The RAYSE Index

Detailed Sources and Methodology

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This document contains a full description of data sources and statistical procedures involved in calculating the RAYSE Index, which starts with the calculation of a score for each of the following domains:

1. Educational Quality

The educational quality domain describes the extent to which the community provides strong basic education and develops/attracts young people with college degrees. The index was created using the Census American Community Survey's indicators of 18 to 24-year-olds who live in the county and are currently enrolled in college, who have completed four-year college degree or more, and % who have some college education (but not degree). It also includes the percent of youth with less than high school education (reversed). These four factors emerged as one factor in a principal component analysis, and the standardized score* is used as the domain score for the RAYSE.

*When we use the term "standardized score," we are describing the distance away from median, with a unit of standard deviation. Our domain scores generally distribute on a normal bell curve, and use of standardized score allows us to have the same unit of measurement across the domains. In a standardized score measurement, a score of 0 is the median (50th percentile) and 1 is approximately top 15%, while -1 is approximately bottom 15%. Scores of 2 (or -2) and larger suggest that it is at the extreme ends of the distribution (3%at the bottom and top).

2. Historically Close Elections Index

Given CIRCLE's work on youth electoral participation and feedback from practitioners on our Youth Electoral Significance Index (YESI), we know that competitiveness of an election is an important factor in engaging young people, often starting with a specific election or candidate but spurring sustained and deeper civic engagement. In RAYSE, we used the competitiveness of the past presidential elections (2008 and 2012) by county to estimate how close the votes have been. This general methodology is from the well-respected Cook Political Report's Partisan Voter Index, which uses past presidential election results calculate the "lean" of each state and Congressional District using this methodology.

We used this score (average percentage points in vote choice between a Democratic candidate and Republican candidate) to identify communities where the race was "very close" (within two points). We also identified counties in which the winner's party changed between 2008 and 2012, because these places likely had significant mobilization efforts in the past or have seen a shifting base. Because of the lack of vote choice data by age at the county level, we use all votes cast for each candidate by county. The 2012 data were purchased from a commercial vendor and the 2008 county vote choice data were downloaded from https://www.theguardian.com/news/datablog/2009/mar/02/us-elections-2008.

Thus, the Historically Close Elections index is calculated by adding the number of elections in 2008 and 2012 that were within two points (0-2), and any change in the winner's party (0-1). The maximum score is 3.

3. Youth Vote Leverage Index

The Youth Vote Leverage Index describes youth (18-29 in this case) population and voter participation patterns in 2012 and 2016 to provide insights on the kind of influence that young voters can have on the elections. The index was constructed by first flagging communities that are in the top 15% of all counties (i.e., one standard deviation above the mean) on the following criteria:

- Youth vote share was high in 2012 (Catalist data 2012 snapshot)
- Youth registration share was high in 2016 (Catalist data live snapshot as of July 2016)
- Youth registration % was high in 2016 (Catalist data live snapshot as of July 2016)
- Youth turnout was high in 2012 (Catalist data 2012 snapshot)
- Youth population share is high (American Community Survey 2011-2015 moving average)

For each criterion met, a community received one point, for a maximum of five points. No community met all five criteria. Therefore, the actual score range was 0 to 4.

4. Quality of Life

A number of factors can determine "quality of life," and in many ways it is a subjective concept. That said, we considered two aspects of a community that may promote both quality of life and civic engagement: economic health and community safety. These two concepts were developed using factor analysis, based on a host of indicators available from the Robert Wood Johnson Foundation County Health Ranking data and the Opportunity Index. We used indicators that had the least missing cases and contributed well to each factor.

4a. Economic Health and Access

Economic Health was conceptually defined as the extent to which residents have a livable wage that allows them to avoid living in poverty and to have access important opportunities for civic engagement. Operationally, the factor included six indicators:

- Low child poverty (RWJF)
- Low income disparity (Opportunity Index - derived from ACS)
- Broadband internet access (Opportunity Index)
- Low unemployment rate (ACS)
- Median income (ACS)
- Educational opportunity - preschool enrollment, residents with associate's degree, and on-time high school graduation rate (Opportunity index)

4b: Basic Health and Safety

The second part of the Quality of Life domain describes the extent to which residents can access basic building blocks of safety and health. These factors relate to civic health in multiple ways. First, when residents' basic safety and health are threatened, they may be less likely to participate in the community through organizations or government because they have immediate personal concerns, and/or may be less likely to trust a government that is not providing basic services to them. On the other hand, civic engagement can improve safety in

the community. For example, Robert Sampson (2011) found that the residents of neighborhoods with strong social cohesion (i.e., looking out for one another, working on issues together) had better safety and crime outcomes.

Using factor analysis, four indicators were ultimately included in the score calculation:

- Access to primary care physician (RWJF)
- Access to sufficient food (Food insecurity - RWJF)
- Premature age death rate (related to both lack of safety and health issues - RWJF)
- Violent crime rate (RWJF - derived from FBI Crime Statistics)

The Quality of Life composite score is calculated by averaging the economic health and safety factor scores.

5. Civic Culture

"Civic Culture" is a broad concept with many possible definitions; we propose one here. Our team used this phrase to capture how a community enables civic engagement of various types, both formally and informally. In a conceptual framework, we thought of formal engagement opportunities such as nonprofits that provide services and need volunteers; youth programs; municipal governments that might use youth-friendly ways to engage, such as apps; alternate times for town meetings, and the presence of a youth-engagement office.

For informal opportunities, we considered instances such as informal neighborhood watch and intergenerational mentoring, social-media activities about the neighborhoods through platforms like Nextdoor and Front Porch, and even having green space or places to congregate and meet other residents. This is the domain for which the least amount of data was available, and we used proxies that represented our conceptual model as closely as possible. One type of data we could not include at all, due to lack of data, is the use of social media and apps to connect to neighbors or municipal governments. Nonetheless our analysis produced three statistical factors, each representing different aspects of civic culture.

5a: Nonprofit Sector and Youth Services

For this factor, we focused on the nonprofit sector and the residents that are part of organizations. On one hand, we looked at the availability of youth-serving nonprofits, and the extent to which a community's overall nonprofit sector was dedicated to young people, using the National Center for Charitable Statistics data, which is derived from the IRS tax filings. means this factor (and civic culture overall) is not able to include data on non-incorporated entities such as religious congregations that offer informal youth programs but are not registered nonprofits and, on the other end of the spectrum, for-profit neighborhood organizations that may serve youth, such as a youth sports gym. The association membership rate was also included as a proxy for the number of adults who are already civically active and may support youth-serving organizations in various capacities.

5b. Stable Neighborhood

Research finds that residents who have lived in the same community for a long time are more likely to be civically engaged. This may be because people get to know the neighbors better and get connected to opportunities, or because they are homeowners and have more "skin in

the game." Dan Hart and others also find that the communities that have very few adults relative to the number of youth tend to suffer. This index includes both types of factors and is made up of three indicators, all from the American Community Survey:

- Youth to adult population ratio
- Proportion of youth who moved from a different state within the past 12 months
- Proportion of youth who lived at the same address in the past 12 months

5c. Culture of Care

Community civic health is also supported by individuals doing what they can to support the community, whether it is by giving to community and religious organizations, or just by being out in the neighborhood and connecting with others. Ideally, we would consider this as an index of social capital in the community; the extent to which residents know and take care of one another. Because this is difficult data to acquire for every county (for example, the most comprehensive data on social capital, the Benchmark Survey by the Saguaro Seminar at Harvard University, is available for just a few dozen communities), we opted to use two indicators that were available at the county level with relatively few missing cases: the median proportion of the income given to charity (NCSS data) and residents' exercise opportunities (RWJF). These two indicators emerged as a factor in our analysis.

The "exercise opportunity" is likely to be a proxy for more than availability of gyms and parks in the community. Because exercising is often social, it may represent people's connection with others, and the availability of affordable community-based sports and recreation activities (e.g., soccer leagues, free exercise classes), which is turn is often a result of the community's investment in health and wellness programs. Thus, we determined that exercise opportunity belongs in the culture of care factor.

Finally, all three factor scores from Nonprofit Sector, Safe and Healthy Neighborhood, and Culture of Care were averaged to derive one "Civic Culture" composite score.

RAYSE Score Calculation

RAYSE score was calculated in two steps. First, all of the factor scores and index scores from five domains were added to get an "unadjusted" RAYSE score. This score is called unadjusted because this particular scoring tended to rate communities that are very affluent at the top of the list. This makes sense, given that the domain scores were calculated using factors that predict civic engagement, which in turn are closely related to educational attainment and wealth. Thus, the score needed to be adjusted so that the communities that have strong *potential* for youth civic engagement *growth* are highlighted in the final score.

The second step involved identifying communities that are outliers on; 1) adults with bachelor's degrees or higher; 2) median income; 3) youth electoral engagement; and 4) population size. For education, the communities where 35% or more of adults have bachelor's degrees (218 counties) were flagged as "extremely high educational attainment." For median income, which varies widely from state to state, we calculated how each county compared to the state average. When a county's median income was one standard deviation or more above the mean, or above $70,000 annually (185 counties met at least one of these criteria), we flagged the county as "very high income." For youth electoral engagement, a community was flagged as "already very high youth electoral engagement" when its 2012 youth turnout or summer 2016

registration rates were both at least one standard deviation above the national mean (108 counties). Finally, the counties with an extremely small population size of 2,000 or fewer (90 counties), were flagged because they are too small to yield comprehensive data.

When a community was flagged for any of these four reasons, we subtracted one point from its RAYSE score. The result of this process was the adjusted and final RAYSE score, which highlights communities that have very high potential for youth civic engagement instead of merely those at the top of the wealth and educational attainment distribution.

References

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Data sources included in CIRCLE's RAYSE Index

Domain	Source	Measure(s)	Notes
Educational Attainment	US Census American Community Survey	Share of youth (18-24 years old) residents currently enrolled in college; % of youth with 4-year degree; % of youth who have some college experience, and % of young people who have not finished high school (reversed)	It is a scale score For "less than high school"' the score is reversed, so that low % with less than high school means that the resident population is more educated as a whole.
Quality of Life			
Wellness and amenities in the community	Census American Community Survey (ACS) Gini-Index (ACS) Educational Opportunity Index (by Opportunity Index)* Robert Wood Johnson County Health Ranking Data (2015)	Low child poverty (ACS) Median income Unemployment rate Fast internet access (Opportunity Index) Income disparity (Gini Index using ACS data) Educational opportunity (Opportunity index)	It is a scale score *Educational opportunity scores were taken from the Opportunity Index (2015), which is comprised of preschool enrollment among 3 and 4-year-olds, on-time high school graduation, and % of adults with associate's' degree or higher. To minimize missing data we used an average of data between 2010 and 2015.
Health and safety of the community	Robert Wood Johnson County Health Data	Access to primary care physician Food insecurity* Premature Death* Violent crime rate* (RWJF)	It is a scale score *Score is reversed, so that less is better.
Historically Close Elections	Media outlets and commercial data companies (purchased) 2008 and 2012 presidential vote count, by candidate, in each county**	There was a change in the winning candidate's party between 2008 and 2012 The presidential race has been close (within two points)	It is an index, meaning the score represents the number of criteria met **The general methodology for calculating how much "lean" each community has toward one party or another, originates from the Cook Political Report Partisan Voter Index, which produces scores for each state and congressional district race.

Youth Vote Leverage	Catalist ACS	High youth vote share in 2012* High youth share of registrants in summer of 2016 Proportion of youth registered to vote was high in summer of 2016 Youth turnout was high in 2012 (Catalist) Youth population share is high (ACS)	It is an index, meaning the score represents the number of criteria met *By "high" here we mean 1 standard deviation or more above the mean. This means that the county was in approximately the top 15% of all counties.
Civic Culture and Social Capital	Catalist Voter File	Voter Turnout among all adults	Requires subscription
	US Internal Revenue Service	Charitable donations as % of reported income Number of nonprofits (all types) per capita Number of youth serving nonprofit organizations per capita	Via National Center for Charitable Statistics at Urban Institute
	ACS Urban Institute Center for Charitable Statistics	Stable neighborhood population (youth residential stability, youth/adult ratio, ACS) Youth Nonprofit Access (youth serving NPO per capita, dominance of youth nonprofit, and association rates), IRS data compiled by Urban Institute - purchased Culture of Care (charitable giving, opportunities for exercise)	Stable neighborhood, Youth-centered nonprofits, and Culture of care emerged as statistical scales each representing single concept, using Principal Component Analysis.

CIRCLE (The Center for Information and Research on Civic Learning & Engagement) is a nonpartisan, independent, academic research center that studies young people in politics and presents detailed data on young voters in all 50 states. CIRCLE is part of the Jonathan M. Tisch College of Civic Life at Tufts University.

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