Urban Disparities on the Basis of Race: An Analysis of Residential Segregation in United States Cities and Resulting Economic Consequences in the Workforce

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Background

- Following prior econometric analysis in the urban and housing economics field, most notably a study forecasting the S&P/Case-Shiller Chicago House Price Index and understanding its relationship with economic indicators, I was motivated to study how certain housing dynamics may have an impact on economic outcomes
- This study examines how urban residential segregation affects income and unemployment by taking into account dissimilarity indices between racial groups across hundreds of United States cities
- Panel data accounting for the decades of the 21st century sets up fixed effects regression models to determine the extent to which residential segregation correlates with median household income and unemployment rates for White, Black, Hispanic, and Asian populations

Research Question:

- **In the 21st century, what have been the impacts of residential segregation in United States cities to both household income and unemployment rate?**
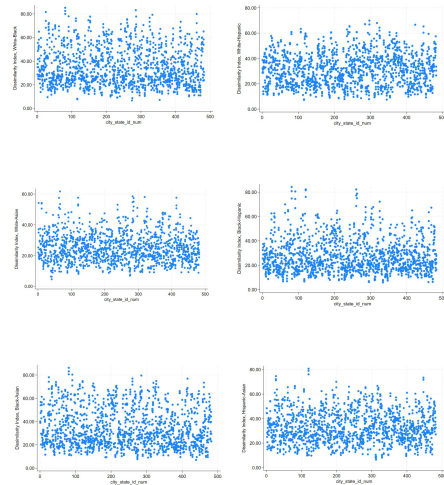
Data and Literature

- The cleaned dataset covers 482 cities, providing a sufficient sample size for significant results on socioeconomic patterns across a range of cities
- While the dissimilarity index data was measured at the decade level, the income and unemployment data was collected yearly; therefore, I calculated the decadal means of the income and unemployment data to match the dissimilarity index format for the analysis
- Residential segregation data pulled from Spatial Structures for the Social Sciences, Brown University
- The key dissimilarity index variable measures how much more a racial group is concentrated in a city compared to another racial group in a range of 0 to 100
- For example, an 80 on the index means that 80% of the more concentrated group would need to move to more integrated neighborhoods for an even distribution across neighborhoods in a given city
- Median income and unemployment rate data pulled from American Community Surveys and broken down by racial groups for each city

Cutler, David M., and Edward L. Glaeser. "Are Ghettos Good or Bad?" The Quarterly Journal of Economics 112, no. 3 (1997): 827–72. http://www.jstor.org/stable/2951257.

Boustan, Leah Platt (2013). Racial Residential Segregation In American Cities (NBER Working Paper No. 19045). National Bureau of Economic Research.

Data and Methodology

Dissimilarity Index - Summary Statistics and Corresponding Scatterplots

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
White-Black	1,446	34.66995	15.70598	6.669285	85.19199
White-Hispanic	1,446	31.24272	12.68173	7.338397	69.91553
White-Asian	1,446	25.05281	9.374582	4.574622	61.74918
Black-Hispanic	1,446	27.36767	13.55877	5.913015	84.23443
Black-Asian	1,446	34.06348	16.36358	7.026344	86.16534
Hispanic-Asian	1,446	33.04284	12.89819	6.55225	80.6916

To understand the relationship between the dissimilarity index and key workforce indicators, the following regression formulas were used:
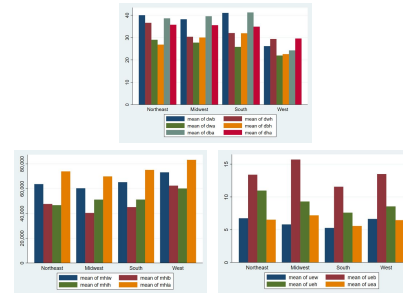
$$\text{Median Household Income}_{it} = \alpha_i + \beta(\text{Dissimilarity Index})_{it} + \epsilon_{it}$$

$$\text{Unemployment Rate}_{it} = \alpha_i + \beta(\text{Dissimilarity Index})_{it} + \epsilon_{it}$$

Where:

- α_i represents the fixed effects for city i, which control for time-invariant differences between cities
- β_{it} represents the coefficient for the dissimilarity index in city i at time t, indicating that a change in either median household income or unemployment rate for a certain race is associated with a one-unit change in the dissimilarity index
- The error term accounts for random variation in city i at time t
- These formulas serve as a foundation for several regressions analyzing the relationship between workforce indicators and corresponding dissimilarity indices for each racial group

Geographical Visualizations of Dissimilarity Indices, Median Household Income by Race, and Unemployment Rate by Race

Results

Conclusions

- Overall, the econometric analysis demonstrates that racial integration leads to more favorable employment and income outcomes
- Results show that across racial groups, as residential dissimilarity increases, median household income decreases, yielding statistically significant negative correlations
- Results show that across racial groups, as residential dissimilarity increases, unemployment rate increases, yielding statistically significant positive correlations
- This analysis, which accounted for more recent segregation and workforce data, is still in line with prior literature on the topic
- Policy suggestions that could be made based on this analysis include fostering affordability in diverse neighborhoods to further equitable residential distribution, investment in segregated communities to counteract the negative effects of segregation, and integration of schools and workplaces to directly address critical disparities