

White/Black Residential Segregation in U.S. Cities

Learning Objectives:

- Learning how to read and interpret tables
- Quantitative writing
- Using real world data to enhance and support key course concepts

Resources Needed:

- proportion of total population and total population which is black for U.S. cities
- indices of dissimilarity for U.S. Cities

Massey and Denton used cluster analysis to identify five key dimensions of segregation – evenness, exposure, concentration, centralization and clustering.

In the case of white/black residential segregation, “evenness” refers to whether blacks are over- or under-represented in some areas in comparison to where blacks would locate in an area if they were randomly distributed. “Isolation” refers to the degree to which blacks occupy neighborhoods that are not similarly occupied by whites -- the fewer whites in a black neighborhood, the more isolated the blacks. “Clustering” refers to the degree blacks are spatially located in one or more contiguous neighborhoods of an area as opposed to living throughout a region. “Centralization” refers to the degree to which blacks live in and around an urban core. Lastly, “concentration” refers to the degree that blacks are confined to one small area in an area and how contiguous pockets of segregation are.

We are going to focus on dissimilarity indices as a measure of evenness. Evenness measures of segregation compare the spatial distributions of different groups. Segregation is smallest when majority and minority populations have the same spatial distribution. Conceptually, dissimilarity measures the proportion of members of one group that would have to change their area of residence to achieve an even distribution, with the number of group members moving expressed as a proportion of the number that would have to move under conditions of maximum segregation. The index ranges from 0 (no group members would have to move) to 1.0 (when all would) 1.0, then, indicates maximum segregation (or zero to 100 if you multiply by 100). Another unevenness measure is the Gini coefficient. However, right now we will stick with dissimilarity index.

The Dissimilarity Index is one of the oldest and most commonly used. It is easy to calculate, simply comparing two proportions. The formula is given below, where: X_i and y_i = proportional distribution of characteristics

$$I.D. = \frac{1}{2} \left(\sum |x_i - y_i| \right)$$

The index of dissimilarity can be used to compare any two distributions. For example, to compare the distribution of all families with families below poverty level by census tract we could construct Table 1.

Index of Dissimilarity, Sometown, North Carolina			
Table 1. Distribution of families and families below poverty level			
Census Tracts	Families (x)	Families Below poverty (y)	$ x - y $
1	.028	.070	.042
2	.030	.104	.074
4.01	.073	.052	.021
4.02	.061	.045	.016
5(p.)	.105	.195	.090
6(p.)	.016	.100	.084
7.01(p.)	.030	.053	.023
8	.037	.045	.008
9	.073	.055	.018
10(p.)	.047	.082	.085
11(p.)	.110	.039	.071
12.01	.091	.056	.035
12.02	.076	.005	.071
13(p.)	.089	.080	.009
14.02(p.)	.083	.013	.007
14.03(p.)	.051	.005	.036
.713			

To find the proportional distribution of families (the "x" column of Table 1), the number of families in each tract was divided by the total number of families in Sometown. The same procedure was used for families below poverty (the "y" column). To derive the last column, the smaller proportion was subtracted from the larger proportion in the "x" and "y" columns for each tract. The last column was totaled and the calculated index was:

$$I.D. = \frac{1}{2}(.713) = .357$$

Thus, in order for the distribution of all families and families in poverty to be equal, about a third of all families would have to move.

To complete the exercise, you need to:

1. Access the CensusScope segregation data available at by going to www.censuscope.org and clicking on the "segregation" tab.
2. Move down the left side of your screen to Rankings & Comparisons.
3. Select White-Black under select a dissimilarity index to rank.
4. Click the Cities button, select North Carolina and click Rank.
5. Scan the table of North Carolina Cities Ranked by White/Black Dissimilarity Indices. Complete Table 2 below.

Table 2. North Carolina Cities Ranked by White/Black Dissimilarity Index					
Rank	City	Black Population	White Population	Total Population	Dissimilarity Index
1.	Wilmington	19,423	52,639	75,838	65.6
2.	Wilson	21,007	19,479	44,405	65.1
3.	Winston-Salem	67,648	97,420	185,776	62.6
4.	Greensboro	83,041	120,112	223,891	62.3
5.	Rocky Mount	31,175	22,548	55,893	61.8
6.	Charlotte	175,661	297,845	540,828	61.1
7.	Hickory	5,181	27,245	37,222	60.7
8.	High Point	27,064	50,176	85,839	59.8
9.	Greenville	20,531	36,660	60,476	58.1
10.	Durham	81,370	79,277	187,035	57.8
11.	Asheville	12,054	52,340	68,889	56.4
12.	Raleigh	75,931	166,386	276,093	56.2
13.	Burlington	11,166	27,828	44,917	55.8
14.	Gastonia	16,520	44,615	66,277	51.4
15.	Goldsboro	20,295	16,346	39,043	51.1
16.	Salisbury	9,874	14,650	26,462	50.1
17.	Monroe	7,155	12,998	26,228	49.8
18.	Concord	8,304	41,985	55,977	48.6
19.	Fayetteville	50,656	56,419	121,015	46.1
20.	Kannapolis	6,044	27,748	36,910	44.8
21.	Cary	5,744	75,299	94,536	36.1
22.	Chapel Hill	5,517	37,073	48,715	33.8
23.	Jacksonville	15,576	40,583	66,715	27.9

Questions:

1. Which city is most segregated? Least?
2. Based on your knowledge of North Carolina, are there index values that differ from what you would have guessed?
3. What factors may be related to differences among the cities in dissimilarity indices?