Racism - county - income inequity

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2023-04-11

Contents

Description

Income inequity is measured using the index of concentration at the extremes (ICE). ICE, developed by Douglas Massey in 2001, is a measure of social polarization within a particular geographic unit. It shows whether people or households in a geographic unit are concentrated in privileged or deprived extremes. Our privileged group is the number of households with a householder identifying as White alone, not Hispanic or Latino, with an income equal to or greater than $100,000. Our deprived group is the number of households with a householder identifying as a different race/ethnic group (e.g., Black alone, Asian alone, Hispanic or Latino), with an income equal to or less than $25,000.

We have computed the income inequity measure for the following groups:

- White alone, not Hispanic or Latino:Black alone
- White alone, not Hispanic or Latino:Asian alone
- White alone, not Hispanic or Latino:Hispanic or Latino

Source of Measure

Chantarat, Tongtan, David C. Van Riper, and Rachel R. Hardeman. "Multidimensional structural racism predicts birth outcomes for Black and White Minnesotans." *Health Services Research* 57, no. 3: 448-457. doi:10.1111/1475-6773.13976

Massey, Douglas. "The Prodigal Paradigm Returns: Ecology Comes Back to Sociology." In *Does It Take a Village? Community Effects on Children, Adolescents, and Families.* Alan Booth and Ann C. Crouter (eds). Mahwewh, NJ: Lawrence Erlbaum Associates. 2001.

Input Data

Steven Manson, Jonathan Schroeder, David Van Riper, Tracy Kugler, and Steven Ruggles. IPUMS National Historical Geographic Information System: Version 17.0 [dataset]. Minneapolis, MN: IPUMS. 2022. http://doi.org/10.18128/D050.V17.0

We use data from the U.S. Census Bureau's 2015-2019 American Community Survey 5-year summary files.

Data Tables

The following IPUMS NHGIS tables should be requested when creating the input dataset:

Table ID	Table name
B19001B	Household Income in the Past 12 Months (in 2019 Inflation-Adjusted Dollars) (Black or African American Alone Householder)
B19001D	Household Income in the Past 12 Months (in 2019 Inflation-Adjusted Dollars) (Asian Alone Householder)
B19001H	Household Income in the Past 12 Months (in 2019 Inflation-Adjusted Dollars) (White Alone, Not Hispanic or Latino Householder)
B19001I	Household Income in the Past 12 Months (in 2019 Inflation-Adjusted Dollars) (Hispanic or Latino Householder)

Geographic Detail

Geographic Extent

Data are available for the United States.

Geographic Units

Data are available for counties or county equivalents in the United States.

Temporal Detail

Temporal Extent

The American Community Survey (ACS) 5-year summary data are released every year, and each 5-year summary file contains survey responses pooled over a 5-year time span. For example, the 2015-2019 ACS 5-year data include survey responses collected from 2015-2019. The 2016-2020 ACS 5-year data include survey responses collected from 2016-2020.

In order to generate income inequity measures for all counties in the United States, we must use the 5-year summary data. Other ACS data products, including the 1-year summary data, only include estimates for geographic units whose population exceeds a certain threshold.

Formula

We compute the income inequity measure using the following formula:

$$ICE_i = \frac{A_{ij} - P_{ik}}{T_i}$$

where ICE_i is the income inequity value in county i, A_{ij} is the count of households with a householder in group j whose income is greater than or equal to \$100,000 in county i, P_{ik} is the count of households with a householder in group k whose income is less than or equal to \$25,000 in county i, and T_i is the number of households in county i.

For our income inequity measures, group j is householders identifying as White alone, not Hispanic or Latino, and group k may be householders identifying as Black alone, Asian alone, or Hispanic or Latino.

Interpretation

This measure captures the relative concentration of groups in privilege or deprivation. Values for ICE range from -1 to 1, and the magnitudes of A_{ij}, P_{ik}, T_i all influence the value of ICE. A few examples can help you interpret values of ICE you observe in the data file.

We observe a value of -1.0 if there are zero households in group A_{ij} in a county and all other households in the county are in group P_{ik}. If all households in a county are in group P_{ik}, then P_{ik} and T_i are equal. If there are 500 households in a county (T_i) and all are in P_{ik}, then we will observe:

$$-1.0 = \frac{0 - 500}{500}$$

We observe a value of 1 if all households in a county are in group A_{ij} in a county and zero households in the county are in group P_{ik}. If all households in a county are in group A_{ij}, then A_{ij} and T_i are equal. If there are 500 households in a county (T_i) and all are in A_{ij}, then we will observe:

$$1.0 = \frac{500 - 0}{500}$$

We observe a value of 0.0 if there are the same number of households in A_{ij} and P_{ik} in a county and there are no other households in the county. Thus, the sum of A_{ij} and P_{ik} equals T_i. If there are 500 households in a county (T_i) and they are evenly split between A_{ij} and P_{ik}, then we will observe:

$$0.0 = \frac{250 - 250}{500}$$

We may also observe values close to 0.0 if both counts in the numerator are small relative to the count in the denominator. Similarly, we may observe values close to 1.0 if A_{ij} and T_i have similar magnitudes. If P_{ik} and T_i are similar, then we will observe values close to -1.0.

Data Summary

Variable name	Variable description	Data type
year	Year	Character
statefips	State FIPS code	Numeric
countyfips	County FIPS code	Numeric
ice_wanh_ba	Income inequity between White alone, not Hispanic or Latino, and Black alone	Numeric

Variable name	Variable description	Data type
ice_wanh_aa	Income inequity between White alone, not Hispanic or Latino, and Asian alone	Numeric
ice_wanh_h	Income inequity between White alone, not Hispanic or Latino, and Hispanic or Latino	Numeric

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Publications and research reports employing this measure should include the following citation:

- Rachel Hardeman, Claire Kamp Dush, Wendy Manning, and David Van Riper. Racism - county - income inequity. IPUMS Contextual Determinants of Health. Minneapolis, MN: IPUMS. 2023. https://doi.org/10.18128/M130-012.2023-04

For policy briefs, online resources, or articles in the popular press, we recommend that you cite the use of CDOH data as follows:

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