A Dynamic Model of Neighborhood SES and Racial Context on Health Disparities

By Erin Ruel and Stephanie Robert
University of Wisconsin-Madison

INTRODUCTION

In the U.S., rates of disease, disability and mortality vary between racial and ethnic groups. These health disparities tend to be large, persistent, and to be increasing over time (Williams and Collins, 1995; House, 2001). The National Institute of Health has recognized the importance of determining the origins of these inequalities (Varmus, 1999). Prior research has shown that individuals' socio-economic status consistently explains variation in health outcomes (Marmot, 1987, Kreiger and Fee, 1994). Individual level SES explains most, but not necessarily all of health inequalities (Williams and Collins, 1995). Robert (1998) has found that beyond individual level SES, community level SES partially explains health inequalities.

However, individual level SES and community SES attenuate the association between race and health outcomes, but do not necessarily eliminate it. A possible explanation for this, and a growing research agenda, is to examine the role of racial residential segregation on health outcomes. Several studies at the ecological level show a relationship between racial segregation and mortality (McCord and Freeman, 1990; LaViest, 1992, 1993; Collins and Williams, 1999; Polednak, 1993; Shihadeh and Flynn, 1996). The aggregate nature of this data raises many questions regarding the association between racial segregation and health at the individual level. Recently, investigators have called for more analyses of health disparities that utilize multilevel modeling to take advantage of both individual level and community level determinants of health disparities and the mechanism through which it works. (Acevedo-Garcia, 2000; **).

In an earlier piece, we answered this call. We analyzed the impact of racial residential segregation on self-reported health and mortality in a multilevel framework on

two nationally representative U.S. samples combined with county level census data and found that racial segregation, measured by either the index of dissimilarity and the index of isolation, did not explain racial health disparities. Gee (2002) in a study of Chinese segregation and health outcomes in LA found that segregation had a positive impact on health. The lack of expected results have led us to question the theoretical and methodological underpinnings of the impact of racial residential segregation on health outcomes.

Theoretically, defining racial residential segregation as a function of the distribution of smaller geographic units within larger geographic units, means we are treating segregation as a measure of inequality or dispersion. What does it really mean for health outcomes that blacks and whites are distributed unevenly in cities and MSAs? Are we not more concerned with the health disparities of blacks that live in highly black and poor, inner city neighborhoods and whites that live in highly white suburban neighborhoods? Studies that look at income inequality, compare measures of income dispersion as well as measures of absolute income. In terms of segregation, there is no measure of absolute segregation, only measures of dispersion. House (2001) argues that findings based on income inequality may be driven by the fact that there are simply more individuals at the bottom of the income distribution. Perhaps the inconsistent results based on racial segregation are due to the large number of blacks in highly segregated areas. Perhaps we should be looking at a more absolute measure of segregation.

Methodologically, these multilevel studies are cross-sectional and racial residential segregation is often treated statically, measured at a single point in time, and is often analyzed independently from class segregation. At any one point, two communities

could appear to be quite similar, they may have the same percent of black or lower class residents. However, it is possible that one community is transitioning into a very poor and heavily black community because whites are moving out and blacks are moving in over time, while the other community is stable over time. The residents of these two communities, then, are quite different. A cross-sectional study, which treats these two communities as if they are similar, may have confounded results due to the heterogeneity not captured in a cross-sectional design.

The goal of this paper is to assess the relationship between health outcomes and both community racial and class segregation. This paper makes two important contributions. First, we argue for a measure of segregated neighborhoods following work by Massey, Condran and Denton (1987) and Duncan and Duncan (1957). This measure can be considered more of an absolute measure of segregation as if focuses on the racial composition of smaller geographic units as opposed to the deviation of the smaller geographic unit from the larger geographic unit. Furthermore, we analyze racial segregation alone and then jointly with class segregation to determine if one aspect of a community's composition is more important than is the other in explaining health disparities or if community SES moderates racial segregation. Secondly, we propose to measure community segregation dynamically by creating a typology of segregated neighborhoods based on flows of racial groups into and out of neighborhoods between two decades.

LITERATURE REVIEW

Racial residential segregation refers to the systematically differing distributions of racial groups across smaller geographic units (census tracts) nested within larger geographic units (MSA's) (Massey and Denton, 1988a). Racial residential segregation has been found to produce and reinforce the economic segregation of blacks (Massey, 1990; Massey and Denton, 1989; Massey and Denton 1988b; Wilson, 1987). Blacks with higher levels of income are as likely to live in racially segregated communities, as are blacks with lower income levels (Massey and Denton, 1988b; Alba and Logan, 1993). Thus, blacks and whites live in very different types of neighborhoods.

Research shows that racial segregation is associated with high rates of poverty, crime, homicide, high school dropout, and unemployment (Shihadeh and Flynn, 1996; Wilson, 1987; Jencks and Mayer, 1990; Logan and Messner, 1987; Massey, Condran and Denton, 1987). Massey and Denton (1988a) show that there are five dimensions to segregation and they suggest the best index to use to operationalize each dimension. Interestingly enough, research by Massey, Condran and Denton, (1987) and Massey (1990), which show racial disparities in several outcomes, do not use any of these indices to represent segregation. Rather, they use the percent white in census tracts, or a typology of neighborhoods.

In his article, American Apartheid: Segregation and the Making of the Underclass (1990), Massey[1] argued that racial residential segregation is a key conditioning variable in the creation of the urban inner city underclass. He argues that class segregation exists, and most would agree that there are neighborhoods organized by income. Individuals with means will move to the best possible neighborhoods to take advantage of spatial stratification (Massey Condran and Denton, 1987). Therefore, the wealthy isolate

[1] The bulk of this section is based on Massey, (1990).

themselves from the problems of the poor or working classes. Any economic upheavals would affect the poor and working class neighborhoods and be less likely to impact the well off neighborhoods. If racial segregation co-exists, then the well-off whites are segregated from the well-off blacks and the poor and working class whites are segregated from the poor and working class blacks. Now, economic upheaval will affect neighborhoods differentially. Blacks consistently have higher rates of unemployment than whites do. Blacks tend to work in industries that are more prone to layoffs than industries in which whites work. Therefore, Massey claimed that the economic crises of the 1970s produced the concentrated poverty found among the black urban underclass because of racial segregation. He argues that class segregation alone does not impose racial differences in hardship, however, class segregation on top of racial segregation benefits whites and harms blacks. Through racial segregation, the average residential environment of whites improves and the average environment of blacks deteriorates. Whereas all poor blacks are confined to neighborhoods with a high poverty rate, some poor whites live in racially homogeneous neighborhoods that are insulated from the greater prevalence of poverty among blacks. Due to racial segregation, the average poverty rate experienced by blacks increases while that of whites decreases, and as segregation increases, the disparity in average poverty rates experienced by blacks and whites also increases.

Massey (1990) further argues that that these economic shocks do not just impact black individuals, but the neighborhoods in which these individuals reside. In a segregated environment any exogenous economic event that causes a downward shift in the distribution of income of blacks will not only increase the poverty rate for blacks as a

whole, it will also cause an increase in the geographic concentration of poverty. Downward shifts in the distribution of income within a racially segregated environment, has the power to transform the socio-economic environment experienced by poor black families. As racial segregation increases, the downward shift is increasingly located within black neighborhoods and the change in the neighborhood environment becomes more dramatic for blacks and less noticeable for whites. Within the context of race and class segregation, downward shifts in black income affects the collective buying power of a neighborhood. This leaves black neighborhoods without the ability to support local businesses and services, reduces buying power, deteriorates the housing stock, increases crime rates, decreases educational quality and increases the number of female headed households (Massey, 1990). The net effect of racial segregation, measured as the proportion white within census tracts, is to expose whites and blacks to vastly different socio-economic neighborhoods and to leave the economic base of black communities vulnerable to any downturn in economic conditions (Massey, 1990).

In another, related article, Massey, Condran and Denton (1987)[2] compare the relative abilities of blacks and whites to convert status achievements into spatial outcomes. This ecological level study focused exclusively on the city of Philadelphia. As socio-economic status rises, groups try to improve their spatial location in urban society by choosing neighborhoods with richer resources and more amenities (Massey, Condran, and Denton, 1987). Their leading hypothesis was that blacks like other groups attempt to maximize their spatial position by selecting neighborhoods with greater amenities and more resources, but that unlike other groups they are hampered by racial residential segregation. They measured segregation, again not as an index of dispersion based on

[2] This section is drawn heavily from Massey, Condran and Denton (1987).

subunits within a large geographic region, but as a typology of neighborhoods that correspond to Duncan and Duncan's (1957) classic stages in the process of residential succession. This process entails blacks first entering white areas in very small numbers (white tracts) then cross some threshold to invade a traditionally white area (black entry tracts); whites begin to move out (black transition area) initiating a process of succession that culminates in black established tracts. They found that blacks of highest status reside either in white tracts or in black entry tracts, and the lowest status blacks are found in black established tracts. Furthermore, the highest status whites tended to reside in black entry areas. Overall, they found that over 90% of blacks lived in transition or established black areas, which suggests highly segregated neighborhoods. Living in transition or established black tracts is associated with higher crime rates, adult death rates, infant mortality rates, and high school dropout rates. "In other words, patterns of residential segregation have separated blacks and whites into two vastly different environments: one that is poor, crime-ridden, unhealthy, unsafe, and educationally inferior and another that is markedly richer, safer, healthier, and educationally superior." (Massey, Condran and Denton, 1987:**).

This work suggests that segregation can be operationalized other than in terms of indices of segregation. Massey and colleagues have made careers out of studying racial residential segregation as an outcome using the index of dissimilarity. When using segregation to predict racial disparities in various social outcomes, Massey and colleagues use a more absolute measure of segregation. In this paper, we follow their procedures very closely. We take arguments and methods from each of these articles to create a segregated neighborhood typology. First we limit our neighborhood typology to

exactly replicate Massey et al. (1987). We then extend the typology to include measures of class segregation as found in Massey (1990). We expect to find that residents of highly segregated neighborhoods will have worse health outcomes than residents of white neighborhoods and black entry neighborhoods. When we add in class segregation, we expect to find that in some neighborhoods, class predicts the health disparities and in other neighborhoods, racial segregation will drive the health disparities.

DATA AND METHODS

Data at the individual level comes from the first wave (1986) of the Americans Changing Lives (ACL) survey. The ACL is a multistage, stratified area probability sample of the non-institutionalized population age 25 years or older living the coterminous United States and includes an over sample of blacks and older adults (House 1986) consisting of 3,617 respondents. The ACL staff imputed all missing items.

Files of census extract data (STF3) for 1970 and 1980 have been created by Terry Adams and stored at ICPSR (see Adams, 1991). Census data were matched with each ACL respondent either by the census tract or enumeration district for 1980. Census data from 1970 were matched by census tract and enumeration district to the 1980 census data, where possible. In relatively few cases, 1980 census tracts were aggregated into a larger unit that would be comparable to 1970. Geolytics census maps from 1970 to 2000 cd-rom was used for this purpose.

We restricted the sample for this paper to respondents living in urban or suburban areas, limiting our sample to 2,550 respondents. We further eliminated 322 respondents living in census tracts that could not be matched between 1980 and 1970. There was

some missing data in the 1970 census tract extract file. Where possible, the missing data were restored by simple calculations, such as adding up all population subgroups and subtracting from the total population to get a count of black persons living in tracts. Several tracts could not be restored and, although we could probably impute the count of blacks based on information on the counts of whites in 1970 and counts of whites and blacks in 1980, we felt this would bias our estimates of change unduly and so they were dropped from analyses.

Constructs:

We look at several health outcomes, mortality, self-rated health, chronic conditions and functional health. Mortality is a dichotomous variable defined as whether or not a death was reported and/or confirmed by 1993/1994, which is the third wave of ACL data. Self-rated health consists of five categories: excellent, very good, good, fair and poor. Functional health status consists of four categories: no functional impairment, difficulty climbing stairs or walking several blocks, difficulty doing heavy housework, and confined to bed or chair. Chronic conditions is a scale consisting of a sum of both life threatening and debilitating conditions including heart trouble, stroke, cancer, diabetes, lung disease, hypertension, arthritis, foot problems, broken bones, and incontinence. As there are very few persons with more than a few chronic conditions, we categorized this variable into 0, 1, 2, or 3 or more conditions.

Individual level SES: Education defined as the number of years of schooling completed. Family income is included as a continuous measure that is log transformed to adjust for the skew. We create three dummy measures of wealth, greater than 10k in

assets, less than 10k in assets (reference) and missing on assets. Individuals with assets are more likely not to report their assets than those without assets. We also control for age, race and sex of the respondents.

Classifying neighborhoods

We classify neighborhoods in two ways. Primarily we follow the typology found in Massey et al. (1987), which in turn was based on Duncan and Duncan's (1957) classic stages in the process of residential succession. Massey et al. (1987) created the following typology: white tracts; black tracts which include established black tracts consisting of at least 60% blacks in both 1970 and 1080, black entry tracts consisting of less than 250 blacks in 1970, and more than 250 blacks in 1980, transition tracts, which gained blacks and lost whites between 1970 and 1980; and declining tracts, which lost both whites and blacks between 1970 and 1980. Massey et al. (187) dropped tracts from analysis that appeared to be gentrifying. We included those tracts as possibly important neighborhood processes.

This typology is based solely on race. Massey (1990), argues that racial residential segregation exists alongside residential class segregation and that in times of economic downturns, blacks living in communities that consist mainly of lower class blacks will experience greater unemployment rates and hence instability in their communities. Therefore, we build on the first typology of neighborhoods by adding a measure of community SES as well as racial distributions. We split each of the above classifications based on 1980 tract level household income such that tracts that average

less than $15,000 in household income are labeled low SES and the remaining tracts are labeled high SES.

Results based on the racial typology alone will not allow us to detect whether or not findings are due to race or the fact that SES and race are highly correlated. The second typology will allow us to determine if the findings are due to race, SES or the interaction of the two. We expect that neighborhoods that are in decline economically and have large black populations will have much lower health than other neighborhoods. We expect that stable communities will have relatively better health than transitioning neighborhoods except for two types: 1. communities that are stable and very poor and black will have lower health outcomes other stable communities and 2. communities with high SES, but are transitioning in terms of race will have higher health outcomes than most stable and transitional communities.

Analysis

The works by Massey and colleagues that we emulate were ecological studies. This study is slightly more complicated in that we are combining individual level data with aggregate census tract-level data. Furthermore, we are classifying neighborhoods across multiple census tracts. This means that respondents across MSA's could conceivably be categorized into the same type of neighborhood. This is not a between-MSA comparison, but a neighborhood context definition of racial segregation. The purpose then is to determine not if particular SMA's and their levels of segregation have varied impacts on health, but if segregated neighborhoods, here defined as census tracts with a highly black compositions regardless of where in the U.S. the neighborhood is found, will explain some of the health disparities found here. Since we are not looking at

between-tract versus within tract differences, we use the survey procedures in STATA that allow us to use sample weights to account for the stratified sampling design, and to adjust for the autocorrelation due to clustered respondents by estimating robust standard errors.

RESULTS

Table 1 presents descriptive statistics of the weight adjusted national sample. Both means and proportions in each category are presented for self rated health. On average, respondents report their health to be slightly better than good with very good being the modal response. Very few individuals report being in fair or poor health. Just over ten percent of the sample was reported or confirmed dead by 1993. Forty-eight percent of the sample report no chronic conditions, twenty-sex percent report one chronic condition and the remaining twenty six percent report having two or three or more chronic conditions. Eighty-five percent of the sample reports no functional impairment and half of the remaining fifteen percent report only minimal functional impairment. Thirteen percent of the sample are black and eighty-seven percent are non-black. There are slightly more females than males in the sample and the average age is forty-six. The average years of education are 12.5, average family income is just over thirty-one thousand and forty-nine percent of the respondents have at least ten thousand in assets.

Table 2 presents descriptive statistics on the census tract level data. As mentioned, these data were used to create a typology of neighborhood environments. The first typology was based exclusively on racial composition in 1980 and changes in composition between 1970 and 1980. The typology consists of white tracts, gentrifying

tracts, black entry tracts, black transitional tracts, established black tracts and declining tracts. There are 2,228 respondents residing in the 391 census tracts that make up this sample. The first column in Table 2 presents the percent of respondents that live in each type of neighborhood and the second column consists of the number of tracts within each neighborhood type. White tracts are the largest category, consisting of 47% of the sample and 182 tracts. Established black neighborhoods are the next largest category including 20% of the sample and 72 tracts. Black transition and black entry neighborhoods are each slightly smaller than established black neighborhoods. Declining neighborhoods and gentrifying neighborhoods are the smallest classifications.

The second typology presented in table 2 simply splits each racially typed neighborhood by the average neighborhood household income. Low SES neighborhoods are neighborhoods where the average household income is less than $15,000 and high SES neighborhoods are those with average household income of $15,000 or more. As one would expect, white neighborhoods tend to average more than $15,000 in household income and established black neighborhoods tend to average less than $15,000 in household income.

Table 3 presents regression results of the racial typology on the four health outcomes. Model 1 for all outcomes controls for sex, race and age, although only results for race are presented. Model 2 adds the neighborhood segregation typology to model 1 with white tracts as the reference category. Model 3 adds the individual level SES controls: education, income and assets to model 2 to see if individual level SES eliminates or attenuates neighborhood segregation effects. Model 1 across the four health outcomes, shows that there are black health disparities in mortality and number of

chronic conditions, but not in self reported health or functional health. Blacks are 66% more likely than are non-blacks to be reported dead in 1993 and 60% more likely to report chronic conditions than non-blacks are.

Conditional on neighborhood typology, model 2 for self-reported health shows that blacks self report significantly better health than non-blacks. Individuals living in established black neighborhoods, black transitional neighborhoods and declining neighborhoods report significantly worse health than individuals living in white neighborhoods. Gentrifying and black entry neighborhoods, as expected, are not significantly different from white neighborhoods. Racial disparities in mortality switch directions conditional on segregated neighborhood typology. Blacks are 37% less likely to be dead in 1993 once we control for neighborhoods. Model 2 also shows that individuals residing in black entry neighborhoods, established black neighborhoods, and black transition neighborhoods are significantly more likely to be dead than individuals residing in white neighborhoods. Model 2 for chronic conditions show that the racial disparities are eliminated once we control for neighborhood types. However, residents of established black neighborhoods are significantly more likely to have chronic conditions compared to residents of white neighborhoods. For functional health, model 2 shows that individuals living in established black and black transitioning neighborhoods are significantly more likely to experience functional impairment than individuals living in white neighborhoods.

Is there still an effect of neighborhood segregation after we control for individual level SES? Model 3 on self reported health shows that, yes, individuals residing in established black and black transitioning neighborhoods are significantly more likely to

report worse health than individuals living in white neighborhoods after controlling for individual SES, although the effect is somewhat attenuated. Conditional on all variables in the models, blacks report significantly better health than do non-blacks. For mortality, adjusting for individual level SES also attenuates the impact of neighborhood residence, but does not eliminate it; residents of black entry, established black, and black transitioning neighborhoods are more likely to be dead in 1993 than are residents of white neighborhoods. For chronic conditions, the same pattern holds after controlling for individual level SES; residents of established black neighborhoods report significantly more chronic conditions that do residents of white neighborhoods. Model 3 for functional health shows that controlling for individual level SES eliminates the effect of neighborhood residence for established black and black transitioning neighborhoods. However, residents of gentrifying neighborhoods now report better functional health than do residents of white neighborhoods.

Table 4 adds to the racial neighborhood typology very simply, by splitting each racial classification by average tract level household income above or below $15,000. This tells us know if the results we are finding are based primarily on race or on SES. That is if we do not control for SES we do not know that the relationship between race and health is not spurious. If the associations found in Table 2 are only found in the low SES neighborhoods in this set of models, then yes, the relationship between health outcomes and neighborhood racial segregation is spurious. If, on the other hand, there is an association between health and high SES neighborhoods, that is the same as the relationship between health and low SES neighborhoods as determined by overlapping

confidence intervals, then race is an important factor. If the confidence intervals do not overlap, then there is an important interaction between race and SES.

So, what does this table show us? First of all, the reference category for this table is now white high SES (household income of $15,000 or more) neighborhoods. Model 4 controls for race sex and age and model 5 adds controls for individual level SES. Results in Table 4 show that SES is important in white tracts and black entry tracts, race is important in established black tracts and black transitioning tracts, and that race and SES interact in gentrifying tracts and black tracts. Residents of low SES white tracts are significantly different from residents of high SES white tracts on self-reported health and functional health in model 4, but not in model 5, which controls for individual level SES. Thus, there are no neighborhood effects between high and low SES white neighborhoods. Residents of gentrified neighborhoods are not significantly different from residents of white neighborhoods in terms of self-reported health and mortality. Residents of low SES gentrified neighborhoods, but not high SES gentrified report significantly more chronic conditions than residents of high SES white neighborhoods, suggesting that neighborhood SES and racial composition interact here. Residents of high SES black entry neighborhoods do not differ from residents of high SES white neighborhoods on any health outcome. However, residents of low SES black entry neighborhoods are significantly more likely to be dead by 1993 than residents of high SES white neighborhoods, suggesting a neighborhood race by SES interaction effect. Residents of established black neighborhoods and black transitioning neighborhoods differ from residents of high SES white neighborhoods on self-reported health and mortality suggesting a neighborhood racial effect. Residents of low SES established black

neighborhoods and low SES black transitioning neighborhoods differ from high SES white neighborhoods and their high SES counterparts in terms of chronic conditions and functional health suggesting a neighborhood race and SES interaction effect. Declining neighborhoods are not significantly different from high SES white neighborhoods in any consistent manner.

CONCLUSION

Our goal was to address the current research agenda on the impact of racial residential segregation on health disparities. In previous work, we found that racial segregation measured in the traditional way, as the index of dissimilarity, had no impact on health across two nationally representative samples. We argued for the use of a segregated neighborhood framework rather than an index framework in that it should approximate an absolute measure of segregation. Results on four health outcomes show that, indeed, individuals living in racially segregated neighborhoods tend to have worse health compared to individuals living in white, gentrifying or black entry neighborhoods.

We tested the interaction between race and SES in our neighborhood typology. There is considerable debate over which is the more important explanatory variable. There is strong evidence that SES is a powerful predictor of health disparities at the individual level and even at the community level. Massey (1990), however, suggests that racial segregation drives the community level SES relationship. In our models we cannot test for causality, but there is some evidence that race has an effect independence of SES. For the most part, however, racial segregation and SES jointly explain health outcomes

suggesting that both are important areas to be addressed if we care to eliminate health disparities.

As racial segregation is an issue of urban areas, we removed all rural tracts. To the extent that racial health disparities exist in rural areas, we are neglecting that part of the population. Furthermore, there was considerable difficulties in merging 1970 and 1980 census tract data. Approximately 230 tracts were dropped from this study because we could not merge them. Additional tracts were adjusted for item missingness or dropped. This biases our sample to some extent and results should be generalized cautiously.

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Table 1: Descriptive Statistics for Individuals age 60 and Over

ACL	(N=2,228)		
	Mean/ Prop.	Std. Dev.	Range
Outcomes:			
Self Rated Health	2.29	1.08	1-5
Excellent	25%		
Very Good	39%		
Good	20%		
Fair	11%		
Poor	4%		
Mortality	10.5%		0-1
Chronic Conditions			0-3
0	48%		
1	26%		
2	13%		
3 or more	12%		
Functional Health			1-4
No Functional Impairment	85%		
Minimal Functional Impairment	7%		
Moderate Functional Impairment	5%		
Severe Functional Impairment	3%		
Individual level Covariates			
Black	13%		0-1
Non-Black	87%		
Female	53%		0-1
Male	47%		
Age	46.2	16.4	24-95
Years of Education	12.5	3.2	0-17
Family Income	31,562	24,521	2,500-110,000
10K assets or more	49%		0-1
Missing assets	7%		0-1
Less than 10K asset	44%		0-1

Table 2: Descriptive Statistics for the Tract Level

	Percent of cases	Number of tracts
Racial Typology		
Declining Tracts	3%	12
Black Transition	16%	62
Established Black	20%	72
Black Entry Tracts	11%	51
White Tracts (reference category)	47%	182
White gentrification	3%	12
Total tracts		391
Race/SES Typology		
Low SES-HH income less than $15,000		
Declining Tracts	1.5%	5
Black Transition	6.0%	21
Established Black	13.0%	46
Black Entry Tracts	1.4%	9
White Tracts	3.0 %	14
White gentrification	1.0%	3
Low SES-HH income $15,000 or more		
Declining Tracts	2.0%	7
Black Transition	10%	41
Established Black	7.0%	26
Black Entry Tracts	9.3%	42
White Tracts (reference category)	44%	168
White gentrification	2.0%	9

Table 3: Regression Results for Health Outcomes using Racial Typology

	Self Reported Health			Mortality[b]		
	Model 1[a]	Model 2	Model 3	Model 1[a]	Model 2	Model 3
Intercept	1.27 (.088)*	1.242 (.091)*	2.441 (.195)*	-6.503 (.488)*	-6.810 (.479)*	-5.666 (.567)*
Black	.069 (.059)	-.225 (.109)*	-.277 (.116)*	.505 (.214)*	-.402 (.351)*	-.457 (.377)
Gentrified		.083 (.098)	-.033 (.084)		-.356 (.403)	-.573 (.402)
Black Entry		.054 (.124)	.007 (.111)		.754 (.343)*	.682 (.347)*
Established Black		.523 (.123)*	.370 (.123)*		1.289 (.415)*	1.077 (.450)*
Black Transition		.390 (.143)*	.350 (.159)*		1.289 (.396)*	1.164 (.473)*
Black Declining		.546 (.242)*	.296 (.195)		.126 (.578)	-.076 (.491)
	Chronic Conditions[b]			Functional Health[b]		
	Model 1[a]	Model 2	Model 3	Model 1[a]	Model 2	Model 3
Intercept 1	3.239 (.220)*	3.298 (.226)*	2.239 (.378)*	5.492 (.315)*	5.606 (.324)*	3.979 (.468)*
Intercept 2	4.682 (.248)*	4.746 (.253)*	3.714 (.395)*	6.300 (.316)*	6.419 (.334)*	4.836 (.473)*
Intercept 3	5.789 (.255)*	5.859 (.259)*	4.859 (.401)*	7.326 (.365)*	7.451 (.376)*	5.916 (.491)*
Black	.470 (.105)*	.196 (.169)	.126 (.177)	.113 (.158)	-.445 (.301)	-.665 (.356)+
Gentrified		.315 (.442)	.197 (.436)		-.125 (.243)	-.489 (.198)*
Black Entry		.259 (.221)	.211 (.219)		.112 (.296)	-.006 (.272)
Established Black		.601 (.208)*	.461 (.211)*		.759 (.343)*	.526 (.382)
Black Transition		.105 (.227)	.063 (.220)		.856 (.342)*	.770 (.442)+
Black Declining		.321 (.302)	.034 (.417)		.128 (.348)	-.316 (.559)

N=2,228 * p<.05 + p<.10

[a] All models control for sex and age. Model 3 controls for income education and assets.

[b] Coefficients are logged.

Table 4: Regression Results for Health Outcomes using Racial/SES Typology

	Self Reported Health		Mortality		Chronic Conditions		Functional Health	
	Model 4	Model 5	Model 4	Model 5	Model 4	Model 5	Model 4	Model 5
Intercept 1	1.233 (.091)*	2.400 (.192)*	-6.853 (.483)*	-5.682 (.611)*	3.341 (.228)*	2.151 (.387)*	5.670 (.328)*	4.088 (.490)*
Intercept 2					4.801 (.253)*	3.637 (.400)*	6.495 (.335)*	4.950 (.492)*
Intercept 3					5.925 (.261)*	4.791 (.407)*	7.543 (.381)*	6.037 (.520)*
Black	-.249 (.115)*	-.284 (.118)*	-.404 (.379)	-.430 (.392)	.150 (.179)	.101 (.186)	-.547 (.337)	-.699 (.361)+
Low SES								
White Tracts	.441 (.159)*	.094 (.165)	-.020 (.265)	-.379 (.320)	.481 (.309)	.109 (.321)	1.069 (.462)*	.423 (.484)
Gentrified	.101 (.123)	-.061 (.105)	-.941 (1.151	-1.327 (1.155)	1.920 (.450)*	1.742 (.494)*	.352 (.235)	-.194 (.261)
Black Entry	.040 (.196)	-.100 (.127)	2.543 (1.005)*	2.206 (.876)*	.353 (.529)	.177 (.484)	.738 (.751)	.305 (.647)
Established Black	.656 (.136)*	.398 (.133)*	1.089 (.451)*	.744 (.475)	.942 (.237)*	.670 (.244)*	1.249 (.387)*	.803 (.403)*
Black Transition	.687 (.217)*	.436 (.209)*	1.749 (.568)*	1.248 (.560)*	.367 (.401)	.081 (.401)	1.639 (.486)*	1.156 (.482)*
Black Declining	.963 (.323)*	.396 (.251)	.854 (.712)	.307 (.681)	-.008 (.283)	-.633 (.292)*	-.177 (.572)	-.999 (.609)
High SES								
Gentrified	.114 (.121)	-.010 (.100)	-.256 (.398)	-.454 (.371)	-.136 (.186)	-.264 (.201)	-.114 (.286)	-.478 (.220)*
Black Entry	.087 (.137)	.030 (.122)	.362 (.335)	.271 (.344)	.293 (.239)	.237 (.236)	.106 (.317)	-.010 (.296)
Established Black	.454 (.141)*	.372 (.136)*	1.529 (.537)*	1.391 (.575)*	.322 (.241)	.247 (.242)	.360 (.412)	.234 (.440)
Black Transition	.322 (.160)*	.330 (.183)+	1.112 (.471)*	1.081 (.579)+	.081 (.235)	.082 (.230)	.678 (.419)	.654 (.546)
Black Declining	.303 (.245)	.251 (.272)	-.669 (.565)	-.680 (.450)	.636 (.381)+	.552 (.436)	.435 (.305)	.282 (.369)

Note: Model 1 controls for sex and age. Model 2 controls for sex, age, education, income and assets.