The Racial and Income Dynamics of the Changing Locations of the Population of Large U.S. Metropolitan Areas

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April 11, 2003

Stylized Facts

- Metropolitan population has been growing faster in the suburbs than in the central city for several decades.
- Poverty has increased in central cities both absolutely and relative to their suburbs.
- While African Americans are more likely than non-African Americans to reside in the central city, African Americans have been suburbanizing since 1970.
- Racial segregation is decreasing, albeit very slowly, in metropolitan areas since 1970.

Questions

- What have been the changes in the intrametropolitan locations of the MSA population by race and income?

- How do "land preferences," "house filtering," "white flight," and/or "local public finance" contribute to shifts in intra-urban locations by race and income?

Data

Three possible geographies:

- **Census tracts**, small areas geographically defined to include same population size.
- Minor civil divisions/census county divisions (**MCDs/CCDs**), primary subcounty governmental units (MCDs) or community areas focused on trading centers or land use (CCDs)
- **Counties**, have governmental functions, larger than census tracts or MCDs/CCDs

I use MCD/CCD data from the 1970, 1980, and 1990 US Censuses. I combine individual MCDs/CCDs, as necessary, to obtain consistent geographic boundaries for 1970, 1980, and 1990.

Data

27 PMSAs, CMSAs

- including 31 large central cities
- and 2,975 MCDs/CCDs
  - with the <u>same boundary</u>, geography for 1970, 1980, and 1990
  - created by combining geographic units when boundaries changed between censuses

Table 1
Metropolitan Areas, Central Cities and Number of Civil Divisions by Metropolitan Area and Region

Northeast and Midwest

Baltimore (57)

Boston (147)

Chicago (176)

Cleveland (108)

Columbus (106)

Detroit (201)

Indianapolis (80)

Milwaukee (90)

Minneapolis-St. Paul (292)

New York City (464)

Philadelphia (338)

Pittsburgh (299)

St. Louis (109)

South

Atlanta (82)

Austin (8)

Charlotte (57)

Dallas-Fort Worth (38)

Houston (20)

Jacksonville (12)

Memphis (29)

Miami (7)

Nashville (41)

West

Denver (9)

Los Angeles (61)

Portland (19)

San Diego (10)

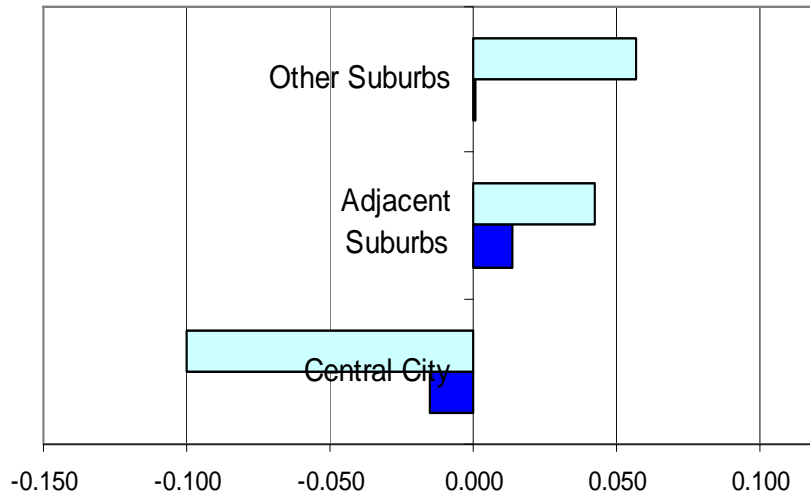**San Francisco-Oakland-San Jose (19)**

Table 2
Economic-Geographic Characteristics of Civil Divisions

	Central Cities		Suburbs Adjacent to Central Cities		Suburbs Not Adjacent to Central Cities	
Number						
Total	31		390		2451	
Western	7 (23%)	*(25%)*	39 (10%)	*(36%)*	72 (3%)	*(22%)*
Southern	10 (32%)	*(26%)*	94 (24%)	*(21%)*	190 (8%)	*(7%)*
Middle and Northeast	14 (45%)	*(49%)*	257 (66%)	*(43%)*	2189 (89%)	*(71%)*
Poverty Rate:						
1970	13.7%	*13.8%*	9.2%	*7.3%*	8.5%	*7.2%*
1980	15.6%	*16.4%*	8.0%	*8.3%*	7.1%	*7.4%*
1990	17.6%	*17.7%*	8.3%	*8.7%*	6.8%	*7.3%*
Population Density						
1970	6248	*11023*	3480	*5135*	1541	*3207*
1980	5624	*9187*	3544	*4398*	1533	*2841*
1990	5626	*9005*	3792	*4166*	1540	*2774*
Population						
1970	35,882,594		15,847,748		29,831,333	
1980	35,310,514		17,345,866		34,063,221	
1990	37,501,545		19,766,843		38,861,748	
Distance of Centroid to Centroid of Central City	0		13.0	*15.9*	29.3	*29.5*

Figure 1: 1970-1990 Changes in Proportions of Income-Race Groups Residing in Central City, Adjacent Suburbs, and Outlying Suburbs for Northeastern-Midwestern Large MSAs and for Southern–Western Large MSAs
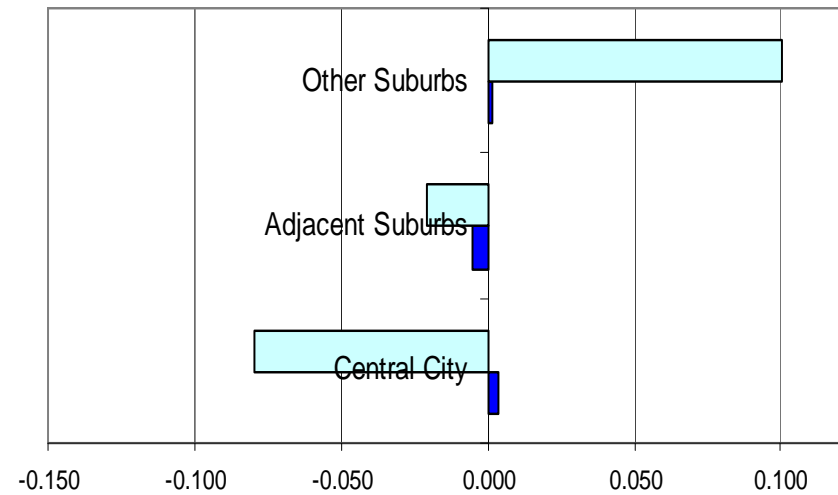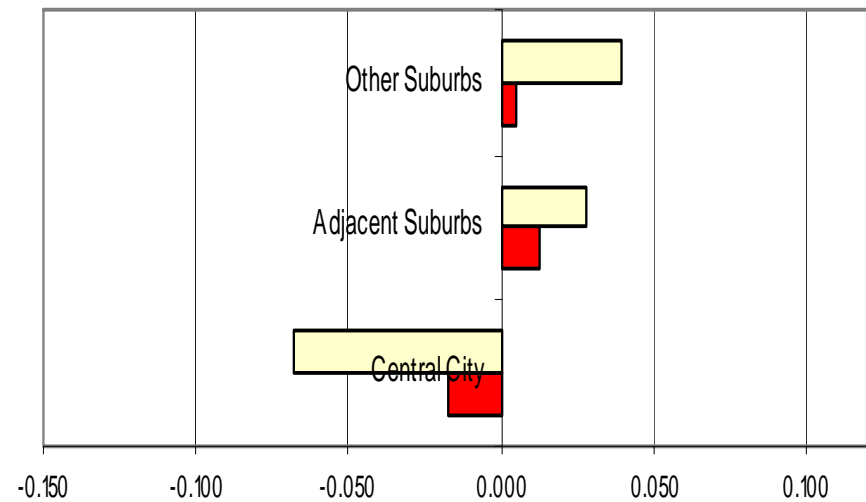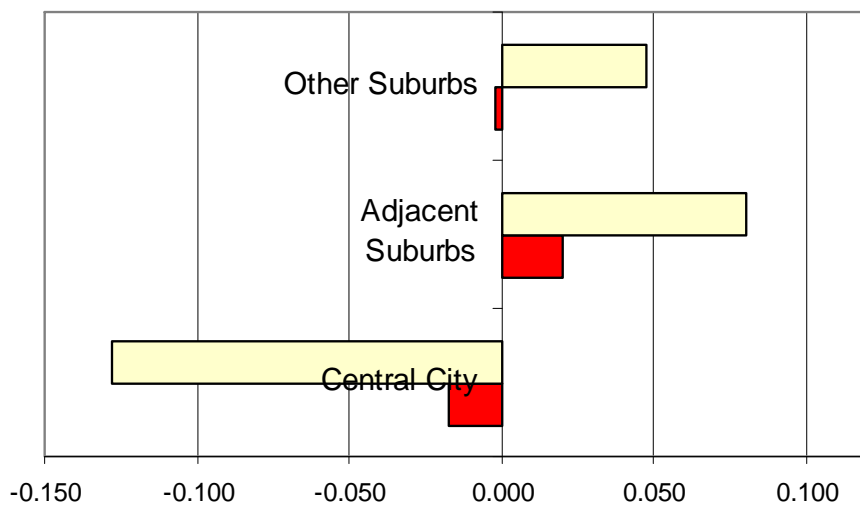
African-Americans

Northeast and Midwest

South and West

non-African-Americans

Northeast and Midwest

South and West

General Approach:

Regress the 1970-90 (and 1980-90) changes in the proportions of each MSA's race-income groups on

- the proportions of each group in the suburban civil divisions in 1970 (1980).

- the 1970 (1980) to 1990 changes in the proportions of the other income-race groups in the suburban civil divisions.

- the geographic and physical structure characteristics of each suburban civil division in 1970 (1980).

General Approach:

Regress the 1970-90 (and 1980-90) changes in the proportions of each MSA's race-income groups on

- the proportions of each group in the suburban civil divisions in 1970 (1980).
  - If race matters, consistent with "white flight" explanation.
  - If poverty status matters, consistent with "local public finance" explanation.
- the 1970 (1980) to 1990 changes in the proportions of the other income-race groups in the suburban civil divisions.
  - If race matters, consistent with "white flight" explanation.
  - If poverty status matters, consistent with "local public finance" explanation.
- the geographic and physical structure characteristics of each suburban civil division in 1970 (1980).
  - If matter, consistent with "land preferences" and "house filtering" explanations.

Income segmentation expected by "land preferences," "house filtering" and "local public finance" explanations.

Race segregation expected by "white flight" explanation.

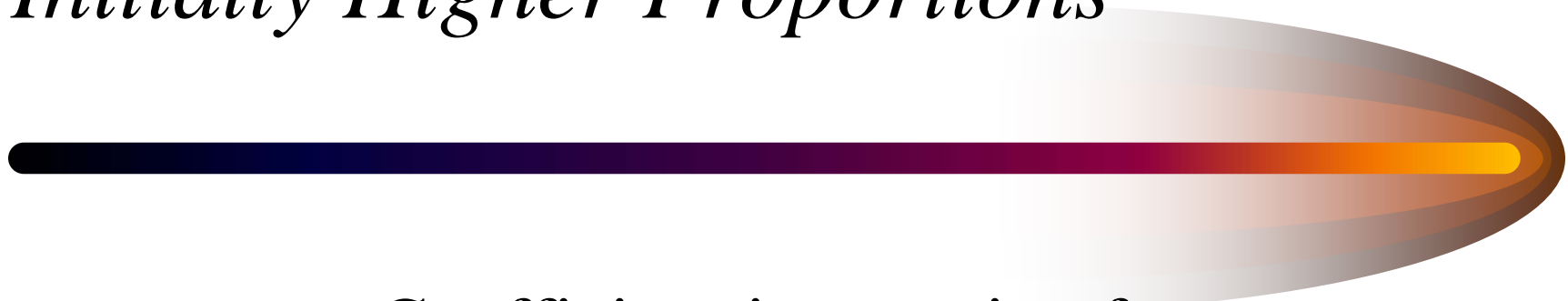# Initial Proportions of MSA's Racial-Income Group in Suburb

First, coefficients on the "diagonal"

- Show tendency of group to concentrate
- If positive, group increasingly concentrated.
- If negative, group dispersed over the time period.

African American Poor Dispersed:
They Shifted Away from Suburbs With Initially Higher Proportions

Coefficient is negative for:

Both regions

Both time periods

African American Non-poor Dispersed Over Full Time Period: *They Shifted Away from Suburbs With Initially Higher Proportions*

Coefficient is negative for:

Both regions

But, for the more recent time period, 1980-90, the trend reversed and non-poor African Americans became more concentrated in suburbs where they were disproportionately residing in 1980.

For non-African Americans, there were regional differences in dispersion-concentration trends

Regardless of Poverty Status:

Concentrated in Northeastern-Midwestern MSAs

Dispersed in Southern-Western MSAs

Reasons may be due to differences in:

- Overall population growth rates
- Roles of suburban governments
- Artifact of geographic unit construction

Table 3: Regression Coefficients Showing the Effect of Demographic and Geo-Economic Characteristics of the Suburban Municipality in on Changes in the Proportion of Race/Income Groups between 1970 and 1990: Northeastern and Midwestern Metropolitan Areas

	Dependent Variable Is Municipality's Change in % of:			
Independent variable	Poor African-Americans	Non-poor African-Americans	Poor non African-Americans	Non-poor non-African-Americans
1970 MSA Proportion of:				
Poor African-Americans	**-.534** **(-29.82)**	-.026 (-0.80)	.195 (9.31)	-.205 (-6.52)
Non-poor African Americans	.461 (22.04)	**-.031** **(-0.89)**	-.386 (-17.56)	.103 (2.96)
Poor non-African-Americans	.307 (14.59)	-.210 (-6.28)	**.439** **(21.41)**	.062 (1.85)
Non-poor non-African Americans	-.211 (-16.37)	.250 (12.37)	-.178 (-13.32)	**.035** **(1.71)**
1970-90 Change in MSA % of:				
Poor African-Americans		.854 (33.03)	.221 (10.94)	-.263 (-8.68)
Non-poor African-Americans	.364 (33.03)		-.089 (-6.64)	-.061 (-3.02)
Poor non-African-Americans	.213 (10.94)	-.201 (-6.64)		.414 (14.26)
Non-poor non-African-Americans	-.115 (-8.68)	-.062 (-3.02)	.187 (14.26)	
Municipality is adjacent to central city	.0002 (1.01)	.0007 (2.23)	-.0006 (-2.56)	-.0029 (-9.08)
Distance from central city	-.00001 (-0.53)	-.0003 (-0.75)	.00003 (1.33)	-.000009 (-0.28)
Population Density	-.0006 (-2.73)	.00003 (0.10)	-.0004 (-1.56)	-.0017 (-5.07)
Adjusted R^2	.70	.61	.47	.29

Table 4: Regression Coefficients Showing the Effect of Demographic and Geo-Economic Characteristics of the Suburban Municipality in on Changes in the Proportion of Race/Income Groups between 1970 and 1990: Western and Southern Metropolitan Areas

Independent variable	Dependent Variable Is Municipality's Change in % of:			
	Poor African-Americans	Non-poor African-Americans	Poor non African-Americans	Non-poor non-African-Americans
1970 MSA Proportion of:				
Poor African-Americans	-.238 (-4.46)	.200 (2.42)	-.222 (-4.39)	.392 (5.91)
Non-poor African Americans	.276 (6.00)	-.254 (-3.53)	.200 (4.51)	-.401 (-7.01)
Poor non-African-Americans	.012 (0.24)	.036 (0.49)	-.107 (-2.31)	.143 (2.33)
Non-poor non-African Americans	-.003 (-0.10)	.020 (0.38)	.201 (6.47)	-.229 (-5.43)
1970-90 Change in MSA % of:				
Poor African-Americans		1.363 (38.83)	-.242 (-5.09)	.280 (4.37)
Non-poor African-Americans	.589 (38.83)		.141 (4.48)	-.179 (-4.24)
Poor non-African-Americans	-.270 (-5.09)	.364 (4.48)		1.190 (37.92)
Non-poor non-African-Americans	.175 (4.37)	-.259 (-4.24)	.669 (37.92)	
Municipality is adjacent to central city	-.004 (-3.08)	.005 (3.02)	.002 (1.77)	-.0004 (-0.27)
Distance from central city	.00008 (1.04)	-.0003 (-0.75)	.0002 (2.24)	-.00017 (-1.82)
Population Density	.007 (2.34)	-.014 (-3.01)	.010 (3.50)	-.017 (-4.44)
Adjusted R^2	.87	.87	.90	.91

Table 5: Regression Coefficients Showing the Effect of Demographic and Geo-Economic Characteristics of the Suburban Municipality in on Changes in the Proportion of Race/Income Groups between 1980 and 1990: Northeastern and Midwestern Metropolitan Areas

Independent variable	Dependent Variable Is Municipality's Change in % of:			
	Poor African-Americans	Non-poor African-Americans	Poor non African-Americans	Non-poor non-African-Americans
1980 MSA Proportion of:				
Poor African-Americans	-.406 (-38.51)	-.152 (-11.62)	.068 (5.75)	.025 (2.21)
Non-poor African Americans	.281 (24.78)	.124 (9.90)	-.163 (-15.15)	-.061 (-5.70)
Poor non-African-Americans	.270 (20.69)	-.028 (-1.96)	.206 (17.44)	-.058 (-4.92)
Non-poor non-African Americans	-.144 (-16.65)	.045 (4.93)	-.105 (-13.40)	.100 (13.53)
1980-90 Change in MSA % of:				
Poor African-Americans		.282 (14.38)	.103 (5.74)	-.054 (-3.14)
Non-poor African-Americans	.279 (14.38)		.045 (2.52)	-.049 (-2.90)
Poor non-African-Americans	.131 (5.74)	.058 (2.52)		.233 (12.44)
Non-poor non-African-Americans	-.076 (-3.14)	-.070 (-2.90)	.258 (12.44)	
Municipality is adjacent to central city	-.00003 (-1.82)	.0007 (3.91)	.0007 (4.13)	-.0020 (-13.34)
Distance from central city	.00001 (0.85)	-.00003 (-1.93)	.00004 (2.64)	.000008 (0.53)
Population Density	-.0007 (-2.03)	.00001 (0.60)	-.0003 (-1.86)	.0001 (0.61)
Adjusted R^2	.65	.45	.36	.31

Table 6: Regression Coefficients Showing the Effect of Demographic and Geo-Economic Characteristics of the Suburban Municipality in on Changes in the Proportion of Race/Income Groups between 1980 and 1990: Western and Southern Metropolitan Areas

Independent variable	Dependent Variable Is Municipality's Change in % of:			
	Poor African-Americans	Non-poor African-Americans	Poor non African-Americans	Non-poor non-African-Americans
1980 MSA Proportion of:				
Poor African-Americans	-.035 (-1.16)	-.110 (-2.87)	-.063 (-2.48)	.150 (4.90)
Non-poor African Americans	.025 (1.03)	.120 (3.89)	.040 (1.90)	-.154 (-6.27)
Poor non-African-Americans	-.047 (-1.50)	.144 (3.63)	-.027 (-1.02)	.036 (1.08)
Non-poor non-African Americans	.021 (0.90)	-.097 (-2.94)	.082 (4.27)	-.064 (-2.64)
1980-90 Change in MSA % of:				
Poor African-Americans		1.068 (28.62)	.063 (1.42)	-.172 (-3.19)
Non-poor African-Americans	.645 (28.62)		-.060 (-1.76)	.234 (5.76)
Poor non-African-Americans	.087 (1.42)	-.138 (-1.76)		1.019 (28.03)
Non-poor non-African-Americans	-.156 (-3.19)	.352 (5.76)	.667 (28.03)	
Municipality is adjacent to central city	-.0001 (-0.14)	-.003 (-2.20)	-.001 (-1.75)	.004 (4.02)
Distance from central city	.00016 (2.72)	-.0003 (-3.38)	.00002 (0.40)	.000002 (0.04)
Population Density	.005 (1.86)	-.098 (-3.16)	.001 (0.70)	-.042 (-1.66)
Adjusted R^2	.79	.82	.88	.89

Initial Proportions of MSA's Racial-Income Group in Suburb

Coefficients across the rows

– Show how initial representations of each group affect locations of the other racial-income groups

– Shows whether income or race more correlated with subsequent shifts across suburbs.

Initial Proportions of MSA's Racial-Income Group in Suburb

In Northeastern and Midwestern MSAs

Suburbs with more poor non-African Americans attracted more poor of both races

Suburbs with more non-poor non-African Americans attracted more non-poor and less poor of both races.

Income Segmentation

Initial Proportions of MSA's Racial-Income Group in Suburb

In Southern and Western MSAs poverty status also correlates more with shifts than race, but in opposite directions

Suburbs with more poor non-African Americans attracted *fewer* poor of both races

Suburbs with more non-poor non-African Americans attracted *fewer* non-poor and more poor of both races.

→ Income Dispersion

Changes in the Proportions of Other Racial-Income Groups in the Suburb

Two ways that movement of racial-income groups among suburbs result in dispersion or concentration by race or income over time:

1. Groups shift to or away from suburbs where initially more likely to reside; or

2. Groups may move to same suburbs as rest of racial or income group, or away from those suburbs.

Therefore, *changes in the proportions of other racial-income groups in the suburb* affect income segmentation and racial segregation.
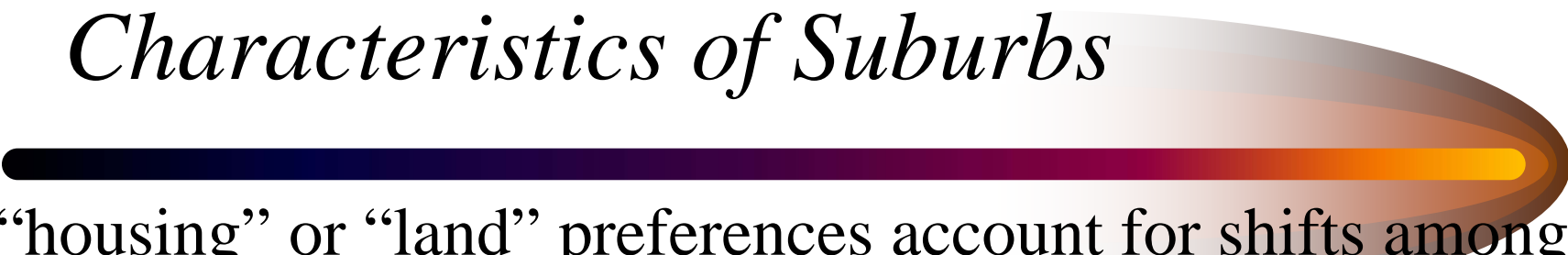
Changes in the Proportions of Other Racial-Income Groups in the Suburb

In both regions and time periods, race trumps income. Each racial-income group's patterns were most similar to their own racial group of opposite poverty status.

- Poor African American moves were most correlated with those of non-poor African Americans and vice versa.

- Poor non-African American moves were most correlated with those of non-poor non-African Americans and vice versa.

Geographic-Structural Characteristics of Suburbs

If "housing" or "land" preferences account for shifts among suburbs, then average housing age and size and the average commute to work from a suburb would be the characteristics sorting poor and non-poor among suburbs.

No data available directly for 1970 and 1980 MCDs/CCDs on these characteristics. Therefore, use

 population density,

 distance from MSA center, and

 whether adjacent to central city

as indicators of age and size of housing and of commuting requirements.

Geographic-Structural Characteristics of Suburbs

For both regions

For both time periods,

>   the physical and geographic characteristics of suburbs have less effect on the shifts among suburbs of racial-income groups,

>   as indicated by t-statistics,

>   than do the race and income of initial or shifting residents.

Conclusions I

- After controlling for effects of poverty status, African Americans suburbanized at a greater rate than non-African Americans.

- There has been relatively little suburbanization of the poor of either racial group.

- Little evidence that house filtering or land preferences are accounting for shifts among suburbs in income - racial groups.

Conclusions II

- Some evidence of "white flight."

- Evidence for "local public finance" is weaker. Race is always more important than income in the correlations of movements and initial locations for racial-income groups.

- Racial and income dynamics of suburbanization have had two opposite effects on race and income segmentation of suburban jurisdictions in Northeast/Midwest.

Northeast/Midwest African Americans:
2 offsetting effects on race and income segmentation

- Suburbanizing African Americans moved to jurisdictions with initially fewer of their race-income group.

- Suburbanizing African Americans moved, first, to the same locales as the suburbanizing African Americans of opposite poverty status and, second, to the same locale as non-African Americans of their income group.

Northeast/Midwest nonAfrican Americans:
2 amplifying effects on race and income segmentation

- Suburbanizing non-African Americans moved to jurisdictions with initially more of their race-income group.
- Suburban non-African Americans also moved, first, to the same locales as non-African Americans of opposite poverty status and, second, to the same locale as African Americans of their own poverty status.

Example of Decreasing Population Density with Rising Population

Population 1	Area	Population density 1	Population 2	Area	Population density 2
10000	30	333.3333	9000	30	300
5000	50	100	4000	50	80
10	300	0.033333	2300	300	7.666667
10	300	0.033333	10	300	0.033333
10	300	0.033333	10	300	0.033333
Average Density		86.68667			77.54667