Extended Abstract

THE EFFECTS OF LOCAL AND EXTRA-LOCAL NEIGHBORHOOD CONDITIONS ON WHITE MOBILITY DECISIONS

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Background and Purpose: Spurred by growing recognition of the detrimental impacts of racial residential segregation, recent research has focused on the processes of residential mobility through which individuals and families attain residence in neighborhoods of varying racial status. To date, most of this research has focused on the influences of individual- and family-level characteristics on the probability of undertaking a move and on the choice of destinations. While characteristics of the immediate neighborhood of residence have occasionally been considered as predictors of these residential mobility outcomes (Boehm and Ihlandfeldt 1986; Crowder 2000; Lee et al. 1994), this past research has tended to treat neighborhoods as isolated islands, largely divorced from their broader social, geographic, and economic context. Despite theoretical arguments that mobility decisions are strongly conditioned by the spatial context in which they take place, data limitations and methodological complexities have prevented researchers from examining how the conditions of extra-local areas – areas surrounding the neighborhood of residence – affect the decision to move and how conditions in surrounding areas might influence inter-neighborhood migration behaviors.

    This lack of attention to extra-local contextual conditions is especially problematic in the context of studying residential segregation by race. Some of the key theoretical arguments informing research on this topic imply that mobility-related decisions of individual householders, 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 the composition of surrounding areas. Most notably, the white flight thesis and related models of neighborhood change imply that white householders tend to flee neighborhoods with large shares of minorities, but may be especially sensitive to such compositional characteristics when surrounding areas also contain large shares of minorities or are undergoing significant compositional change (Denton and Massey 1991; Molotch 1972). According to these arguments, the size and growth of minority populations in adjoining neighborhoods may provide residents with important clues about the future of their own neighborhood. Specifically, increasing minority populations in surrounding areas may be interpreted as a precursor to invasion and succession in the neighborhood of residence (Denton and Massey 1991; Molotch 1972) and may significantly influence individual decisions to remain in the neighborhood, or flee in advance of impending changes in the local area. Thus, prior studies of residential mobility that have focused solely on the racial characteristics of the immediate neighborhood, ignoring the racial composition of surrounding areas, might thus understate the extent of "white flight" from communities with large and/or increasing minority populations.

    These arguments suggest that a full understanding of the micro-level processes that affect neighborhood racial change and maintain residential segregation requires attention to the effects of both local neighborhood conditions and extra-local neighborhood conditions, and the interaction between the two. Such mobility decisions are likely to have profound effects on not only the level of segregation as typically measured by evenness scores, but also on the clustering of minority-dominated neighborhoods. This research presents a first exploration of these dynamics, focusing on how the racial composition of extra-local areas affect mobility decisions of individual white householders, how these effects vary by the characteristics of individual households, and how these effects complement, and interact with, characteristics of the immediate neighborhood of residence. Using individual-level data from the Panel Study of Income Dynamics (PSID), neighborhood-level data from four censuses, and rapidly developing techniques for spatial data analysis, this paper seeks to contribute to our collective knowledge on the individual-level dynamics that shape residential segregation by race by addressing several interrelated questions:

1. Does the racial composition of populations in adjacent areas exert an influence on white householders' decision to leave the neighborhood of residence, independent of the effects of conditions in the immediate neighborhood of residence? If extra-local neighborhood conditions are important, is it the static composition of the population or changes in this composition that have the strongest influence on out-mobility?
2. Whose mobility decisions are most profoundly shaped by the conditions in adjacent neighborhoods? Given variations in neighborhood preferences, community attachment, and housing investments, we should expect the effects of racial conditions in surrounding neighborhoods to differ by such factors as age, income, homeownership, and family composition.
3. Do concentrations of minority populations and/or high levels of poverty in extra-local neighborhoods alter white householders' reactions to the composition of the population in the immediate neighborhood of residence? In other words, is there an interactive effect of local and extra-local conditions on inter-neighborhood migration decisions?
4. What is the geographic scope of the extra-local areas that influence mobility decisions? Do households tend to respond to conditions in neighborhoods immediately adjacent to their own or to conditions in neighborhoods within a certain distance of their own?

Data and Methods: The primary data source for the household-level mobility is the Panel Study of Income Dynamics (PSID), a well-known longitudinal survey of U.S. residents and their families. The PSID data are uniquely suited to examining the effect of local and extra-local contextual effects on inter-neighborhood migration. First, they contain a wealth of information on a variety of individual- and family-level characteristics that are central to the study of residential mobility, including information on family composition and change, income, and education, demographic background (including race and ethnicity), employment, and housing. Second, the longitudinal nature of the data makes it possible to assess, prospectively, the impact of micro-level and contextual conditions on residential mobility. Third, because families of children and other family members are added to the panel as they establish independent households, the panel is constantly replenished with members of new cohorts.

The PSID's supplemental Geocode Match Files allow us to link the addresses of individual respondents to 1970, 1980, 1990, and 2000 census codes for the census tract of residence at each annual interview. The PSID Geocode data serve three important functions in the current research. First, they make it possible to trace the annual mobility of PSID respondents across neighborhoods and other geographic units. Second, these data enable us to attach detailed census data about the neighborhoods (census tracts) and metropolitan areas (census-defined MSAs) occupied by PSID respondents at each annual interview. We rely on tract-level census data compiled in the Neighborhood Change Database by GeoLytics Corporation and the Urban Institute (GeoLytics 2005). These data utilize a consistent set of tract boundaries across decennial censuses, making it possible to employ linear interpolation to estimate tract-level characteristics, including the relative size of the minority population, in non-census years, as well as changes in this racial composition in the five-year period preceding the year of observation.. The tract-level data are aggregated upward to create census-based measures of the contextual characteristics of the broader MSA.

A third central use of the PSID Geocode data involves the identification of extra-local neighborhoods. By identifying the tract location of each PSID respondent in each year, we are able to attach information on the conditions in surrounding geographic areas. In order to fully investigate our research questions, we explore results using two different methods for defining extra-local areas, with both methods utilizing burgeoning GIS tools. The first approach, referred to as the adjacent-tracts approach, assumes that residential movers consider racial and socioeconomic conditions in the tracts of destination and origin and in immediately adjacent areas, but that conditions outside these areas are relatively inconsequential. In this specification, the spatial weights matrix takes a binary or first-order contiguity structure that simply differentiates between neighboring and non-neighboring tracts. With row standardization, the resulting spatial lag operator represents the weighted average of contextual conditions in neighborhoods that border

the neighborhood of residence. The second alternative for modeling dependence of mobility decisions on conditions in surrounding areas utilizes a spatial weights matrix based on a distance-decay function. Central to this approach is the assumption that the effects of contextual conditions weaken across space; social and economic conditions in more distant tracts are presumed to be less important in shaping mobility decisions than are conditions in nearby neighborhoods, regardless of adjacency. The distance-decay method explicitly models this decaying influence of more distant locations by utilizing a spatial weights matrix in which the elements represent the inverse geographic distance between the tract of residence and each other tract. Given the implausibility that the demographic characteristics of each tract directly affect the decisions of residents of all other tracts, we constrain the influence of tracts more than 25 miles away to zero (Lima and Macedo 1999).

We utilize these data to investigate the impact of local and extra-local neighborhood conditions on the log-odds of moving from the census tract of origin between successive interviews. In this analysis, the dependent variable – residential mobility between neighborhoods – is presumed to be influenced not only by the racial composition and racial composition change in the immediate neighborhood, but also by conditions in surrounding neighborhoods. We incorporate spatially lagged versions of neighborhood racial characteristics using cross-regressive modeling strategies described by Anselin (2002) and Doreian (1980). We take full advantage of the flexibility of these models, the longitudinal nature of the PSID data, and the fact that tract-coded residential addresses are available for PSID respondents at each annual interview by segmenting each respondent's data record into a series of person-year observations, with each observation referring to two-year period between PSID interviews (the use of a two-year interval is necessitated by the adoption of a biennial interview schedule for the PSID after 1995). For this study, the sample consists of 10,759 non-Latino white PSID heads of households who were interviewed between 1970 and 2003 and resided in a census-defined Metropolitan Statistical Area (MSA) at the time of the interview. On average, the individuals in the sample contribute just under seven person-period observations for a total sample size of 75,274 person-periods.

Preliminary findings: Although this exploratory research is still in a fairly early stage of development, preliminary analyses using the adjacency-based definition of extra-local neighborhoods have revealed interesting and theoretically relevant results. Not surprisingly, basic descriptive statistics reveal that PSID respondents tend to reside in neighborhoods in which local characteristics are mirrored somewhat by conditions in surrounding neighborhoods. For example, the Pearson correlation coefficient between the percentage of the population in the immediate neighborhood that is made up of non-anglo minorities and the (weighted) average of the same measure in all adjacent neighborhoods is .68. This fairly high correspondence between racial conditions in the neighborhoods occupied by PSID respondents and conditions in surrounding neighborhoods, of course, reflects high levels of residential segregation by race and ethnicity in most metropolitan areas. However, the fact that the correlation between local and extra-local conditions is not higher also reflects the fact that many neighborhoods are surrounded by areas with substantially different contextual conditions. Even more noteworthy is the somewhat weaker connection between changes in racial composition in local and extra-local areas; the correlation between the five-year percentage change in the minority population in the tract of residence and in surrounding neighborhoods is .56. These figures point to considerable dissimilarity between local and extra-local conditions, highlighting the potential for independent effects of these conditions on individual mobility decisions.

Results of cross-regressive logistic regression models predicting the log-odds of leaving the tract during the two-year observation period reveal little net impact of extralocal conditions on out-mobility decisions net of the influence of micro-level characteristics and conditions of the immediate neighborhood of residence. Once more traditional micro-level measures of mobility are controlled, the size of the minority population in the tract of origin shows a positive and statistically significant effect on the likelihood of out-mobility for white householders. However, while there is a positive coefficient for the spatially lagged variable indicating the average minority concentration in adjacent tracts, the coefficient is small and

statistically non-significant. Thus, across all white households, there is little evidence that the racial composition of extra-local neighborhoods increases the propensity to leave the neighborhood. Similar results are found for the effects of temporal changes in extra-local neighborhood conditions; the coefficient for the spatially lagged version of the variable indicating five-year changes in the minority percentage in adjacent tracts is statistically non-significant in all models.

On the other hand, there is some evidence that extra-local conditions do influence mobility decisions among some specific groups of white householders, as indicated by coefficients associated with interaction terms involving individual-level characteristics and extra-local neighborhood conditions. Most notably, a positive regression coefficient for the interaction between the indicator of homeownership and the spatially lagged version of changes in neighborhood percent minority implies that, in comparison to renters, homeowners are especially likely to leave their neighborhood in response to growing minority concentrations in adjacent neighborhoods. This effect is consistent with the argument that homeowners, who typically have the greatest financial investment in the neighborhood, are particularly sensitive to any cues that their own neighborhood might soon change in ways that undermine their investment. There is also some evidence to indicate that the mobility effect of static racial composition in adjacent areas is slightly stronger for high-income whites, a finding with important implications for the ways in which individual reactions to extra-local racial conditions might affect subsequent changes in the socioeconomic conditions in the immediate neighborhood. Finally, it appears that the effect of extra-local racial conditions also vary by the age of the household, although in somewhat conflicting directions. Overall, however, these preliminary results point to fairly modest effects of extra-local racial conditions for most white householder, net of the influence of other predictors of mobility.

Much more noteworthy are results indicating that racial characteristics in extra-local areas significantly moderate the effects of local neighborhood conditions. Specifically, both the size of the minority population in surrounding areas and changes in this minority concentration interact positively with the size of the minority population in the immediate neighborhood in affecting out-mobility among white residents. Thus, for white householders the likelihood of out-mobility increases with the size of the non-anglo population in ways consistent with past research (Crowder 2000), but this effect is particularly pronounced if the neighborhood is surrounded by other tracts with high concentrations of minorities or areas experiencing increases in the size of the minority population. Supplemental analyses also indicate that the level of poverty in surrounding areas tends to enhance the effect of local minority concentrations on out-mobility among white householders, lending some additional insights into the ways in which the class composition of nearby neighborhoods alters white householders' reactions to non-white neighbors.

Ongoing research: In assessing our primary research questions, the results reported above will be supplemented in several important ways. Most notably, we are currently replicating these analyses using our alternative method for measuring characteristics of extra-local areas. As described above, this second approach is based on a more sophisticated distance-decay function that is likely more consistent with the criteria used by householders in assessing conditions in nearby neighborhoods. Second, supplemental analyses will move beyond the simple examination of how the total non-anglo population in local and extra-local neighborhoods influences mobility decisions to an assessment of the effects of specific group concentrations in these areas. This is especially important in light of research indicating a stronger aversion of white householders to residence near African Americans than to residence near some other groups. Finally, we plan to extend this analysis to investigate the extent which characteristics in neighboring areas affect mobility decisions for non-Latino black and Latino householders. Given reasonable page-length limits, these additional analyses will be used in this paper primarily as validity checks for the analysis of white out-mobility, and to provide a more complete picture of the ways that these mobility patterns influence broader patterns of residential segregation by race.