Introduction

Cities in the United States continue to be characterized by the residential segregation of individuals by race/ethnicity and socioeconomic status (Massey & Denton 1993; Reardon & Firebaugh 2002; Reardon & O'Sullivan 2004; Lee et al. 2008; Reardon et al. 2008; Reardon et al. 2009). Meanwhile, growing disparities in health outcomes threaten to exacerbate and solidify already high levels of socioeconomic inequality (Adler & Rehkopf). In response, researchers have increasingly turned to neighborhood context in search of policy reprieve (Robert 1999; Booth et al. 200; Morland et al. 2006; Mujahid et al. 2008). Scholars have also found that immigrants (and other racial/ethnic minorities) are prone to be more ingrained in their communities and therefore more likely to experience pronounced sensitivity to neighborhood context (Abrahamson 1996; Fischer 1984; Gans 1962; Suttles 1968; Wellman 1977). As such, this study investigates the effect of neighborhood context on the odds of being obese for a sample of youth ages 2 – 18 by race/ethnicity and socioeconomic status between 1986 and 2008. The study contributes to the neighborhood effects literature overall by studying movers and stayers separately, accounting for neighborhood change over time, and by investigating the roles of affluence and gentrification on obesity. The study focuses on the role of neighborhood social context, in particular, as an explanatory factor for health outcomes over and above individual background. Moreover, this study indirectly investigates the effect of ongoing federal housing policies that move disadvantaged families to better-off neighborhoods, such as Section 8, and those that aim to socioeconomically revitalize neighborhoods, such as HOPE VI.

Data and Methods

The data come from the restricted tract-level Children and Young Adult sample of the National Longitudinal Survey of Youth (NLSY). By 2008, the data include substantial amounts of Blacks (n=2,521) and Latinos (n=1,667). These data include all children ever born to mothers who were original respondents to the NLSY-1979 and links the annual data on mothers to the biennial data on children across 12 survey waves between 1986 and 2008. This period coincides with a surge in obesity rates among children and adolescents in the U.S. – especially among racial and ethnic minorities. These data have been seldom used by neighborhood effects scholars and provide a rich set of repeated observations from which to glean causal effects for neighborhood context. Furthermore, the sample is overwhelmingly urban (90%) which allows for the opportunity to study some of the most disadvantaged populations in the U.S. The outcome is a binary variable for obesity (0=no, 1=yes) that was measured each year of the survey.

Neighborhood characteristics

I linked tract-identifiers in the NLSY with data from the National Historical Geographic Information System (NHGIS) database in order to gain measures of neighborhood advantage as well as disadvantage at the census tract level. In addition to a rich set of controls, I focus particular attention on the following characteristics separately: Percent Black, percent Latino, percent in poverty, percent of unemployed males, and percent of managers/professionals.[1] I operationalize affluence as moving to a neighborhood with more managers/professionals. I operationalize gentrification as staying in the same neighborhood and experiencing increases in

[1] The most collinearity among these variables was between neighborhood poverty and percent Black – at .36.

managers/professionals around oneself over time.[2] Following previous research, I linearly interpolated neighborhood variables between Census cycles in order to achieve a complete register of characteristics between 1986 and 2008.[3]

Logistic, random effects, and fixed effects models

The panel structure of the NLSY lends itself nicely to a within-child fixed effects approach that uses individuals as their own controls to minimize threats from unobserved time-invariant characteristics of youth and families that may bias estimates of neighborhood effects. In order to test the effectiveness of fixed-effects models at minimizing selection bias, I also ran logistic and random-effects models.[4] I ran separate analyses for recent neighborhood context (i.e., up to two years of exposure) as well as for long-term neighborhood context (i.e., up to four years of exposure). I ran these models separately for urban Whites, urban Blacks, urban Latinos, poor and urban Blacks, and poor and urban Latinos and ran z-tests to identify statistically significant differences between Whites and these policy relevant minority populations. [5]

Results

Among urban White youth, staying in the same neighborhood and having had recently (i.e., within the previous two years) experienced increases in the percent of Latinos in the neighborhood as well as neighborhood unemployment decreased the odds of being obese. Both of these findings were contrary to what we would expect from theory. However, gentrification (i.e., staying and experiencing increases in the percent of managers/professionals in the neighborhood over time) decreased the odds of being obese – as we would expect from theory. Meanwhile, the long-term exposure (i.e., four years) to such neighborhoods did not result in any statistically significant effects for White youth. That is, the effects of neighborhood disadvantage and advantage waned over time for White youth. Surprisingly, having had experienced an increase in Black neighbors in the Whites' original neighborhoods reduced the odds of being obese after Whites moved to new neighborhoods. Finally, while many neighborhood context variables showed statistically significant effects in logistic and random effects models, the majority of these effects were explained by time-invariant unobserved variables in the fixed effects model. That is, selection seems to have been behind many of the effects I found in the non-causal models (i.e., logistic and random effects models).

Among urban Black youth, long-term exposure to neighborhood unemployment increased the odds of being obese while more recent exposure to neighborhood unemployment also increased the odds of being obese among urban Latinos. The finding that racial/ethnic

[2] Mary Patillo's work on the integration of previously Black and poor neighborhoods in Chicago by middle-class Blacks sheds light on the socioeconomic basis of gentrification (Patillo 1999; 2005). Similarly, I operationalize gentrification using socioeconomic indicators rather than racial/ethnic ones.

[3] I accounted for annual business cycles by estimating annual unemployment rates using an interpolation of the difference between local and state unemployment rates for each inter-Census year.

[4] Random effects models, while using information from both within and between individuals, does not allow for observed variables to correlate with fixed unobserved variables in the error structure. Fixed effects models allow for such correlations and, thus, are able to control for unobserved confounders (see Allison 2009 and Wooldridge 2002).

[5] There were too few poor and urban White youth in the NLSY sample for whom I could yield meaningful results. However, urban White youth provide a useful baseline sample for comparisons with disadvantaged minorities insofar as they represent the mainstream as well as share an urban residential context with minorities.

neighborhood composition does not affect minority youth's obesity is also in contrast to many studies conducted between 1950 and 2000 that found that racial/ethnic segregation in urban areas does have an effect on the health (i.e., infant and adult mortality) outcomes of Blacks (Acevedo-Garcia and Lochner 2003). Since the majority of the studies surveyed by the authors examined areas larger than census tracts (e.g., metropolitan statistical areas, states, etc.) and used various indices of segregation as their primary independent variable, we may conclude that the effects of racial/ethnic context may operate at a larger level than what I have examined here (Reardon et al. 2009). That is, minority youth's obesity may be affected if they are surrounded by areas of racial/ethnic concentration that are larger than the census tract.

The samples of *poor and urban* minority youth did not reveal many social context effects on obesity. For example, among poor and urban Black youth, I found that moving to more affluent neighborhoods (i.e., those with more managers/professionals) decreased the odds of being obese – mirroring the results for White youth. However, the long-term analysis revealed that the effect of affluence waned for poor and urban Black youth so that the better-off environment no longer protected them from becoming obese. For poor and urban Black youth, selection did not seem to be as big a problem as for urban Whites. Instead, duration of exposure explained the short-term effects of neighborhood affluence for poor and urban Blacks. Among *poor and urban* Latino youth, neighborhood social context did not show any effects on the odds of being obese. Like poor and urban Blacks, results for logistic and random effects models showed no statistically significant effects. However, unlike poor and urban Blacks, the results for poor and urban Latinos did not show any statistically significant effects for fixed effects models either.

Conclusions

We can take a few conclusions away from this analysis that provide us with a better understanding of the role that social context plays on obesity among youth. First, many of the statistically significant logistic and random effects estimates for social context effects are spurious. The comparison of logistic, random effects, and fixed effects models demonstrates that unobserved fixed confounders sometimes account for the associations between neighborhood context and obesity. Second, the findings suggest that improving the socioeconomic context of neighborhoods improves the health of urban Blacks and Latinos. While the operationalization of gentrification I used here (i.e., managers/professionals) did not affect obesity, unemployment did increase the odds of being obese for urban Blacks and Latinos. These findings still, however, support policies aimed at socioeconomically revitalizing neighborhoods where minorities live in order to improve their health outcomes.

Meanwhile, the findings also suggest that social context alone does not provide a strong basis for policy intervention aimed alleviating health disparities between Whites and the most disadvantaged sub-population (i.e., poor and urban minorities). While poor and urban Blacks benefited in the short term from moving to affluence, this effect disappeared over time and was never present for poor and urban Latinos. Policies that relocate poor and urban minorities or economically revitalize their neighborhoods around them over time should enhance the resources and services available to ensure that they reap the health benefits afforded by living in better neighborhoods.