

Neighborhood Choice and Segregation

RE420: URBAN AND REGIONAL ECONOMICS

Introduction

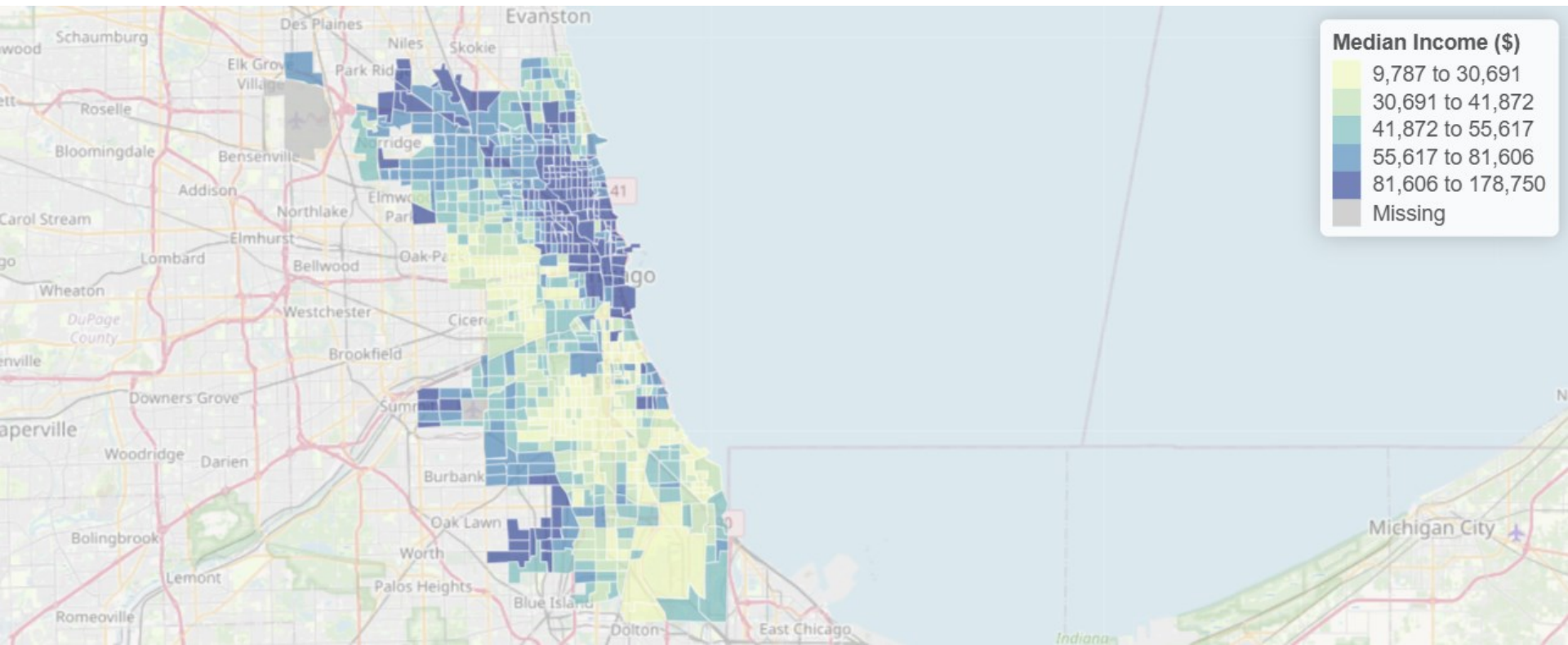
- We have studied individuals' choice of **cities** using the Rosen-Roback Model
- We have also studied individuals' choice of **location** within a city using the Monocentric City Model
- Is our location decision truly a two-step process? (i.e., first choosing the city, then the exact location within the city)
- People care about their “**neighborhood**”
 - Consumers choose neighborhoods that offer opportunities for social interaction within the community

Introduction

- The collective choices individuals make about their neighborhoods ultimately shape the distribution of people across communities
 - Do you think our urban society is well-integrated across different races, ethnicities, income levels, and educational backgrounds?
 - Or do you think the urban society remains segregated?

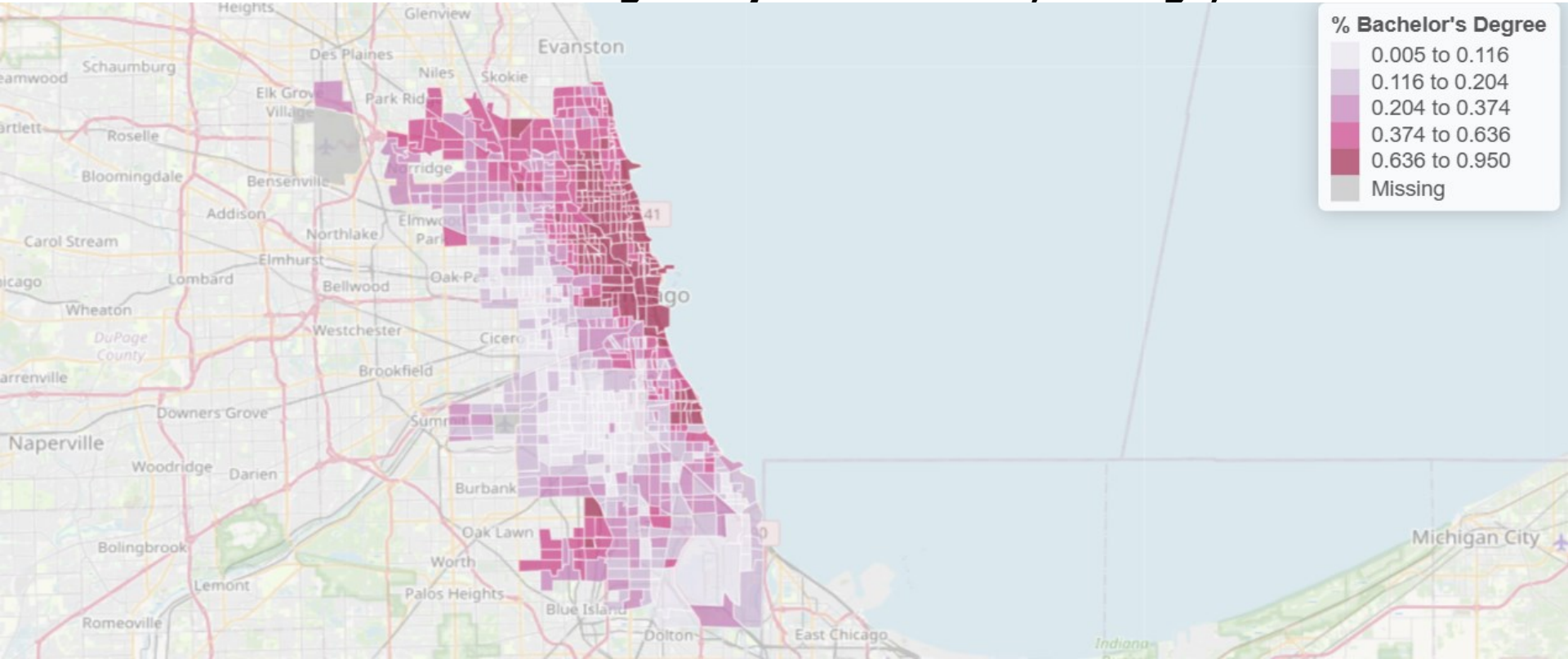
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< Median Income By Census Tract, Chicago, IL >



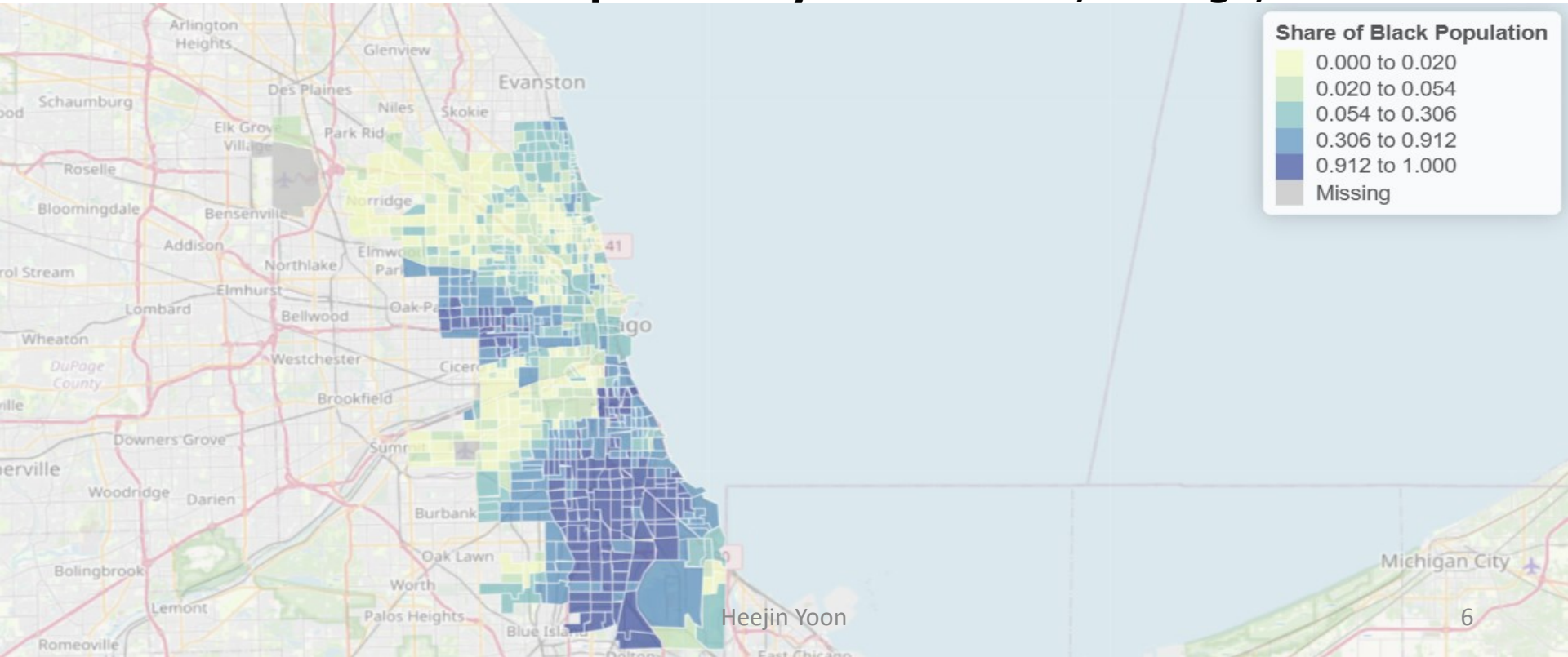
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< % Bachelor's Degree By Census Tract, Chicago, IL >



Introduction

< Share of Black Population By Census Tract, Chicago, IL >



Introduction

- Given the seemingly evident segregation in terms of income, education, and race, our discussion will focus on the following questions:
 1. To what extent are people segregated?
 2. If significant segregation exists, what are the driving factors behind it?
 3. What are the social and economic consequences of such segregation?

Introduction

- Given the seemingly evident segregation in terms of income, education, and race, our discussion will focus on the following questions:
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Measuring Segregation

Definition of Segregation

- **Segregation** is the physical separation of different groups
- Many kinds of segregation exist:
 - Segregation in neighborhoods, schools, workplaces, jobs, ...
 - Segregation based on income, wealth, educational attainment, race, ...
- In our discussion, we will focus specifically on **racial and ethnic residential segregation**, particularly between Black and white

Measures of Segregation

- Two primary measures for residential segregation in a geographic area
 - **Dissimilarity Index (DI)** measures how evenly Black and white groups are distributed across a geographic area
 - **Isolation Index (II)** measures the likelihood of a member of a black (white) individual interacting with others who are also black (white)

Dissimilarity Index

- The dissimilarity index (DI) is the most common measure of segregation
- The formula for the DI of a city:

$$DI = \frac{1}{2} \sum_{i=1}^N \left| \frac{w_i}{W} - \frac{b_i}{B} \right|,$$

where

w_i = the white population in neighborhood i

b_i = the Black population in neighborhood i

W = the white population in the whole city

B = the Black population in the whole city

Dissimilarity Index: Actual Calculation

- Consider two hypothetical cities, each with a total population of 300 people
 - Each city has 200 white residents and 100 Black residents
 - Each city is divided into four neighborhoods

<u>City A</u>		
Neighborhood	White	Black
a	50	25
b	50	25
c	50	25
d	50	25
Total	200	100

<u>City B</u>		
Neighborhood	White	Black
a	100	0
b	100	0
c	0	50
d	0	50
Total	200	100

- Which city is more segregated? Which city is more integrated?

Dissimilarity Index: Actual Calculation

City A

Neighborhood	White	Black	$\frac{w_i}{W}$	$\frac{b_i}{B}$	$\left \frac{w_i}{W} - \frac{b_i}{B} \right $
a	50	25	0.25	0.25	0
b	50	25	0.25	0.25	0
c	50	25	0.25	0.25	0
d	50	25	0.25	0.25	0
Total	200	100			0

$$\text{DI of City A} = \frac{1}{2} \times 0 = 0 \text{ (i.e., Fully Integrated)}$$

Dissimilarity Index: Actual Calculation

City B

Neighborhood	White	Black	$\frac{w_i}{W}$	$\frac{b_i}{B}$	$\left \frac{w_i}{W} - \frac{b_i}{B} \right $
a	100	0	0.5	0	0.5
b	100	0	0.5	0	0.5
c	0	50	0	0.5	0.5
d	0	50	0	0.5	0.5
Total	200	100			2

$$\text{DI of City B} = \frac{1}{2} \times 2 = 1 \text{ (i.e., Fully Segregated)}$$

Dissimilarity Index: Actual Calculation

- How about Madison?

Census Tract	White	Black	$\frac{w_i}{W}$	$\frac{b_i}{B}$	$\left \frac{w_i}{W} - \frac{b_i}{B} \right $
55025000100	2182	117	0.00501	0.00384	0.00117
55025000201	1824	63	0.00419	0.00207	0.00212
⋮	⋮	⋮	⋮	⋮	⋮
55025013302	4811	103	0.01105	0.00338	0.00767
55025013700	6160	103	0.01415	0.00338	0.01077
Total	435458	30473			0.88833

$$\text{DI of Madison} = \frac{1}{2} \times 0.88833 = \mathbf{0.44417}$$

Metropolitan Area	DI
Milwaukee-Waukesha, WI	0.751
Detroit-Dearborn-Livonia, MI	0.745
New York-Jersey City-White Plains, NY-NJ	0.743
Chicago-Naperville-Evanston, IL	0.738
Miami-Miami Beach-Kendall, FL	0.721
Philadelphia, PA	0.702
Cleveland-Elyria, OH	0.7
St. Louis, MO-IL	0.674
Buffalo-Cheektowaga, NY	0.653
Boston, MA	0.642
Birmingham-Hoover, AL	0.614
Washington-Arlington-Alexandria, DC-VA-MD-WV	0.612
Cincinnati, OH-KY-IN	0.606
New Orleans-Metairie, LA	0.602
Baltimore-Columbia-Towson, MD	0.599
Indianapolis-Carmel-Anderson, IN	0.598
Hartford-East Hartford-Middletown, CT	0.598
Los Angeles-Long Beach-Glendale, CA	0.597
Rochester, NY	0.594
Pittsburgh, PA	0.594
Columbus, OH	0.592
Memphis, TN-MS-AR	0.589
Atlanta-Sandy Springs-Alpharetta, GA	0.585
Houston-The Woodlands-Sugar Land, TX	0.572
Grand Rapids-Kentwood, MI	0.572
Denver-Aurora-Lakewood, CO	0.54
Jacksonville, FL	0.528

Metropolitan Area	DI
Louisville/Jefferson County, KY-IN	0.516
Kansas City, MO-KS	0.516
Sacramento-Roseville-Folsom, CA	0.512
Dallas-Plano-Irving, TX	0.509
Richmond, VA	0.504
Charlotte-Concord-Gastonia, NC-SC	0.497
Tampa-St. Petersburg-Clearwater, FL	0.496
Nashville-Davidson--Murfreesboro--Franklin, TN	0.49
San Francisco-San Mateo-Redwood City, CA	0.477
Minneapolis-St. Paul-Bloomington, MN-WI	0.477
Orlando-Kissimmee-Sanford, FL	0.473
Providence-Warwick, RI-MA	0.465
Virginia Beach-Norfolk-Newport News, VA-NC	0.456
San Diego-Chula Vista-Carlsbad, CA	0.448
Oklahoma City, OK	0.445
San Antonio-New Braunfels, TX	0.44
Seattle-Bellevue-Kent, WA	0.437
Austin-Round Rock-Georgetown, TX	0.424
Riverside-San Bernardino-Ontario, CA	0.418
Phoenix-Mesa-Chandler, AZ	0.411
Raleigh-Cary, NC	0.388
Las Vegas-Henderson-Paradise, NV	0.374
San Jose-Sunnyvale-Santa Clara, CA	0.353
Portland-Vancouver-Hillsboro, OR-WA	0.35
Tucson, AZ	0.348
Salt Lake City, UT	0.346

Isolation Index

- The formular for the II of a city for Black and white:

$$II_{black} = \sum_{i=1}^N \left[\left(\frac{b_i}{B} \right) \times \left(\frac{b_i}{w_i + b_i} \right) \right],$$
$$II_{white} = \sum_{i=1}^N \left[\left(\frac{w_i}{W} \right) \times \left(\frac{w_i}{w_i + b_i} \right) \right],$$

where

w_i = the white population in neighborhood i

b_i = the Black population in neighborhood i

W = the white population in the whole city

B = the Black population in the whole city

Isolation Index: Actual Calculation

City A

Neighborhood	White	Black	$\frac{b_i}{B}$	$\frac{b_i}{(w_i + b_i)}$	$\left(\frac{b_i}{B}\right) \times \left(\frac{b_i}{w_i + b_i}\right)$
a	50	25	0.25	0.3333	0.0833
b	50	25	0.25	0.3333	0.0833
c	50	25	0.25	0.3333	0.0833
d	50	25	0.25	0.3333	0.0833
Total	200	100			0.3333

II for Black in City A = 0.3333 (An average Black individual lives in a community where 33.33% of the residents are also Black)

Isolation Index: Actual Calculation

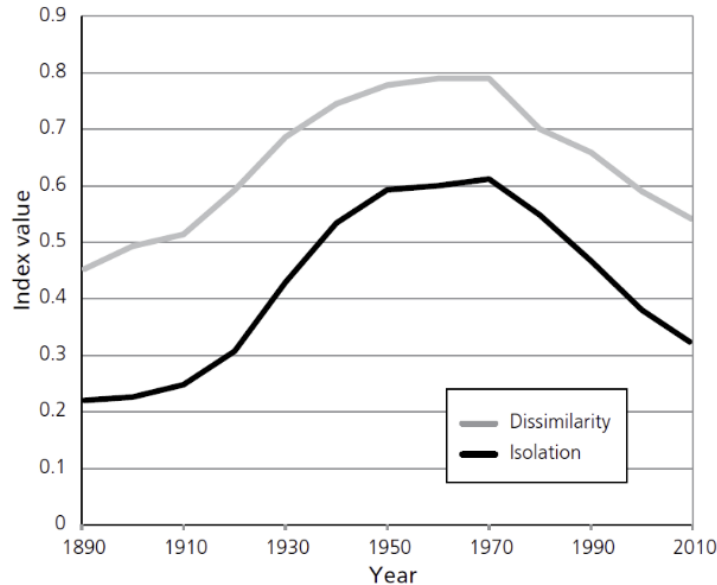
City B

Neighborhood	White	Black	$\frac{b_i}{B}$	$\frac{b_i}{(w_i + b_i)}$	$\left(\frac{b_i}{B}\right) \times \left(\frac{b_i}{w_i + b_i}\right)$
a	100	0	0	0.0000	0.0000
b	100	0	0	0.0000	0.0000
c	0	50	0.5	1.0000	0.5000
d	0	50	0.5	1.0000	0.5000
Total	200	100			1.0000

II for Black in City B = 1 (An average Black individual lives in a community where 100% of the residents are also Black)

Segregation Trends Over Time

Figure 1. Black/Nonblack Segregation 1890–2010



Source: Glaeser and Vigdor (2012)

- The average segregation (Black vs. white) from 1890 to 2010
- The Great Migration between 1910 and 1970: Blacks moved to urban areas in Northern, Midwestern, and Western states.
- Segregation rose significantly during the Great Migration
- Since 1970, both DI and II had declined in the US

Driving Factors of Racial Residential Segregation

Causes of Segregation

- Boustan (2012, Oxford Handbook of Urban Economics and Planning) provide a useful typology of the possible causes of racial residential segregation
 1. Self-segregation
 2. Collective action
 3. Individual action (a.k.a. “white flight”)

Self-Segregation

- Residential segregation may arise because black households prefer to live in majority-black neighborhoods.
- Thernstrom and Thernstrom (1997):
 - In the Multi-City Study survey, the share of black respondents who ranked a majority-black neighborhood as their **first or second** most preferred neighborhood increased over time from 68% to 82% since mid-1970s to early 1990s.
 - “Segregation during the time must be driven by black preferences for own-race neighbors and therefore should not be a matter of policy concern.”
- Re-interpretation of the survey by Krysan and Farley (2002):
 - Black respondents are most likely to select the integrated neighborhood as their **first** choice.
 - In the open-ended questions of why they avoid white neighborhoods, many blacks cite fear of white hostility and concerns about being ignored, harassed, or patronized by their neighbors

Self-Segregation

- Reinforcing mechanism caused by “Preference Externalities”
 - Firms will locate to areas with a sufficiently large consumer base
 - An increase in Black-oriented retail stores in the neighborhood will attract more Black households
- Case Study by Waldfogel (2008)
 - Blacks prefer fried chicken, while whites prefer pizza \Rightarrow increasing number of fried chicken outlets in black neighborhoods than in white neighborhoods

Collective Action

- Residential segregation may arise because of the organized efforts on the part of white homeowners or businesses to exclude black households from white areas
- Examples:
 - Redlining
 - Racially restrictive covenants
 - Mortgage market discrimination
 - Steering of Black clients by realtors toward predominantly Black neighborhoods
 - Etc.

Collective Action: Redlining

Faber, J. W., 2020. "We built this: consequences of new deal era intervention in America's racial geography." *American Sociological Review*, 85(5), pp.739-775.

- Early 1930s: approximately half of the nation's mortgage debt was in default
- The government created Home Owners Loan Corporation (HOLC) as part of the New Deal
- Modified existing loans to help them avoid foreclosure and reacquire homes already lost to foreclosure: the rise of long-term, fixed payment mortgage
- Assessing the default risk of potential borrowers: mapping the distribution of perceived risk within cities across country
- HOLC consulted with local lenders and realtors to assign neighborhoods one of four grades
 - A: most desirable (green)
 - B: slightly less desirable (blue)
 - C: declining neighborhoods (yellow)
 - D: undesirable (red)

Collective Action: Redlining

- HOLC Map conflated race with mortgage default risk
 - Federal justification: “proximity to people of color declines property values”
- As a result, redlining ...
 - created incentive for white communities to segregate themselves: racially restrictive covenants, spite wall, etc.;
 - acted as a substantial barrier to financial access for Black families; and
 - strengthened stereotypes about quality of life in Black neighborhoods.

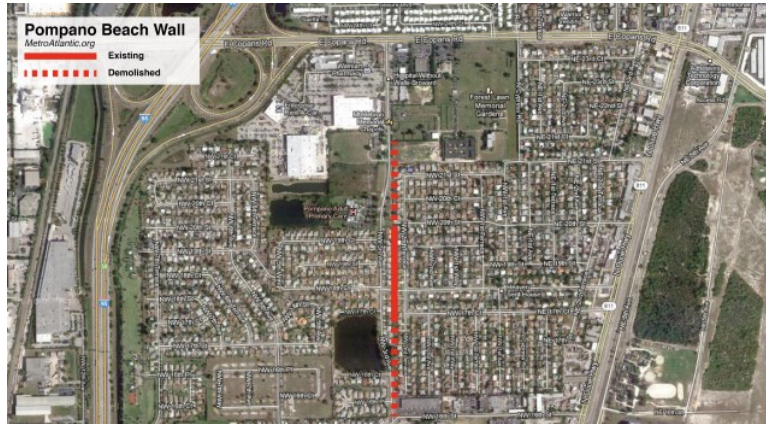
Collective Action: Redlining



- Peyton Wall (Atlanta, GA)

“In December 1962, Mayor Ivan Allen Jr. ordered barricades to be built across two Atlanta streets to discourage black citizens from purchasing homes in an adjacent all-white neighborhood (Atlanta Magazine, 2011)”
- <https://www.atlantamagazine.com/civil-rights/atlantas-berlin-wall/>

Collective Action: Redlining



- Pompano Beach Wall (Miami, FL)
“This five foot high wall was built to separate predominately white neighborhood of Kendall Green to the east from the black neighborhoods of Kendall Lake and Pine Tree Park to the west.”
- <https://metroatlantic.wordpress.com/2013/05/06/the-segregation-walls-that-divide-us/>

< Redlining Map of Madison, WI >



WISCONSIN
SCHOOL OF BUSINESS
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Collective action: Mortgage Market Discrimination

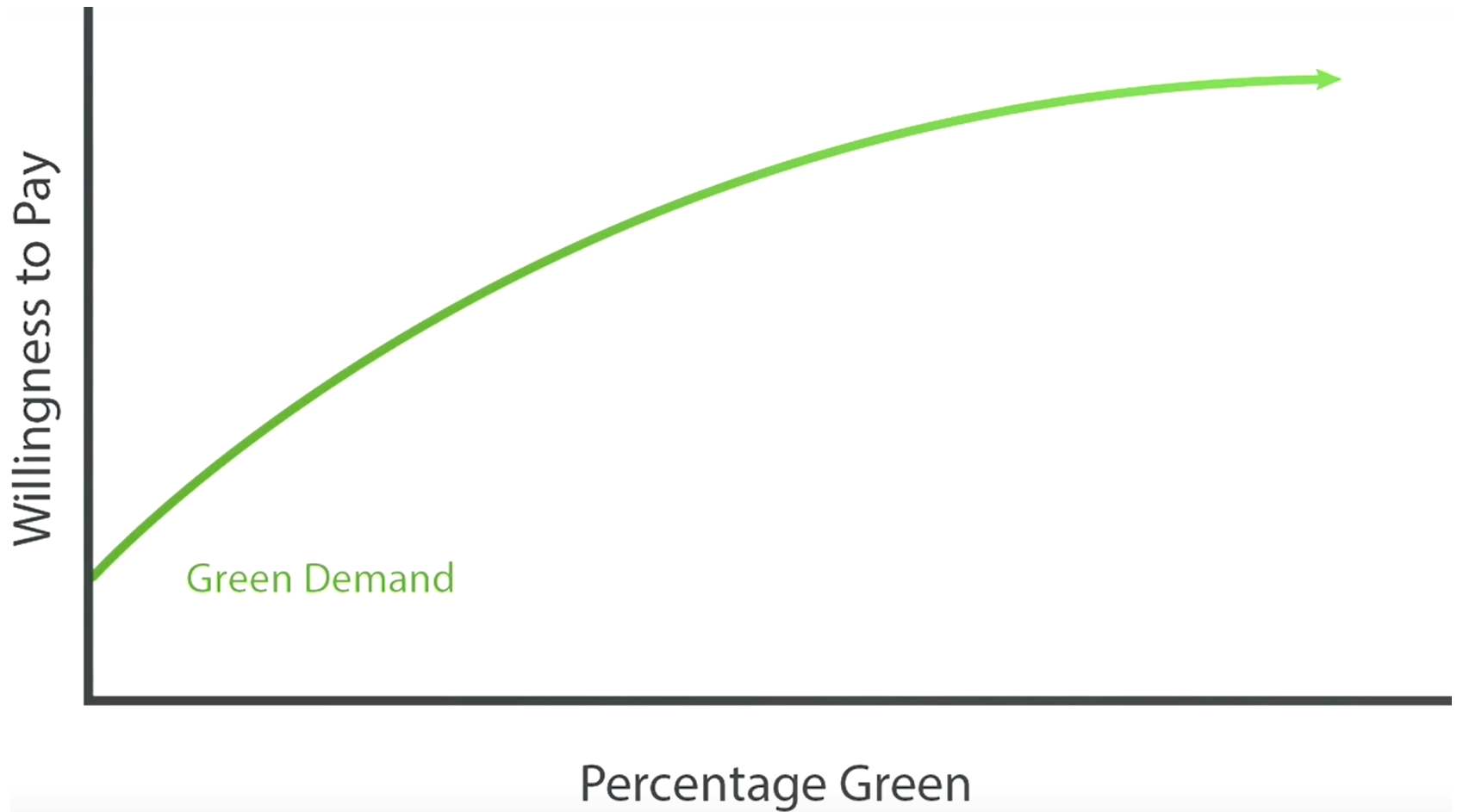
- It is reported that minority populations still face significant barriers in obtaining a mortgage
 - Black applicants are more than twice as likely to be denied a mortgage compared to White applicants (Munnell et al., 1996)
 - Minority (Black and Hispanic) borrowers are charged mortgage rates that are 3.6 to 7.9 basis points higher (Bartlett et al., 2022)
 - Minorities also pay more in origination fees and discount points (Bhutta and Hizmo, 2021)
 - It takes significantly longer for minority applicants to be approved for the same mortgage

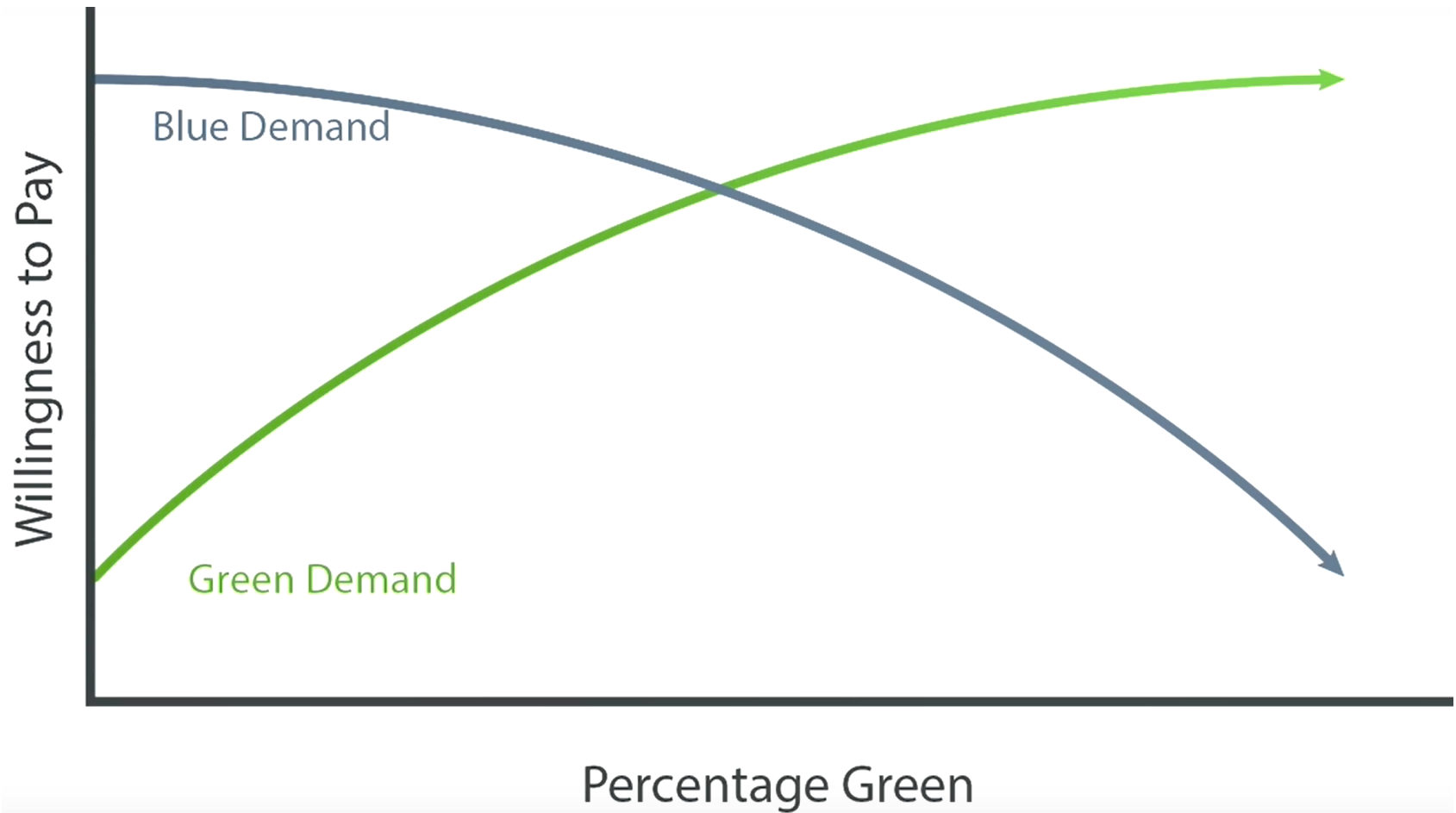
Individual Action

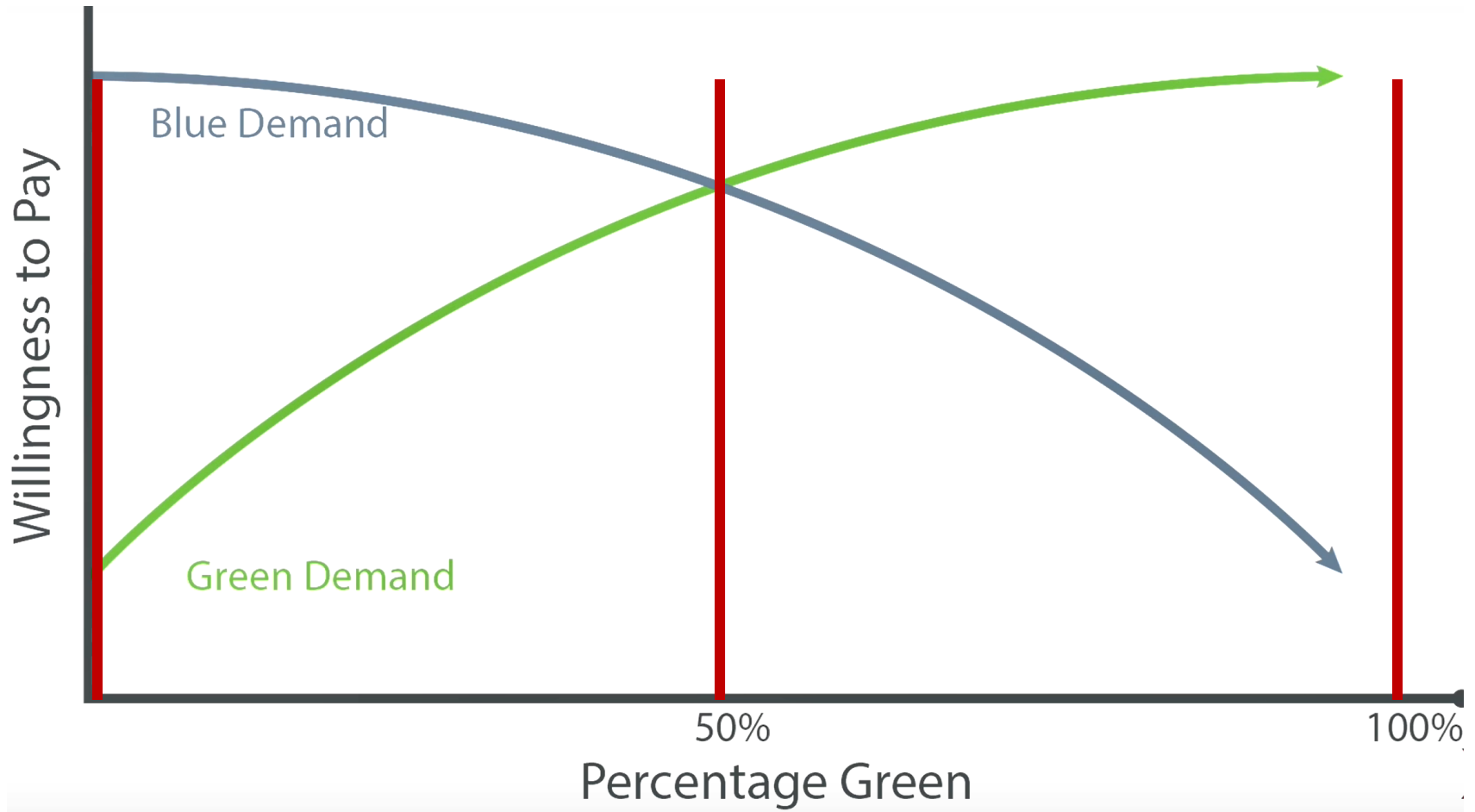
- Residential segregation can arise from white preferences to avoid black neighborhoods, even without coordination or overt hostility
- Schelling's Tipping Model
 - If whites begin leaving neighborhoods that become diverse, these small individual actions can have a large collective impact on racial residential patterns
 - The movement of one household imposes externalities on the remaining residents through the resulting change in the neighborhood racial composition

Individual Action: Schelling's Tipping Model

- Consider a neighborhood where the willingness to pay for housing of green households increases with the share of green households in the neighborhood
- Also, the willingness to pay of blue households increases with the share of blue households in the neighborhood
- 3 equilibria points:
 1. 50% green and 50% blue (unstable equilibrium, why?)
 2. 100% green and 0% blue (stable equilibrium)
 3. 0% green and 100% blue (stable equilibrium)







Individual action: Schelling's Tipping Model

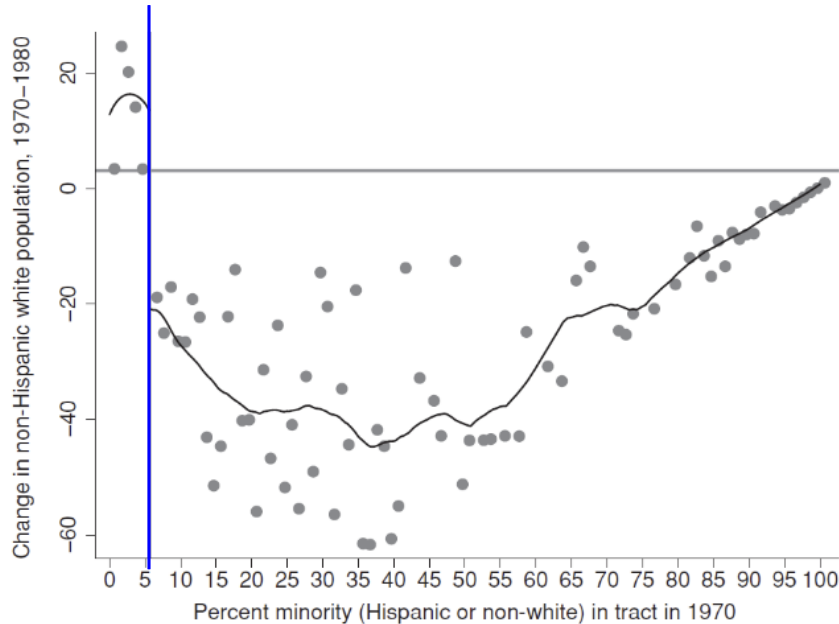


FIGURE I
Neighborhood Change in Chicago, 1970-1980

- Card, Mas, and Rothstein (2008) provide evidence of tipping points that trigger a rapid white population decline
- The y-axis is the percentage changes in the Chicago census tracts' white population from 1970 to 1980
- The x-axis is the minority share in 1970
- The estimated discontinuity point is around 5%: that is, 5% minority share is the tipping point in Chicago neighborhoods during 1970-1980

What is the major driving factor among them?

- While all three explanations have supporting evidence, distinguishing the dominant factor behind racial segregation may still be important from a policy perspective
- Cutler, Glaeser, and Vigdor (1999) attempt to differentiate the theories of segregation:
 - If segregation is driven by self-segregation or collective action, Black individuals will pay more for the equivalent housing than whites in more segregated cities
 - If segregation is driven by white individuals' actions (i.e., "white flight"), then white individuals will pay more for the equivalent housing than Black individuals in more segregated cities
- Their findings:
 - 1940-1970: segregation is mainly explained by self-segregation/collective action
 - 1970-1990: segregation was primarily driven by white flight

Video Clip

Housing Segregation and Redlining in America: A Short History (6:36)



Key Takeaways

- Understand the measures for neighborhood segregation
- Understand the time trend of segregation in major cities in the US
- Understand the theories explaining the cause of segregation
- (Optional) Readings
 - Rothstein, R., 2017. The color of law: A forgotten history of how our government segregated America. Liveright Publishing.
 - Boustan, L. P., 2012. Racial residential segregation in American cities. Oxford Handbook of Urban Economics and Planning.
 - Faber, J. W., 2020. We built this: consequences of new deal era intervention in America's racial geography. American Sociological Review, 85(5), pp.739-775.