the economic conditions of minority-populated neighborhoods. While the positive impact of the neighborhood minority composition on White out-mobility in general may drive neighborhood turnover and bolster residential segregation, the greater impact of the neighborhood minority composition on higher-income Whites may exacerbate the concentration of poverty in minority areas, especially since those moving into these areas tend to be selective of the less well-off (South and Crowder, 1998).

Model 1 also reveals that longer-term residence in the same location reduces the effect of the neighborhood minority composition on the out-mobility of Whites, although Model 5 shows that this interaction becomes nonsignificant when all other interactions are controlled. This negative interaction may indicate that the social ties to the neighborhood developed during longer-term residence may partly override the aversion to living near larger minority populations.

The second model in Table 4 contains the interactions between the minority composition of the neighborhood and each of the main nonracial neighborhood characteristics examined in previous models. The fact that none of these tract-level interactions are statistically significant indicates that the size of the neighborhood's minority population has the same positive impact on White out-mobility regardless of the average income level of the area's families, the stability of the local population, and the distribution of family types in the area.

In support of Hypothesis 6, the interactions presented in Model 3 show that individual White householders are more likely to flee neighborhoods with large minority populations if there is an abundance of predominantly White neighborhoods to choose from in the metropolitan area and housing vacancies are more concentrated outside of minority-dominated areas. Conversely, Whites appear more likely to tolerate larger percentages of minority neighbors when the opportunities for mobility to predominantly White neighborhoods are limited. In other words, Whites appear to adjust their responses to the racial conditions of the neighborhood according to the quantity and quality of alternative neighborhood options available in the metropolitan area. These findings bolster the contention that Whites are not only affected by the racial conditions of the neighborhood but also by the racial conditions of the metropolitan area, with the two interacting significantly in shaping Whites' mobility behaviors.

The negative regional interactions presented in Model 4 indicate that, in comparison to Whites in the West, the out-mobility of White residents in other regions is less affected by the size of the minority population in the

neighborhood. Particularly interesting is the finding that the neighborhood minority composition has a smaller impact on the mobility of Southern Whites than on Western Whites. Apparently, those ecological, political, and structural factors that increase mobility in the West in general also significantly enhance Whites' willingness or ability to escape neighborhoods with larger minority populations, and these factors appear to outweigh any more conservative racial attitudes held by Southern Whites.

SUMMARY AND CONCLUSIONS

For decades, the idea of racially motivated White flight has maintained a position of central importance in theories of neighborhood racial change, and the unwillingness of Whites to remain in neighborhoods containing large and growing minority populations has been implicated as a significant force in the maintenance of high levels of residential segregation by race. But despite the theoretical importance of this White flight to the development of urban population distributions and to the processes of urban neighborhood change, data restrictions have, to this point, made it impossible to definitively confirm or contradict its existence at the individual level. More importantly, previous research has been unable to explore the complexities of the relationships between local racial conditions and individual mobility decisions.

Using multilevel data, the results of this analysis provide, for the first time, evidence that the mobility decisions of White metropolitan householders are directly influenced by the racial conditions of the neighborhoods in which they live. The likelihood that individual White householders will leave the neighborhood during an annual interval increases with the size of the total minority population in the neighborhood, and the effect is strongest in the types of neighborhoods in which the vast majority of Whites are located. Perhaps most importantly, the evidence here indicates that neighborhood-level racial and ethnic conditions represent salient predictors of individual mobility net of other important influences of mobility. Contrary to some assertions, White mobility from minority-populated areas does not appear to be a simple function of micro-level factors that affect mobility in general. There is also little evidence to suggest that the mobility reaction of Whites to larger minority populations reflects efforts to avoid proximity to poor residents or to escape unstable neighborhood environments. In addition, these nonracial economic and social conditions of the neighborhood neither enhance nor reduce the overall effects of the local racial and ethnic conditions on the likelihood of individual White out-mobility.

Taken together, these results do provide support for the basic, but previously untested, assumption that the mobility decisions of White householders are shaped by the racial and ethnic characteristics of the local population. This in itself is an important fact in the consideration of attempts to stabilize integrated neighborhoods. The unwillingness of White residents to remain in minority populated neighborhoods appears to complement their avoidance of such areas in

choosing mobility destinations¹⁹ (South and Crowder, 1998) and helps to sustain and enhance high levels of residential segregation by race.

However, the evidence presented here also implies that these annual mobility effects are generally more modest and considerably more complex than previously assumed. In addition to the size of the minority composition of the neighborhood the specific ethnic structure of that minority population plays a significant role as well. While the share of the minority population made up of Black residents does not appear to have a significant effect on White mobility independent of the total size of the minority population, White residents do appear to be especially reluctant to remain in neighborhoods containing a mixture of multiple racial and ethnic groups. And even net of these static neighborhood conditions, clues about the past and future composition of the neighborhood play a significant role in Whites' mobility behaviors as well; White out-mobility is higher from those neighborhoods in which the Black population has increased in recent years.

Adding to the complexity of these dynamics is the evidence that the White flight response varies substantially depending on individual circumstances and local structural conditions. Significant cross-level interactions indicate that higher-income Whites are more likely than lower-income Whites to flee from large minority populations, a fact that points to the potential impact of these mobility patterns on the concentration of poverty in minority populated neighborhoods. And there is strong evidence to indicate that the process of White flight at the individual level is conditioned substantially by the structural conditions of the metropolitan area. Individual White householders are less likely to move and *more* likely to tolerate large minority populations in their current neighborhood if the metropolitan area offers relatively few alternative opportunities for housing in predominantly White neighborhoods.

Thus, overall, the results presented here also indicate that the process of White flight is considerably more variable than the existing literature implies. In fact, one of the clearest conclusions to be drawn from this research is that it is simply insufficient to ask how the local size of the Black population, or even the total minority population, affects mobility decisions. Attention must also be paid to variations in these effects, the separate impact of complex ethnic structures, the difference between static conditions and temporal changes, and the structural constraints under which individual mobility decisions are made if we are to gain a complete understanding of the White flight process.

It should be noted that while the current study does indicate that local racial

¹⁹ Supplemental analyses (available from the author upon request) indicate that White householders, regardless of the characteristics of their tract of origin, are most likely to enter predominantly White tracts upon moving and very few relocate to areas in which minority group members constitute more than 40% of the total population. Furthermore, it is those Whites leaving areas with the greatest minority representation that reduce their exposure to minority neighbors most as a result of their mobility.

conditions, at least under some circumstances, significantly affect the mobility decisions of White residents, it does not provide definitive answers about what motivates this White flight. The simplest conclusion that could be drawn is that this White flight is motivated primarily by racial prejudice; that Whites' negative stereotypes about the personal qualities of minority-group members lead them to avoid residential contact with these groups.

However, this interpretation, like previous assumptions about the nature of White flight itself, may be somewhat simplistic. In reality, it is quite possible that Whites are motivated to leave integrated neighborhoods not by the aversion to living near individual minority residents, but by their *expectations* about the future social and economic conditions of the neighborhood. Patterns of neighborhood change occurring in recent decades have likely reinforced among Whites the assumption that, regardless of the current objective social and economic conditions of the neighborhood, the presence of large minority populations will invariably lead to minority domination, declining property values, increasing crime, deterioration of local services, and the growth of poverty and its related social ills (Berry, 1979; Farley, 1993; Yinger, 1995). As a result, for many Whites, the decision to leave an integrated neighborhood may not be rooted in racial prejudice per se, but in their expectations about what the introduction of non-White residents may imply about the economic and social environment of the neighborhood in the future.

Thus, in addition to examining further how the social and economic conditions of the neighborhood and the structural conditions of the metropolitan area help to shape Whites' reactions to neighborhood racial conditions, future research would do well to explicitly examine the links between racial attitudes, neighborhood preferences, and actual mobility behaviors. Addressing these questions is crucial if we are to develop the means to stabilize integrated neighborhoods and stem the processes of White flight that helps to maintain and bolster high levels of segregation in the country's metropolitan areas.

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