Residential Segregation and Social Integration: Do Blacks and Whites Differ?

Joongbaeck Kim
Departments of Sociology and Africana Studies
University of Tennessee

Hyeyoung Woo
Department of Sociology
Portland State University

ABSTRACT

While it is well known that racial residential segregation affects social behaviors and various outcomes of individuals, research about the relationship between residential segregation and social integration is limited. We examine how residential segregation is associated with three types of social integration: formal, informal, and advisory integration, and whether the associations differ for Blacks and Whites using data from the Americans' Changing Lives survey. Our results show that residential segregation is negatively associated with advisory integration for both Blacks and Whites. It also predicts lower levels of formal integration for Blacks, but not for Whites. We did not find significant relationships between residential segregation and informal integration. Interestingly, the sizable associations between residential segregation and formal and advisory integration remain significant even after controlling for the prevalence of Blacks and poverty in counties. It suggests that the racial distribution is a substantial determinant of social relationships especially for Blacks.

INTRODUCTION

The study of social integration has long been one of the main interests in Sociology since Durkheim's contribution to the research of the association between social integration and suicide rates. Despite the long practice of empirical and theoretical research, less is known about the determinants of social integration. After a comprehensive review, House and colleagues claimed that little attention has been paid to examination of social integration as an outcome (House, Umberson, & Landis, 1988). The nature and quality of social integration is in part determined by individual's characteristics such as age, sex, socioeconomic status, and marital status. Based upon the premise of social ecology, neighborhood context such as the prevalence of socioeconomically disadvantaged residents in community is a potential determinant of social integration because individual behavior to build up social integration is the outcome of interactions with people or structural environments of neighborhood context (Bronfenbrenner, 1979). Little is known, however, about how racial residential segregation affects the process of social integration. In addition, because racial residential segregation influences well-being and outcomes of segregated racial groups (Massey, 1990), racial residential segregation may differently affect individual social integration by race. This study examines whether racial residential segregation, as measured by the Black Dissimilarity Index, is associated with variations in social integration with adjustment for socioeconomic status and racial composition of neighborhood, and individual characteristics. This study also considers whether the association between racial segregation and social integration varies by Blacks and Whites.

METHODS

Data

The data for the analyses in this study is taken from a panel survey titled *Americans' Changing Lives survey*, which were collected by the Survey Research Center at the University of Michigan on a multistage stratified area probability sample of non-institutionalized persons aged 25 and over, and living in the contiguous United States. Blacks and persons over age 60 were sampled at twice the rate of Whites under 60 to facilitate comparisons by age and race. In the study, we used the first wave of the *Americans' Changing Lives survey* (hereafter ACL). Neighborhood variables are from 1980 census data information matched with the ACL. A total of 3,617 respondents were face-to-face interviewed in 1986. Final sample used in the present study were 3,497 because 120 respondents did not have information of residence to match with 1980 census.

Measurements

We measured social integrations using three variables: Formal integration, Informal integration, and Advisory integration. Formal integration was created by two questions: (1) "How often do you attend meetings or programs of groups, clubs, or organizations that out belong to?" and (2) "How often do you usually attend religious services?" Formal social integration indexes were constructed by taking arithmetic mean of the items used to build each index and standardized; high values indicate a higher level of index. Informal integration was measured by asking: (1) "In a typical week, about how many times do you talk on the telephone with friends, neighbors, and relatives?" and (2) "How often do you get together with friends, neighbors, or relatives and do things like go out together or visit in each other's home?" Informal social integration indexes were constructed by taking arithmetic mean of the items used to build each index and standardized; high values indicate a higher level of index. Advisory integration was measured by asking one question: "About how many friends or other relatives do you have

whom you could call on for advice or help if you needed it?" The range of persons for this variable was zero to 40 persons.

This study includes three county-level variables: racial segregation, prevalence of Blacks people, and prevalence of poor people. Massey and Denton (1988) suggested five racial segregation indices: evenness, exposure, concentration, centralization, and clustering. A large number of research on racial segregation particularly focused upon either the Dissimilarity Index to measure evenness or the Isolation Index to measure exposure. This study used the Dissimilarity Index to measure the extent of racial residential segregation because the results of preliminary analyses employing both the Isolation and Dissimilarity Index are similar (Results are upon request). The Dissimilarity Index measures the level of residential unevenness between two social groups. In the case of racial groups for Whites and Blacks, the Dissimilarity Index refers to the proportion of Blacks that would have to move to a Whites-dominated census tract in order for the races to be evenly distributed throughout the county. A higher value indicates higher levels of segregation. The Dissimilarity Index is computed as

$$D = \{\sum((X_i/X)-(Y_i/Y))\}/2*100$$

where X_i is the number of Blacks in the small area (trace/BNA/ED), Y_i is the number of non-Blacks in the small area (trace/BNA/ED), X is the number of Blacks in the larger area (MCD/CCD and county), and Y is the number of non-Blacks in the larger area (MCD/CCD and county) (Adams, 1992). It is important to estimate whether the effect of racial segregation on social integration is attributable to racial composition and aggregate socioeconomic status of community. This study, thus, includes the percentage of Blacks in county and the percentage of residents in poverty in county to control for those effects on the association between racial segregation and social integration.

This study also controls for demographic and socioeconomic status variables, as these measures are widely documented correlates of social integration. Demographic variables include gender (1 = female), age (years), and marital status (1=currently married; 0=currently non-married). The analyses also control for education, which indicates the highest year of schooling completed and ranges from 0 to 17. Household income is the gross income of the respondent and spouse. Income was originally coded in categories ranging from (1) less than $5,000 to (10) over $80,000. For those who are missing on the income variable, we used the imputed income measure calculated by the ACL staff, which assigns income values to the midpoint of each category. We also control for chronic illness, economic hardship, and life events which may covary with social integration. Experience of life events was measured by asking: In the past 3 years (1) "Had spouse die?" (2) "Had child die?" (3) "Had parent or step-parent die" (4) "Had other close friend or relative die" (5) "Were you divorced?" (6) "Have you assaulted?" (7) "Have you involuntarily lost job?" (8) "Have you been robbed or had home burglarized?" and (9) "Has anything else bad happened to you that upset you a lot?" Life event index was created by summing the number of life events that have occurred to the respondent in the past 3 years. The number of chronic conditions respondents reported experiencing in the previous year came from a list of ten major chronic conditions: arthritis, rheumatism, lung disease, hypertension, heart attack or heart trouble, diabetes, cancer, malignant tumor, foot problems, stroke, fractured or broken bones, and urinary incontinence. Number of chronic conditions is the sum of response to each symptom. Economic hardship was measured by asking: (1) "How satisfied are you with your present financial situation?" (2) "How difficult is it for you to meet the monthly payments on bills?" and (3) "How do your finances usually work out at the end of the month?" Economic hardship index was constructed by taking arithmetic mean of the items used to build each index

and standardized; high values indicate a higher level of economic hardship. Table 1 provides summary statistics for all the variables employed in analyses.

Methods

All of analyses in subsequent sections weighted the data to adjust for variations in probabilities of selection and in response rates. Because individuals were clustered within counties and communities, SAS PROC MIXED procedure was employed to conduct iterative maximum likelihood the multi-level regression analyses. This study provided the fixed effects of independent variables at the individual and county levels while adjusting for random intercepts between counties (Robert & Ruel, 2006)

RESULTS

Table 2 presents the fixed effects and random effect estimates for whole sample from hierarchical linear regression models with three types of social integration as dependent variables. Model 1 demonstrates that living in counties with greater racial segregation is associated with low levels of formal integration at marginal significance level (p<.10) among whole sample after adjusting for socio-demographic variables. Dissimilarity index does not have an effect on informal integration in Model 2, however. Model 3 shows that residential segregation is significantly associated with decreased levels of advisory integration, indicating that respondents living in counties with higher levels of dissimilarity have fewer numbers of friends or other relatives whom they could call on for advice or help if they needed it. Among socio-demographic variables, age and gender show distinctive patterns of association by the type of social integration. Age is positively associated with formal integration, but negatively associated with informal and advisory integration, suggesting that older adults are involved in more organizations in community than younger adult, but less involved in informal network. Older

adults are also predicted to have fewer friends or relatives to help them if needed than younger adults. Female appears to show greater levels in formal and informal integration than male; however, female is predicted to have fewer friends or relatives to help if needed than male. Education is consistently associated with social integration.

Table 3 presents the fixed effects and random effect estimates for each race group-Whites and Blacks- from hierarchical linear regression models with formal integration as dependent variables. Residential segregation is marginally associated with lower levels of formal integration in Table 2. For Blacks adults, residential segregation measured by Dissimilarity index is significantly associated with lower levels of formal social integration with adjustment for control variables in Model 1. The significant association between residential segregation and formal integration remains significant with introduction of the prevalence of poverty and Blacks in county, indicating that the extent of Blacks population and socioeconomic disadvantage of counties does not influence the negative effect of residential segregation on formal integration among Blacks. Residential segregation, however, is not associated with formal integration among Whites (see Model 3 and Model 4). These results suggest that Blacks residents living in a county with higher levels of residential segregation had low levels of formal integration with controlling for racial composition and socioeconomic disadvantage in counties, and individual characteristics.

Table 4 presents the fixed effects and random effect estimates for each race group-Whites and Blacks- from hierarchical linear regression models with informal integration as dependent variables. Residential segregation is not significantly associated with lower levels of formal integration in Table 2. For Blacks, residential segregation is associated with greater levels of informal integration in Model 1; however, the association between residential segregation and

informal segregation becomes insignificant with the introduction of the percentage of poverty in counties, indicating that residential segregation does not predict the variation in informal social integration for Blacks while we include socioeconomic disadvantage in counties. For Whites, no significant association between residential segregation and informal integration is reported in either Model 3 or Model 4. These results suggest that residential segregation is not related to informal social integration.

Table 5 presents the fixed effects and random effect estimates for each race group- Whites and Blacks- from hierarchical linear regression models with advisory integration as dependent variables. Residential segregation is significantly associated with lower levels of formal integration in Table 2. For Blacks adults, residential segregation is associated with lower levels of advisory integration controlling for individual characteristics in Model 1. This significant association remains significant in Model 2 with the introduction of the prevalence of poverty and Blacks in county, indicating that Blacks living in counties with higher levels of residential segregation are predicted to have fewer friends or relatives to help them or to give advice to them. This pattern is similarly observed in the case of Whites. For Whites adults, residential segregation is significantly associated with lower levels of advisory integration, and this significant association remains significant with the introduction of the prevalence of poverty and Blacks in county. These results suggest that residential segregation negatively influences the extent of advisory integration for not only Blacks but also Whites.

DISCUSSION

Using the multilevel data from national studies of adults in the United States, we found some evidence of an association between social integration and residential segregation by race.

We found no association between residential segregation and informal integration either Blacks or Whites. This research showed that residential segregation was negatively associated with advisory integration for both Whites and Blacks, however. Formal integration showed a mixed pattern; residential segregation predicted lower levels of formal integration for Blacks, but not for Whites. This study controlled for both individual characteristics and socio-demographic characteristics of counties-percentage of Blacks and poverty in counties in order to examine whether the variations of social integration by residential segregation was attributed by them. Our results showed that individual characteristics and socio-demographic attributes of counties did not largely account for the association between residential segregation and social integration.

This study shows two main findings. First, residential segregation is associated with some forms of social integration. Given that social integration is highly determined by the availability of supportive network, social interaction, and reciprocity from their neighbors, social and structural processes in neighborhoods are considered as potential determinants of social integration. The results of the present study reveal that residential segregation between Blacks and Whites restricts residents from building up advisory integration regardless of race, indicating that geographical isolation restricts Whites as well as Blacks from being integrated with their confidants. Second, residential segregation is differently associated with formal integration by race. Measure of formal integration in this study is about the frequency of attending social groups or religious services. The negative association between residential segregation and formal integration among Blacks may, thus, reflect the shortage of social resources in which Blacks develop social integration in segregated areas. At the same time,

In order to fully understand racial difference in social integration by residential segregation, researchers need to examine the distinctive pattern of social integration by race.

ACL data does not contain information about the patterns of social integration. For example, Blacks are more likely to join Black churches, develop supportive network with Black neighbors, and get together with Black confidants. However social integration measures of ACL do not show the racial patterns of social integration. Because our results show that residential segregation influences advisory integration among not only Blacks but also Whites, future study should also look at the interaction between contextual factors such as residential segregation and socio-demographic aspect of helps to provide a better understanding of racial disparities in social behavior.

SELECTED REFERENCES

Adams, Terry K. 1992. *Census of Population and Housing, 1980* [United States]: Extract Data [Computer File]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research.

Bronfenbrenner, Urie. 1979. *Ecology of Human Development: Experiments by Nature and Design*. Massachusetts: Harvard University Press.

House, J. S., Umberson, D., & Landis, K. R. (1988). STRUCTURES AND PROCESSES OF SOCIAL SUPPORT. *Annual Review of Sociology, 14*, 293-318.

Massey, D. S. (1990). AMERICAN APARTHEID - SEGREGATION AND THE MAKING OF THE UNDERCLASS. *American Journal of Sociology, 96*(2), 329-357.

Massey, D. S., & Denton, N. A. (1988). THE DIMENSIONS OF RESIDENTIAL SEGREGATION. *Social Forces, 67*(2), 281-315.

Robert, S. A., & Ruel, E. (2006). Racial segregation and health disparities between Black and White older adults. *Journals of Gerontology Series B-Psychological Sciences and Social Sciences, 61*(4), S203-S211.

Table 1 Sample Descriptive Statistics by Race

	Full Sample	Blacks	Whites
Unweighted N[a]	3,497	1,174	2,323
County-level Variables			
Dissimilarity index	64.77 (3.38)	41.44 (3.38)	67.84 (3.38)***
% Poverty in county	12.20 (3.38)	16.14 (3.38)	11.68
% Blacks in county	10.88 (3.38)	24.43 (3.38)	9.10 (3.38)***
Social Integration			
Formal integration	.01 (1.00)	.22 (3.38)	-.02 (3.38)***
Informal integration	.21 (1.00)	-.33 (3.38)	.07 (3.38)***
Advisory integration	9.13 (8.31)	7.66 (3.38)	9.30 (3.38)***
Individual Characteristics			
Age	47.56 (16.45)	46.21 (3.38)	47.73 (3.38)+
% Female	53.00	57.10 (3.38)	52.46 (3.38)***
Mean education, in years	12.36 (3.36)	11.39 (3.38)	12.55 (3.38)***
Mean family income	5.36 (5.32)	4.24 (3.38)	5.50 (3.38)***
Marital status	.69	.54	.71***
Chronic illness	1.03 (3.38)	1.22 (3.38)	1.00 (3.38)***
Economic hardship	-.01 (3.38)	.38 (3.38)	-.06 (3.38)***
Life events	.88 (3.38)	.89 (3.38)	.87 (3.38)

Note) The statistics are mean values and standard deviation (in parentheses) for continuous variables and percentages for nominal variables.

[a] All analyses apply weights.

[+] $p<.10$; [*] $p<.05$; [**] $P<.01$; [***] $P<.001$ (two-tailed tests), t tests for comparisons of means between groups and tests for group differences in proportions.

Table 2. Regression of Formal integration (Model 1), Informal integration (Model 2), and Advisory integration (Model 3) on county level variables and individual characteristics (N=3,497).

	Model 1 (Formal integration)	Model 2 (Informal integration)	Model 3 (Advisory integration)
County-level Variables			
Dissimilarity index	-.002 (.001)$^+$	.000 (.001)	-.032 (.011)**
% Poverty in county	.001 (.004)	-.002 (.004)	.055 (.035)
% Blacks in county	.005 (.002)*	-.001 (.002)	-.032 (.017)$^+$
Individual Characteristics			
Age	.008 (.001)***	-.002 (.001)*	-.027 (.011)*
Female	.162 (.033)***	.326 (.032)***	-.843 (.278)**
Mean education, in years	.038 (.006)***	.060 (.006)***	.109 (.054)*
Mean family income	.010 (.009)	.006 (.009)	.123 (.074)$^+$
Marital status	.218 (.040)***	-.134 (.039)***	.399 (.338)
Chronic illness	-.022 (.015)	-.004 (.015)	.247 (.013)$^+$
Economic hardship	-.014 (.019)	-.087 (.018)***	-.719 (.157)***
Life events	.008 (.019)	.121 (.019)***	.337 (.161)$^+$
Intercept	-1.004 (.161)***	-.834 (.150)***	9.572 (1.325)***
Neighborhood level error variance	.040 (.012)***	.015 (.007)*	1.887 (.775)**
Individual level error variance	.920 (.022)***	.894 (.021)***	65.716 (1.578)***
Deviance (-2 Res log likelihood)	11486.4	11346.8	26771.1

Notes: Table data are maximum likelihood estimation fixed-effects coefficients and were adjusted for random intercepts by county standard errors are shown in parentheses. All analyses apply weights.
$^+$ p<.10; * p<.05; ** P<.01; *** P<.001 (two-tailed tests).

Table 3. Formal integration regressed on county-level Dissimilarity index and socio-demographic variables, with controlling for individual characteristics by race.

	Blacks (N=1,174)		Whites (N=2,323)	
	Model 1	Model 2	Model 3	Model 4
County-level Variables				
Dissimilarity index	-.007 (.002)***	-.009 (.002)***	-.002 (.002)	-.002 (.002)
% Poverty in county		-.015 (.008)*		.003 (.005)
% Blacks in county		.002 (.004)		.002 (.002)
Intercept	-1.026 (.235)***	-1.622 (.027)***	-1.043 (.181)***	-1.107 (.206)***
Neighborhood level error variance	.032 (.017)*	.030 (.018)*	.049 (.015)***	.043 (.015)***
Individual level error variance	.314 (.013)***	.313 (.013)***	1.196 (.036)***	1.199 (.036)***
Deviance (-2 Res log likelihood)	3615.9	3637.2	6956.6	6973.8

Notes: Table data are maximum likelihood estimation fixed-effects coefficients and were adjusted for random intercepts by county standard errors are shown in parentheses. All analyses apply weights. All models control for age, female, education, family income, marital status, chronic illness, economic hardship, and life events.
[+] p<.10; [*] p<.05; [**] P<.01; [***] P<.001 (two-tailed tests).

Table 4. Informal integration regressed on county-level Dissimilarity index and socio-demographic variables, with controlling for individual characteristics by race.

	Blacks (N=1,174)		Whites (N=2,323)	
	Model 1	Model 2	Model 3	Model 4
County-level Variables				
Dissimilarity index	.005 (.002)*	.003 (.003)	.001 (.001)	.000 (.001)
% Poverty in county		-.017 (.008)+		-.004 (.004)
% Blacks in county		.005 (.004)		.004 (.002)+
Intercept	-1.463 (.245)***	-1.139 (.306)**	-.545 (.158)***	-.477 (.175)**
Neighborhood level error variance	.053 (.023)*	.059 (.026)*	.001 (.004)	.001 (.004)
Individual level error variance	.327 (.014)***	.326 (.014)***	1.122 (.033)***	1.122 (.033)***
Deviance (-2 Res log likelihood)	3672.6	3686.4	6748.8	6765.4

Notes: Table data are maximum likelihood estimation fixed-effects coefficients and were adjusted for random intercepts by county standard errors are shown in parentheses. All analyses apply weights. All models control for age, female, education, family income, marital status, chronic illness, economic hardship, and life events.
+ p<.10; * p<.05; ** P<.01; *** P<.001 (two-tailed tests).

14

Table 5. Advisory integration regressed on county-level Dissimilarity index and socio-demographic variables, with controlling for individual characteristics by race.

	Blacks (N=1,174)		Whites (N=2,323)	
	Model 1	Model 2	Model 3	Model 4
County-level Variables				
Dissimilarity index	-.038 (.017)*	-.065 (.020)**	-.030 (.012)*	-.023 (.013)+
% Poverty in county		-.198 (.069)***		.081 (.040)*
% Blacks in county		.041 (.031)		-.030 (.023)
Intercept	7.962 (1.962)***	12.235(2.428)***	11.187 (1.450)***	9.802 (1.631)***
Neighborhood level error variance	3.356 (1.321)**	3.346 (1.340)**	.989 (.632)+	1.184 (.702)+
Individual level error variance	20.937 (.887)***	20.810 (.883)***	86.924 (2.611)***	86.698 (2.607)***
Deviance (-2 Res log likelihood)	8489.7	8489.9	16775.8	16782.3

Notes: Table data are maximum likelihood estimation fixed-effects coefficients and were adjusted for random intercepts by county standard errors are shown in parentheses. All analyses apply weights. All models control for age, female, education, family income, marital status, chronic illness, economic hardship, and life events.
+ p<.10; * p<.05; ** P<.01; *** P<.001.