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The Distribution of Neighborhood Poverty and Racial Disparities in Neighborhood Context: The Unequal American Geography of Opportunity

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Theresa L. Osypuk, ScD ScM [1]
Sandro Galea, MD DrPH [2]
Nancy McArdle, MPP [3]
Dolores Acevedo-Garcia, PhD, MPA-URP [4]

[1] Corresponding author: Robert Wood Johnson Foundation Health & Society Scholar; The University of Michigan, School of Public Health, Department of Epidemiology; 1214 South University, 2nd Floor; Ann Arbor, MI 48104. Phone: 734-615-9211. Fax: 734-998-0006. E-mail: osypuk@umich.edu

[2] Associate Professor; Department of Epidemiology; University of Michigan School of Public Health; Ann Arbor, MI.

[3] Research Analyst; Harvard School of Public Health; Department of Society, Human Development, & Health; Boston, MA.

[4] Associate Professor of Society, Human Development, and Health; Harvard School of Public Health; Department of Society, Human Development, & Health; Boston, MA.

ABSTRACT

BACKGROUND: American metropolitan areas exhibit an uneven geography of opportunity; minorities are more likely to live in worse quality neighborhoods, affecting their opportunities and life outcomes. Our objective was to broaden the conceptualization of US neighborhood poverty beyond "the average" to illustrate the non-overlap of entire distributions of neighborhood poverty by race, and to highlight the differences in poverty/race distributions across different U.S. metropolitan areas.

METHODS: We employed Census 2000 tract-level data for 100 largest Metropolitan Areas (MAs) (n=38,855 tracts). We analyzed proportions of total tract population in poverty, then, to examine race-specific neighborhood-poverty distributions, we applied weights based on tract-level counts for each of the 3 largest racial-ethnic groups (NH-Blacks, NH-Whites, Hispanics). We calculated exposure measures of mean and quartiles of the neighborhood-poverty distribution by MSA, and present a new statistical test of non-distributional-overlap of neighborhood poverty (IQR Overlap Statistic). We calculated a relative measure of the distribution of poverty, calibrated within MAs, to classify what proportion of each racial group reside within quartiles of the MA-specific neighborhood poverty distribution. We correlated these MA neighborhood poverty distribution statistics, and graphed results comparing all 100 MAs, by race.

RESULTS: We found the entire distribution of neighborhood poverty shifted in a worse direction for minorities; white-minority distributions did not substantially overlap in the majority of the MAs (especially for blacks). On average, only 27% of minority and white neighborhood poverty distributions overlapped. The degree of racial overlap varied by MA, but in few areas was there substantial overlap between minorities and whites. The MA-neighborhood poverty variation was substantially wider for minorities than whites. MAs with highest neighborhood poverty had the widest distributions (rho=.66, p<.0001). The amount of distributional overlap between the minority and white neighborhood distributions (IQR distribution Overlap Statistic) was strongly inversely correlated with residential segregation and with the MA neighborhood

poverty rate for minorities, but positively correlated with the MA average neighborhood poverty rate.

CONCLUSION: Not only do minorities live in worse neighborhood environments on average, but also the distribution of neighborhoods in which minorities live, with respect to neighborhood poverty, is separate from the distribution of neighborhoods in which whites live. This indicates that minorities have a very different neighborhood "opportunity space", which we envision as an input that influences future outcomes at the population level. Understanding the opportunity structure of neighborhoods requires situating them within a distributional, metropolitan, and racial context.

INTRODUCTION

We sought to build on the literature discussing the contribution of place and race to the stark and persistent racial disparities in life outcomes in the US (Briggs, 2005; Smelser, Wilson, & Mitchell, 2001). In particular, we sought to extend the literature about the influence of the neighborhood environment by situating neighborhoods within metropolitan areas for a multilevel perspective on why place matters for opportunity (Katz, 2004). To do so, we explored how the typical neighborhood, as well as the range of neighborhoods, may be vastly different in different metropolitan areas across the U.S., and for different racial groups within and between metro areas. Operationalizing place not only as neighborhood environment, but also as metropolitan environment, recognizes the nested structure of individuals in neighborhoods within the larger economic and social system proxied by the metropolitan area. Examining the range, or distribution, of neighborhoods for entire populations allows us to examine the "opportunity space" in terms of the quality of neighborhood environment within which the population of each group lives; this range of neighborhood quality is conceptualized as an input that helps to determine the future outcomes of that group on the population level.

OBJECTIVES

The main objective of this analysis is to broaden the conceptualization of neighborhood poverty, to situate neighborhood poverty within a metropolitan distributional and racial context. We build on the literature of racial residential and economic segregation (Massey & Denton, 1988; Massey & Fischer, 1999; St. John & Clymer, 2000) and of neighborhood poverty (Jargowsky, 1997; Jargowsky & Bane, 1990; Kingsley & Pettit, 2003; Massey & Fischer, 2000), to explore how even, or uneven, the playing field is in terms of the universe of neighborhood opportunity as a whole, and to situate different racial groups within the universe of neighborhoods to picture numerically and visually the unequal distribution of neighborhood opportunity across racial groups.

Specifically, the objectives of this analysis are: (1) To characterize neighborhood environments using measures of distributional spread and distributional overlap, in addition to measures of central tendency, in a distributional framework; (2) To introduce the interquartile range overlap

statistic (IQR-OS), a measure of distributional overlap to characterize the degree of IQR overlap of two groups' distributions on a continuous measure of neighborhood poverty; (3) To contrast race-specific neighborhood poverty distributions to highlight the different opportunity space occupied by entire populations of whites, blacks, and hispanics in the largest 100 metro areas; (4) To calculate absolute and relative measures of racial inequality in metropolitan neighborhood poverty environments.

METHODS

In this analysis we aimed to contrast the largest U.S. metropolitan areas using the universe of neighborhoods; we thus used Census data due to data availability. We used the Census 2000 tract-level data from Summary Files 1 and 3 for the largest 100 metropolitan statistical areas (MSAs) by population size. We used census tracts as the lower unit of analysis as a proxy for neighborhoods. We used metropolitan statistical areas (MSAs) and Primary MSAs as the unit of analysis for our 2nd level of analysis in line with prior work, since they approximate housing and labor markets (Jargowsky, 2003).

We operationalized neighborhood opportunity by the proportion of people in the tract below the official poverty line in 1999, or % poverty, or alternately, the neighborhood poverty rate.

To examine race-specific neighborhood poverty distributions, we applied 4 different weights to the tract-level measure of proportion of population in poverty, based on the tract-level counts of the total population, and of three racial/ethnic groups: Non-Hispanic (NH) Whites alone, Non-Hispanic Blacks alone, and Hispanics (of any race).

We calculated an exposure measure of the mean neighborhood poverty rate in which the average person of each racial group resides in each metropolitan area. Exposure measures are employed by demographers to measure segregation (Galster & Mikelsons, 1995; Logan, 2002; Massey et al., 2000). We then calculated exposure measures for the quartiles of the neighborhood poverty distribution within each metro area. We then developed a measure of distributional overlap between whites and minorities, the Interquartile Range Overlap Statistic (IQR-OS), using the quartiles.

We calculated the measures above, conducted correlation analyses, and graphed our results with boxplots, stacked bar graphs, and density line graphs.

RESULTS

The average American in the largest 100 MSAs lives in a neighborhood that is 11.8% poor based on the mean, or 7.8% poor based on the median. The neighborhood poverty rate (median 5.8%) for whites is lower on average than for the total population, as expected. Blacks and Hispanics have a distribution of neighborhood poverty that is wider and shifted substantially worse. The median neighborhood poverty for blacks across the nation is 17.5%, and the black IQR is 9.0 to 28.7, a range of 20 percentage points (compared to the range of 7 points for NH whites). The median Hispanic lives in a neighborhood that is slightly less poor than for blacks, at 16.7% poverty. The Hispanic IQR (17.5) is also wider than for NH Whites. The IQR of NH whites barely overlaps the IQR of NH blacks, or the IQR of hispanics. This translates into 27.2% of each distribution overlapping the other (e.g. 27% of the white distribution overlaps 27% of the minority distribution of neighborhood poverty).

However, the metropolitan distributions of neighborhood poverty, the race-specific distributions of neighborhood poverty, and the racial overlap of neighborhood poverty distributions varied substantially by metro area. For instance, Middlesex NJ had the lowest median neighborhood poverty rate at 3.3%, with an IQR of 4.0 percentage points (1st quartile of 2.2% and 3rd quartile of 6.2%). So the typical (median) resident here lives in a neighborhood with 3% poverty, one-quarter of the population in neighborhoods live in or below 2.2% poverty, and one-quarter of the population in neighborhoods over 6% in poverty. However, in McAllen TX – the MSA with the highest median poverty rate–the typical (median) resident lives in a neighborhood with 38.3% poverty, with an IQR of 19.8 points. The variance of neighborhood poverty is strongly correlated with the median (rho=0.66, p<.0001). MSAs with low average neighborhood poverty rates also have very tight distributions of neighborhood poverty (corresponding to smaller variance, denoted by the short IQR).

We find that the IQR of neighborhood poverty is wider for minorities vs. whites in all but 2 of 200 instances (McAllen for Hispanics, and Honolulu for Blacks). Moreover, the racial disparity in the neighborhood poverty IQR varies considerably across MSAs. The neighborhood poverty metropolitan- and race-specific distributions for whites have lower average medians, and tighter IQRs (denoted by shorter IQR lines), compared to the distributions for blacks and hispanics.

The IQR Overlap Statistic (IQR-OS) is a measure of the extent of neighborhood poverty distributional overlap between whites and minorities within each MSA. The most unequal MSAs for black-white overlap on the IQR-OS were Buffalo, Gary, Milwaukee, Toledo, and Detroit. For Hispanic-white overlap, the most unequal IQR-OS MSAs were Providence, Hartford, Newark, New Haven, and Springfield. In 32 MSAs (out of 100), or approximately one-third of MSAs, the black and white neighborhood poverty IQRs do not overlap (including two MSAs with zero overlap). For the MSAs with some degree of black-white IQR overlap, 60% of the MSAs (n=42) had an overlap of 3 percentage points or less, and 77% (n=54) had overlap of 5 percentage points or less. Therefore the degree of IQR overlap was nil or small for the vast majority of the largest 100 MSAs. Hispanics had greater IQR overlap with whites than did blacks. Eighty-nine of the largest 100 MSAs had some degree of Hispanic-white IQR overlap. Only 38% of MSAs with some Hispanic-white overlap had overlap of 3 points or less, although 67% had overlap of 5 points or less.

MSAs where whites live in higher neighborhood poverty are also MSAs where minorities live in higher neighborhood poverty. The MSA median neighborhood poverty for whites was moderately correlated with the median neighborhood poverty for blacks and Hispanics. MSAs with higher racial separation of neighborhood poverty distributions were more likely to be high for racial residential segregation. MSAs with lower neighborhood poverty overlap for whites and minorities were also more likely to have higher absolute populations of minorities and higher MSA proportions of minorities. The black-white IQR-OS for was moderately positively correlated with the Hispanic-white IQR-OS. In sum, higher racial separation of the MSA neighborhood poverty distributions is highly correlated with higher MSA racial residential segregation, and moderately correlated with presence of more minorities in the MSA, in both absolute and relative terms.

CONCLUSION

As observed before (Katz, 2004), poverty is not evenly distributed, and the distribution of poverty is continuous (Jargowsky, 1997; Katz, 2004). Limited prior work has situated neighborhoods within a distributional framework, with attention to the vast racial imbalance of distributions of neighborhood environment. Our analysis finds large racial inequalities in neighborhood environment such that the minority and white distributions of neighborhood poverty insubstantially overlap, especially in the largest-minority metro areas. This separate distribution of neighborhood environment may be a compelling argument for the implications of residential segregation and neighborhood poverty for opportunity, given the clear geography of opportunity patterned by American neighborhoods. Our findings thus support a clear geography of inequality that is clearly patterned by race across metropolitan areas.

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