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Reflections on the Dimensions of Segregation

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Nancy Denton and I published “The Dimensions of Residential Segregation” in 1988, during the early phases of a multi-year project funded by the National Institute of Child Health and Human Development. The purpose of the project was to study the trends, patterns, causes, and consequences of racial and ethnic residential segregation in the United States. Nancy was a postdoctoral research associate on the study at the time we began our investigation. In starting out, we encountered a vigorous debate in the literature about the “correct” or “right” way to measure neighborhood segregation that left us unsure about how to proceed methodologically.

Prior to the mid-1970s, however, the measurement of segregation had been settled science. In 1955 Otis Dudley Duncan and Beverly Duncan published an article in the *American Sociological Review* entitled “A Methodological Analysis of Segregation Indices,” in which they examined a variety of proposed measures. They concluded that the best overall measure was the Index of Dissimilarity (D), given its ease of computation, well-known and tractable properties, clear interpretation, and invariance with respect to the relative number of minority group members. Over the ensuing two decades, a *Pax Duncana* ensued and D was widely used without debate as the standard measure of segregation. It comprised the main index for such classic works as Duncan and Duncan’s (1957) *The Negro Population of Chicago*, Taeuber and Taeuber’s (1965) *Negroes in Cities*, and Grebler et al.’s (1970) *The Mexican-American People*.

The *Pax Duncana* ended in 1976 with the publication of a critique by Cortese et al. entitled “Further Considerations on the Methodological Analysis of Segregation,” also published in the *American Sociological Review*. The article unleashed “a torrent of papers [that] considered a variety of definitions of segregation, proposed a host of new measures, and rediscovered several old indices” (Massey and Denton 1988:282). By the mid-1980s no consensus had been reached on how best to measure segregation and we uncovered some 20 different measures of the concept in our review of the literature. Before proceeding to the substance of our analysis, we decided we had to bring some order to the debate and so undertook a systematic analysis of segregation indices, resulting in the *Social Forces* paper.

We began by conceptually classifying measures with respect to five distinct dimensions of spatial variation: unevenness, exposure, clustering, concentration, and centralization. Unevenness is the degree to which the percentage of minority group members within specific neighborhoods departs from the minority percentage in the entire urban area. Exposure is the degree of potential contact (or lack thereof) between minority and majority

members within particular neighborhoods. Clustering is the extent to which minority neighborhoods adjoin one another in space. Concentration is the relative amount of physical space occupied by a minority group within a city; and centralization is the degree to which minority members settle in and around the social or geographic center of a metropolitan area.

After defining the indices mathematically and classifying them conceptually, we assembled data for the nation's largest metropolitan areas in 1980, computed index values for Hispanics, Blacks, and Asians across all 20 measures, and factor analyzed the resulting set of indices to reveal their underlying factor structure. We obtained a factor pattern matrix that yielded a robust interpretation across different rotation and extraction methods, one that confirmed the conceptual structure we had hypothesized. Based on our analysis of the indices and our reading of the extant literature, we recommended an optimal measure for each dimension: the dissimilarity index for unevenness; the P* index for exposure; the spatial proximity index for clustering; the relative concentration index for concentration; and the absolute centralization index for centralization. The analysis and its conclusions were later replicated using a larger data set compiled for the 1990 census (see Massey, White, and Phua (1996).

In our *SF* paper, Nancy and I argued that social scientists should stop fighting about which measure of segregation was “best” or most “correct,” and instead measure all dimensions simultaneously to see what a multi-dimensional assessment might reveal about the nature of segregation in U.S. society. When then undertook this exercise for Blacks, Asians, and Hispanics in 1980 and found that African Americans were the only minority group to experience high levels of segregation on at least four of the five dimensions of segregation simultaneously, indicating a unique pattern of intense spatial isolation that we labeled “hypersegregation” (Massey and Denton 1989). Although African Americans were the only group to experience hypersegregation in the 1980s and 1990s, by 2000 Hispanic communities in two metropolitan areas (Los Angeles and New York) had evolved to satisfy the criteria for hypersegregation (Wilkes and Iceland 2004).

I had long been aware of the high degree of black segregation in urban America, of course. My Ph.D. dissertation had systematically examined levels and patterns of Hispanic segregation in urban areas throughout the United States (Massey 1978). Using African Americans as a base of comparison, I documented a wide range of Hispanic segregation levels associated with inter-urban variation in the generational and socioeconomic composition of the Latino population (Massey 1979a, 1979b). What really stood out to me, however, was not the variability of Hispanic segregation, but the intense and obdurate nature of black segregation. As of 1970 black-white was universally high and impervious to socioeconomic influences; but this was only two years after the passage of the 1968 Fair Housing Act (which outlawed racial discrimination in the rental or sale of housing) and several years before the 1974 Equal Credit Opportunity Act (which banned discrimination in mortgage lending) and the 1977 Community Reinvestment Act (which prohibited the practice of redlining).

In launching the study of segregation using 1980 census data, I hoped to see declines in black-white segregation in response to this legislation, but changes in black-white dissimilarity indices were limited and the discovery of hypersegregation only served to underscore the unusual depth and intensity of black segregation in the United States. At the time Nancy and I were publishing these results, a debate was raging about the causes of the “urban underclass” and it was puzzling to us that the reality of black hypersegregation was systematically absent from the debate, which focused instead on the negative effects of urban economic restructuring on black wages and employment (Wilson 1987) versus the disincentive effects of the U.S. welfare system in discouraging work (Murray 1984). While segregation was tacitly acknowledged as a social fact by all concerned, it was not taken seriously as an explanatory factor in theorizing the perpetuation of urban poverty.

In the ensuing years, Nancy and I elaborated, extended, and applied the concept of hypersegregation and ultimately deployed it a principal theoretical construct in our book *American Apartheid* (Massey and Denton 1993). In the book we described how residential segregation perpetuated black disadvantage by concentrating neighborhood poverty and severing the link between social and spatial mobility that other groups historically had used to work themselves up the socioeconomic hierarchy over time. In subsequent years the term “hypersegregation” and various permutations of the term entered the sociological and popular lexicon and came to stand for the unique nature of black segregation and the key role it played in promoting racial stratification in American society. A simple search on Google Scholar yields more than 2,000 hits.

Following the publication of *American Apartheid*, the computation of multiple segregation indices became a routine activity undertaken following each census and segregation became core feature of theorizing and studying racial and ethnic stratification both in the United States and around the world. The Census Bureau itself adopted our five-dimensional approach in computing segregation indices for 1980-2000 (see Iceland, Weinberg, and Steinmetz 2002). Most studies of segregation now report at least dissimilarity and exposure indices (see Iceland 2009; Logan and Stulz 2011); and recent empirical and theoretical work on stratification explicitly incorporates segregation into the picture as a major structural factor (see Sampson 2012).

In a very real way, therefore, “The Dimensions of Residential Segregation” led to a line of research and theorizing that changed thinking on racial inequality in the United States. Residential segregation is no longer overlooked as a factor in American stratification and appreciation of the importance of segregation as a social fact appears to have increased and spread beyond the confines of the United States (Massey 1985) to embrace Europe (Musterd, Ostendorf, and Breebaart 1997), the Americas (Roberts and Wilson 2009) and the broader world (Nightingale 2012). Methodological debates about the measurement of segregation continue, of course, with the main issue being whether it is preferable to adjust segregation measures for spatial clustering or to measure clustering as a separate dimension (Reardon and O’Sullivan 2004). Nonetheless the concept of hypersegregation is well-established in the field and residential segregation itself is now recognized by sociologists to be a fundamental mechanism of socioeconomic stratification.

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