

# Income Segregation and Income Inequality

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## Introduction

Many factors influence the way a child grows and develops, but it is clear that, when it comes to adult outcomes, neighborhoods matter.<sup>1</sup> In income-segregated cities, neighborhoods vary widely by school quality, amenities, and demographics. As a result, parents in these cities must spend more money to access better neighborhoods for their children's development.

A related factor is income inequality, which has increased substantially in the United States over the past 40 years. High-income parents have more money to spend on their children, and the return on these investments has increased.<sup>2</sup>

We examined the relationship between city-level income segregation and income inequality and found it has changed over time. In 1980, cities with more income inequality did not exhibit higher income segregation. But by 2015, that pattern had changed: Cities with higher levels of income inequality now also have higher levels of income segregation.

## Data

Measuring the relationship between income inequality and income segregation is tricky, as many measures will be mechanically correlated with income inequality. To overcome this issue, we use a measure of income segregation called the rank-order information theory index, developed by Reardon and Bischoff (2011).<sup>3</sup> Based on techniques from information theory, this rank-order index examines income segregation based on where a household's total income ranks within their city.

Because the measure relies on income ranks, it is not affected by changes in the level or dispersion of income. Other measures of income segregation, taken from the literature on racial segregation, rely on the level of household income and are thus systematically related to measures of income inequality. Since the rank-order index is not mechanically connected to income inequality, it can be used to study the relationship between the two.

The rank-order index equals 0 if there is no income segregation—where the income distribution in each neighborhood mirrors that of the city. It equals a maximum

of 1 when there is perfect segregation—where there is a separate neighborhood for households of each income rank.

If every neighborhood has the same amount of high- and low-income people as the city overall, the rank-order index would be 0. If all the high-income people live in one neighborhood while everyone else lives elsewhere, the rank-order index would reach a maximum of 1.

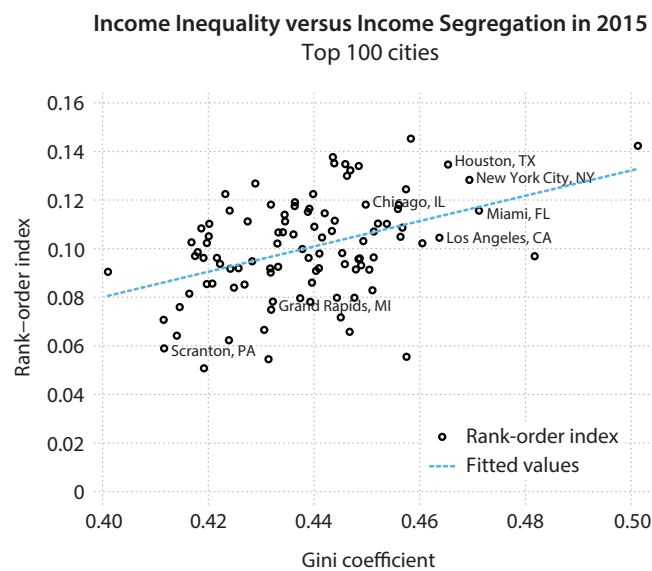
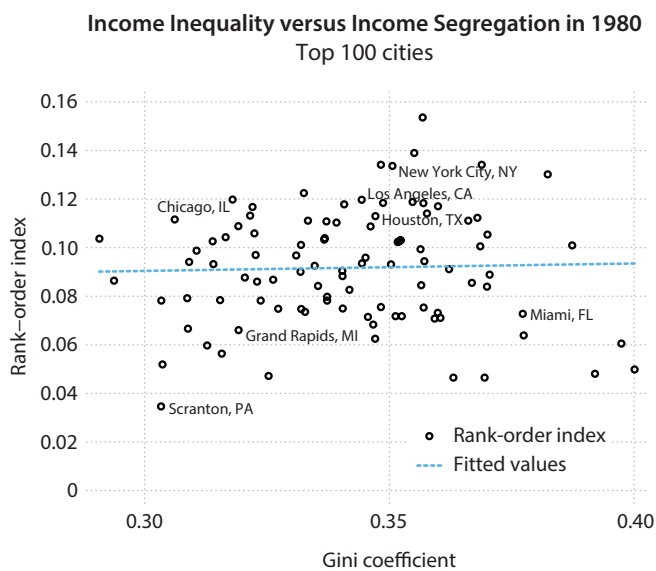
In our 2015 data, the average city has a rank-order index of 0.10; this means that, on average, US cities are fairly integrated by income with every neighborhood having some high- and low-income households. Yet, there is still substantial heterogeneity in neighborhood segregation across cities: The most-segregated cities are approximately 3 times as segregated as the least-segregated cities. We limit our analysis to the 100 largest cities since the rank-order index requires having multiple census tracts per city.

To measure income inequality and income segregation, we use data on population and family income from the 1980 Census and the 2015-2019 5-year sample of the American Community Survey. The measure of income inequality we use is the Gini coefficient for total family income,<sup>4</sup> which measures how much the actual distribution of income deviates from a perfectly equal distribution of income. A Gini coefficient of 0 means every household has the same amount of income, and a coefficient of 1 means one household has all of the income and everyone else has none.

## Relationship Between Inequality and Segregation of Income

We examine the relationship between income inequality and segregation in 1980 and 2015. The figure shows scatter plots with income inequality on the  $x$ -axes and income segregation on the  $y$ -axes. A line of best fit through each set of data points illustrates the positive relationship between income inequality and income segregation.

For example, Miami, Florida, one of the most income-segregated cities in our dataset, had a Gini coefficient of 0.377 and a rank-order index value of 0.073 in 1980. By 2015, the Gini coefficient had increased to 0.471, and the rank-order index had grown to 0.116. On the other



SOURCE: American Community Survey and 1980 US Census.

end of the spectrum is Scranton, Pennsylvania, one of the least income-segregated cities. In 1980, the Gini coefficient was 0.303, and the rank-order index was 0.035; those values in 2015 were 0.412 and 0.059, respectively.

In 1980, the relationship between income inequality and income segregation was slightly positive—larger cities tended to have more income segregation than smaller cities. The slope of the line of best fit in the left panel is 0.0306, but this number is not significantly different from 0.

However, between 1980 and 2015, income inequality in the United States rose sharply.<sup>5</sup> Using the same set of 100 cities, the right panel displays the relationship between the Gini coefficient and rank-order index in 2015, when the relationship between income inequality and income segregation had become stronger. The slope of the line of best fit is 0.521 and statistically significant. More-unequal cities are much more segregated by income than their more-equal counterparts. In 2015, a city at or above the 90th percentile of income inequality was, on average, 35.55% more segregated by income than a city at or below the 10th percentile of income inequality.

### Conclusion

This essay examines the relationship between income inequality and income segregation in the 100 largest cities in the United States. Income inequality has grown substantially over the past 40 years. Today, cities with more income inequality also exhibit more segregation by income; this was not true in 1980.

Several potential factors are driving the changing relationship between income inequality and income segregation. As income inequality has increased since 1980, high-income families have more money to spend and are more willing to spend that money on neighborhoods with expensive amenities, like better schools.<sup>6</sup> The resulting income segregation can lead to growing gaps in outcomes for children of high- and low-income parents. ■

### Notes

- <sup>1</sup> [https://scholar.harvard.edu/files/hendren/files/nbhds\\_paper.pdf](https://scholar.harvard.edu/files/hendren/files/nbhds_paper.pdf); <https://research.stlouisfed.org/wp/more/2022-036>.
- <sup>2</sup> <https://www.nber.org/papers/w26143>.
- <sup>3</sup> <https://www.jstor.org/stable/10.1086/657114>.
- <sup>4</sup> For more information on the Gini coefficient, see <https://research.stlouisfed.org/publications/page1-econ/2022/09/01/income-and-wealth-inequality>.
- <sup>5</sup> <https://www.pewresearch.org/social-trends/2020/01/09/trends-in-income-and-wealth-inequality/>.
- <sup>6</sup> <https://www.nber.org/papers/w26142>.

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