**GAED County Index Project**

**Project**

* *Create a county level index and ranking system like other products (US News, Opportunity Project, etc.) for county leaders and stakeholders to assess conditions within their communities and develop targeted strategies to address areas of opportunity and amplify areas of strength*

**Dimensions and Indicators Used**

* *Health Care (20)*
  1. % uninsured
  2. Primary care physicians per 100,000
  3. Life Expectancy
* *Education (30)*
  1. % enrolled in PreK
  2. High school graduation rate
     + Clay County does not have a high school
     + High school aged students typically attend high school in neighboring Randolph County
     + HS Grad Rate for Clay County has been filled with the rate of Randolph County
  3. % associate’s +
* *Economy (30)*
  1. Labor Force Participation
  2. Unemployment Rate
  3. Population Growth
  4. GRP % Change
* *Opportunity (20)*
  1. Poverty Rate
  2. ~~Poverty Rate change~~
  3. Housing affordability
  4. Youth not in school and not working

**Methodology**

The index is made out of the indicators above, gathered for each individual county in the state. Each indicator and its source is outlined in more detail at the end of this document. In order to create a composite index, the following steps are taken: each indicator is normalized for a common scale, each dimension has a single score generated by averaging the rescaled indicators within that dimension, then those dimension scores are averaged again into a final composite score.

**Normalizing Data**

Since the indicators come in a variety of datatypes (i.e., percentages, percent changes, percentage point changes, dollars, n per 100,000, etc.) in order to reliably compare indicators to one another, we need to normalize each column so they’re all on the same scale. Typical normalization procedures would be to identify the percentile for each observation within each indicator, or to standardize each indicator, giving us a value of how many standard deviations from the mean each observation is. The simplest and clearest approach for our purposes is to normalize using a min/max scale, like so:

*Normalized Observation = ( observation – minimum / maximum – minimum ) \* 100*

This will rescale each observation to a value between 0 and 100, with 100 being the highest value in that indicator, and 0 being the lowest.

In our case, however, we have several indicators where a lower value is better (i.e., unemployment rate, poverty rate, etc.) For these indicators, we still want a high score to reflect a better or improved position relative to other counties, so we flip the formula like so:

*Normalized Observation = { 1 – ( observation – minimum / maximum – minimum ) } \* 100*

**Creating Dimension Scores**

Once each indicator is normalized, an average is calculated from the normalized indicators within that dimension, like so:

*Crime and Corrections Composite = ( Incarceration Rate Normalized + Violent Crime Normalized ) / 2*

In the dimension scores, we use an average as opposed to a weighted average since each indicator is considered equal in its makeup of its respective dimension. This is different, however, for the composite score

**Handling Rural Counties**

*Several of our indicators come from the Census ACS 5-Year survey, and only reference a small subset of a population. In rural counties, this can mean a very small sample size, and therefore pretty large margins of error. In order to soften the impact of this, Opportunity Youth and Pre-K Enrollment only account for 10% of the Opportunity and Education scores, respectively, if a county has a population of 10,000 or less.*

**Creating a Composite Index**

Here, we create an aggregate of those dimension scores, but instead we use a weighted average, with each dimension contributing differently to our overall score. For example:

Composite = Health Care Score(.2) + Education Score(.2) + Economy Score(.2) + Opportunity Score(.2) + Crime Score(.2)

**Indicators & Sources**

**HEALTH**

*Health Insurance*

* The percentage of the population under age 65 not covered by health insurance
* American Community Survey <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>

*Primary Care Physicians*

* Number of primary care physicians per 100,000 people
* Bureau of Health Workforce, Area Health Resources Files

<https://datawarehouse.hrsa.gov/data/datadownload.aspx>

*Life Expectancy*

* The expected age of death for residents in a particular county
* National Center for Health Statistics via countyhealthrankings.org
* <https://www.countyhealthrankings.org/explore-health-rankings/measures-data-sources/county-health-rankings-model/health-outcomes/length-of-life/life-expectancy>

**EDUCATION**

*Preschool Enrollment*

* The percentage of children, ages 3 and 4, enrolled in public or private nursery school, preschool, or kindergarten
* US Census Bureau, American Community Survey

http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

*Educational Attainment*

* The percentage of adults ages 25 and older who have completed an associate degree or higher
* US Census Bureau, ACS <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>

*High School Graduation Rate*

* The 4-year cohort graduation rate
* GOSA

**ECONOMY**

*Unemployment Rate*

* The total number of people without jobs who actively looked for work within four weeks preceding the April survey and were available to take a job, as a percentage of the total number in the labor force (those working or unemployed but seeking work).
* Bureau of Labor Statistics, LAUS <http://www.bls.gov/lau/>

*Labor Force Participation Rate*

* The total number of people actively working or looking for employment, as a percentage of the total non-institutionalized, working-age population.
* Bureau of Labor Statistics, LAUS <http://www.bls.gov/lau/>

*Population Change*

* The percent change in the total number of people reportedly living in a county from 2011 to 2019
* Woods & Poole

*GRP Percent Change*

* The percent change in gross regional product from 2009 to 2019
* Woods & Poole

**OPPORTUNITY**

*Poverty Rate*

* Percentage of people all ages living with family incomes below the federal poverty line.
* US Census Bureau, ACS http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

*~~Poverty Rate Change~~*

* ~~The percent change from 2011 in the number of people living in families with incomes below the federal poverty line~~
* ~~US Census Bureau, ACS http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml~~

*Housing Affordability*

* The percentage of households spending less than 30 percent of their income on rent and utilities (for households that rent), or on mortgage payments and other housing-related costs, such as real estate taxes or condo fees (for those that own homes).
* US Census Bureau, ACS http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

*Opportunity Youth*

* The percentage of the population ages 16 to 19 who are not enrolled and not working or not currently seeking employment
* US Census Bureau ACS