Residential Settlement Mechanisms in US Metropolitan Areas

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Ethnic residential segregation, understood broadly as the differential distribution of ethnic groups across space, is a visible aspect of present day life in metropolitan America that has long-lasting consequences for the life chances of individuals, primarily minority group members, living in segregated neighborhoods (Massey and Denton, 1993; Charles, 2003; Fischer and Tienda, 2006). As Fischer and Tienda (2006, p.101) note, "residential location is a powerful indicator of social position because many economic opportunities and social resources, such as affordable housing, quality schools, public safety, transportation, and recreational and social amenities are unequally distributed across space." While the main focus of previous research has been segregation (either measuring it or trying to understand why and where it happens), relatively fewer studies have been devoted to the fact that residential segregation is only one possible outcome of residential settlement processes (Ellen, 2000). Charles (2003, p.200) draws attention to this fact by stating that "far too little attention is paid to understanding the processes that produce and maintain the small but meaningful number of stably integrated neighborhoods."

The current project addresses these omissions on the premise that a deeper understanding of residential segregation cannot be attained without putting it in the broader context of urban residential settlement. Previous studies of ethnic residential segregation have suggested several factors as potential determinants of the phenomenon. Physical characteristics of the urban environment, demographic and socioeconomic characteristics, preferences for neighborhood composition, and discrimination have all been identified as playing a major role in determining the spatial distribution of ethnic

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groups within modern cities. However, few studies have attempted to explicitly identify the manner in which residential patterns emerge from the interaction of these factors in field settings. This project examines the following question: How do metropolitan areas across the United States differ in terms of the mechanisms that drive residential settlement?

The issue of identifying settlement mechanisms has been notoriously difficult to address, since it involves either having the appropriate tools to infer the mechanisms from cross-sectional data, or having high-quality longitudinal data. Existing regression-based models are able to examine the relationships between segregation levels and metropolitan area characteristics, but can only lead to speculations as to the underlying mechanisms (Chung and Brown, 2007). Bruch (2006, p.22) posits that: "most studies of race and economic segregation use cross-sectional Census data to make their claims. While these data provide 'snapshots' of neighborhoods over time, they provide no information about why they look that way, or how they change. It is difficult to use cross-sectional data to adjudicate among competing arguments about the roles that race and income play in maintaining persistent race segregation, because we cannot infer what sort of behavior at the individual, family, or household level produced the neighborhoods observed in each cross-section." Furthermore, regression-based approaches would be ill-fitted to model the complex dependencies between households and neighborhoods that exist in a residential system.

A few studies exist in which researchers use longitudinal data to explore the mechanisms that underlie the changes in residential patterns observed during the study period (Benenson, 2004; Chung and Brown, 2007; Hwang and Murdock, 1998). Benenson (2004) studies Yaffo, a suburb of Tel-Aviv, from 1955 to 1995. He proposes several combinations of potential mechanisms, simulates Yaffo based on them with the 1955 configuration as the starting point, and then identifies the combination that led to the best approximation of the 1995 configuration. Benenson (2004) finds that the best correspondence between reality and the simulated configuration is achieved in the case where the avoidance of Arab agents by Jewish agents is maximal, the avoidance of Jewish agents by Arab agents is low, and both groups are neutral toward their own members. Chung and Brown (2007) study Columbus, OH between 1990 and 2000 and test hypotheses based on several explanatory frameworks by examining patterns of new neighborhood formation. They find that the location and composition of new neighborhoods, as well as the changes experienced by existing neighborhoods provide evidence of mechanisms most closely associated with housing-market processes, and not spatial assimilation, discrimination or ethnocentrism. These studies are

based on either restricted census data (Benenson, 2004) or very good knowledge of the area (Chung and Brown, 2007), so their conclusions cannot be easily translated to other areas, and the application of the method to a larger number of areas is cumbersome.

Hwang and Murdock (1998) examine 1,672 U.S. suburban cities with a population of 10,000 or more and find that during the 1980-1990 decade, black populations grew faster in those suburbs that had smaller, rather than larger, percentages of blacks. They interpret these findings as evidence for spatial assimilation and against homophily, but do not have evidence at a census tract or lower level that would contradict homophily. It is possible that blacks moved to higher-percentage white suburbs because they could afford to and were attracted by the quality of public goods in the area, but that they selected the location of their home in the suburb so that it was closer to existing black households - the two mechanisms do not necessarily exclude each other. Such misconceptions suggest that we need both a better understanding of what residential systems would look like if both mechanisms were at play and a better way to identify them in real settings.

In this project I employ a recently developed statistical framework for modeling systems with complex dependencies that allows for inference of social mechanisms from cross-sectional data (Butts, 2007; Petrescu-Prahova, 2009). My analysis of Census 2000 data for 36 metropolitan areas in the United States that have only two major racial/ethnic groups shows remarkable similarity among these areas in terms of xenophobia, the tendency of the groups to separate spatially based on ethnicity. On the other hand, they show much wider variation in the levels of ethnic homophily manifested by the minority and majority groups, which are linked mainly to the proportion minority in the metropolitan area: the bigger the minority group, the weaker the minority homophily effect and the stronger the majority homophily effect.

Controlling for sorting by income and the general tendency for households to live in populated tracts, in these metropolitan areas households of minority ethnicity tend to live in contiguous census tracts, while households of different ethnicities tend to live in non-contiguous census tracts. When they are in the minority, non-Hispanic whites show homophily levels that are similar to other minority groups, suggesting that the status differentials between whites and minority groups may not be maintained when whites do not have the strength of numbers; this observation raises questions as to whether the preferences and behavior of whites will change as metropolitan areas in the US become majority minority.

Beyond these similarities, metropolitan areas in this group also differ along a number of dimensions. I use principal component analysis to examine the dimensions along which metropolitan areas differ in terms of model estimates, and canonical correlation analysis to examine the extent to which the variation in model estimates can be explained by metropolitan area characteristics. I find that there are three dimensions along which metropolitan areas in this sample differ in terms of model estimates and characteristics. The first dimension captures the tendency to separate based on ethnicity, on the one hand, and to live in densely populated areas, on the other. The second one captures variations in ethnic homophily, and is associated with percent minority in the metro area: the bigger the minority group, the weaker the minority homophily effect and the stronger the majority homophily effect. The third one captures variations in the influence of economic factors such as income and rent levels, showing that smaller places are more stratified by income.

The types of analyses conducted for the first time in this study allow researchers to develop a deeper understanding of the processes that lead to residential segregation. To the extent that we can identify classes of mechanisms that are associated with specific structural signatures, we can infer their contribution to the current configuration of a residential system. Moreover, we are able to examine the ways in which these classes of mechanisms relate to metropolitan area characteristics. This not only produces a more nuanced image of segregation in the United States, but at the same time may suggest a more tailored approach to reducing segregation.

1 References

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