CORE Score Variables

Data Sources:

Data for the CORE Score was pulled from five sources: The American Community Survey (ACS), the Cooperative Election Study (CCES), Institute for Health Metrics Evaluation (life expectancy data prior to 2017 only), the University of Wisconsin's Population Health Institute (life expectancy data 2017 and after only), and a large credit bureau (Household financial resilience only).

Data Division:

There are 6 datafiles associated with the CORE Score: a general file for scores by each county, a breakdown of gender in counties, breakdown of income groups in counties, breakdown of racial groups in counties, breakdown of education groups in each county, and breakdown of age groups in each county.

Category 1: Economic Security

Household Financial Resilience:

The data for the financial resilience measure was purchased by the American Academy of Arts and Sciences from a large credit bureau. The purchased data set is a continuous household-based score of 1 to 1000 that ranks households by their likely capacity to spend, save, or invest. The measure is relative in that it compares households to one another, where higher values indicate a higher capacity to spend money or pay for necessary expenses based on income, savings, and debts. A higher value indicates households that have a large amount of discretionary funds available to them.

The bureau's score system is created using millions of financial records from hundreds of thousands of individual Americans each year. The raw data received from the large credit reporting agency was at the individual household level with ZIP-4 geographic identifiers (and no identifiers for race/ethnicity, age, sex, or education). The data represented in the Score reflects data from June of each year, 2014-2022. To calculate county averages, we assigned each ZIP-4 to the county where the majority of the people in that ZIP-4 lived. Each ZIP-4 was assigned to one county. The final data used in the CORE Score is the county-level average resilience score. Note: The credit bureau changed its formula to calculate its index starting in 2020. Our metric is calculated using the data provided by the bureau, which includes its original formula for 2014-2019 and its updated formula for 2020-2022. The bureau did not furnish the Academy with details on how it calculates its indexes.

Not Housing Burdened:

Data on housing burden was pulled from the ACS. The ACS calculates what percentage of income goes to rent for those who rent. Those who paid above 30% of their gross income towards rent were marked as a 0 (Housing burdened) and those who paid 30 or less percent were marked as a 1 (Not housing burdened).

Poverty Rate:

Data was obtained from the ACS. The ACS provides data on the income to poverty line ratio for each respondent, such that those who are marked as an 100 have incomes that are in line with the area's poverty

line. Those who had values of 100 or less (considered impoverished) were marked as a 0 and those who had values of more than 100 (considered non-impoverished) were marked as a 1.

Category 2: Economic Opportunity

Prime Age Labor Force Participation

Data was obtained from the ACS. All people currently in the labor force or actively looking for work were coded as 1, all people not in the labor force or not actively looking for work were coded as zero. All people outside the working age population (25-54) were coded as NA

Average Education Level

Data was obtained from the ACS. All people under 40 years of age were coded as NA.

Median Income Growth

Data was obtained from the ACS. Calculated by taking the median income in a county in the present year and subtracting the median income in the same county for the previous year.

Economic Inequality

Data obtained from the ACS. This measure compares the 10^{th} percentile household income to the 90^{th} percentile household income as a ratio. Counties with lower levels of economic inequality have higher scores.

Category 3: Health

Healthcare Coverage

Data was obtained from the ACS. All people under age 65 with health insurance (private or public,), were coded as 1, all people without health insurance were coded as 0. All people over the age of 65 were coded as NA. Data does not exist for 2005 – 2007 (health insurance question was not asked on ACS in those years).

Life Expectancy

Life expectancy data prior to 2017 was procured from the Institute for Health Metrics and Evaluation (IHME), an independent global health research center at the University of Washington. The measures of life expectancy used are “life expectancy at birth,” expressed in years. This data is available at the county level and broken down by demographics gender.

For years 2017 and beyond, life expectancy data was obtained from the University of Wisconsin's Population Health Institute. The measure of life expectancy produced by the Institute is an age-adjusted, three-year average expressing years of life expected at birth. Life expectancy data is available through 2022; note that the 2023 CORE Score uses the 2022 life expectancy data. Please also note that the data source used by the Institute changed between the 2021 and 2022 Score and use caution when comparing the measure across years.

Category 4: Political Voice

All three measures for the political voice category were estimated utilizing a Bayesian MRP model at the county and congressional district level. Data utilized were the 2008, 2012, 2016, and 2020 CCES's for turnout and participation measures while representation data was pulled from the 2006 - 2022 CCES's. For voter turnout and civic participation, we aggregated data at the presidential term, to produce scores for 2008-2011, 2012-2015, 2016-2019, and 2020-2023. For representation, we aggregated data inline with when the representation would have occured, such that our blocked years were 2006-2008 (only shown for 2008), 2009-2012, 2013-2016, 2017-2020, and 2021-2023. The turnout and participation estimates were estimated at the county level while representation estimates were estimated at the congressional district level and then cross walked to county level.

Voter Turnout

Individuals who voted in that year's presidential election were assigned a 1 and those who did not vote were assigned a 0.

Civic Participation

Individuals who did at least two of the following actions were considered to have participated in the civic life, and were assigned a 1 for analysis purposed, while those who did not were assigned a 0:

1. Attend a local government meeting
2. Put up a yard sign
3. Work for a candidate
4. Attend a protest.

Quality of Representation

Individual's policy preferences from the CCES were compared against that of their house of representatives representative voting records, with each specific issue for each individual either receiving a 1 for their representative voting in line with their preference and a 0 for their representative voting against their preference.

Analysis

Crosswalk

The data from the ACS is only available at the Public Use Micro Area level (PUMA). A crosswalk was conducted between PUMA's and counties with crosswalk files obtained from Missouri Census Data Center's Geocorr.

Minimum Sample Size

While the ACS is a large survey, breaking down the data at county and sub-demographic level lead to a very small amount of observations for certain rows. As a result, if a sub-demographic at the county level had less than 15 observations for the ACS, it's data was NA'd out.

Calculating Mean County Scores

County-level estimates for the following variables were found by taking a weighted mean of each variable:

- Not Housing Burdened
- Poverty Rate
- Labor Force Participation
- Average Education Level
- Median Wage Growth

- Healthcare Coverage

For the variables based on the ACS we used the individual weighting created by the ACS.

For the inequality and median income growth measures, those were calculated by taking the simple median.

Scaling

Variables in the CORE Score have a corresponding scaled variable. The scaling was conducted in the following way:

First, the variable was normalized. This was done by subtracting the mean of the variable and dividing by the standard deviation. The newly normalized variable was then converted into a score between 0 and 10. This was done by subtracting the minimum of the normalized variable and dividing by the range.

CORE Score

Category scores were created by taking a simple mean of the scaled variables.

The Category 1 Score was calculated by taking a simple mean of the following scaled variables:

- Not Housing Burdened
- Household Financial Resilience
- Poverty

The Category 2 Score was calculated by taking a simple mean of the following scaled variables:

- Prime Age Labor Force Participation Rate
- Education
- Income Inequality
- Median Wage Growth

The Category 3 Score was calculated by taking a simple mean of the following scaled variables:

- Life Expectancy
- Percept with Healthcare Coverage

The Category 4 Score was calculated by taking a simple mean of the following scaled variables:

- Quality of Representation
- Civic Engagement
- Voter Turnout

The CORE Score was calculated by taking a simple mean of the scaled variables for the four scores.