KIDS COUNT Race for Results Index Methodology: Comparing Children's Success Across and Within States

THE ANNIE E. CASEY FOUNDATION



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Background

For 25 years, the Annie E. Casey Foundation has used the data-based advocacy of its KIDS COUNT project to raise the visibility of children's issues and to inform decision making at the state and local levels. Building on this work and the work of other groups nationwide that are using indicator analysis to contribute to positive change for children, we developed the Race for Results Index to better measure the impact of a child's race on their opportunity for success in adulthood.

We began with an aspirational goal: all children should grow up in economically successful families, live in supportive communities, and meet developmental, health and educational milestones. In an effort to capture the complex set of factors that influence a child's success, we chose to develop a composite index that would allow comparisons across groups at the national level and within and across states.

The selection of indicators in this index was heavily informed by the research of the Social Genome Project at the Brookings Institution, which connects key indicators to the likelihood of a young person becoming middle class by middle age, and by the research that shows that children do best in supportive families and communities. The 12 indicators that were selected reflect different dimensions of child well-being and cover different stages of development, from birth to young adulthood. The indicators reflect a positive frame, focusing on aspirational goals and the key pathways to success for children/youth in different age groups.

The following 12 measures make up the index:

Babies born at normal birthweight Children ages 3 to 5 enrolled in nursery school, preschool or kindergarten Fourth graders who scored at or above proficient in reading Eighth graders who scored at or above proficient in math Females ages 15 to 19 who delay childbearing until adulthood High school students graduating on time Young adults ages 19 to 26 who are in school or working Young adults ages 25 to 29 who have completed an associate's degree or higher Children birth to 17 who live with a householder who has at least a high school diploma Children birth to 17 who live in two-parent families Children birth to 17 who live in families with incomes at or above 200 percent of poverty Children birth to 17 who live in low-poverty areas (poverty <20 percent) In selecting indicators to include in the index, one of the most important considerations was the availability of data for various racial and ethnic groups. For purposes of this analysis, all racial and ethnic groups are mutually exclusive. All data for racial groups are reported for non-Hispanics only based on the U.S. Office of Management and Budget's guidelines:¹

- African American
- American Indian
- Asian
- Latino
- Pacific Islander
- White
- Two or More Races

Due to the relatively small size of the population and constraints on several of the data sets, Asian and Pacific Islander children were combined into one group. There are no state-level indices for children and youth of two or more races because insufficient data were available to allow meaningful comparisons on all 12 measures (missing data for: babies born at normal birthweight, high school students graduating on time and females ages 15 to 19 who delay childbearing until adulthood). However, we present national estimates for children and youth of two or more races for the nine individual indicators with available data.

DEVELOPING A RACIAL/ETHNIC INDEX OF WELL-BEING

There was considerable discussion about the appropriate method that should be used to construct the racial/ethnic index. Staff from the Annie E. Casey Foundation and Population Reference Bureau (PRB) did an extensive literature review, held several internal meetings and consulted with expert advisors before selecting the final methodology. We initially considered constructing index values by comparing the well-being of children in different racial/ethnic groups against the national average. However, the national average does not provide a very compelling comparison point or benchmark for measuring success. We also considered constructing a simple average of the 12 indicators of well-being. But this method proved to be problematic because of the wide-ranging values across the different measures. In the end, we chose to replicate the method used to construct the annual KIDS COUNT Index, which is based on standardized scores.

The national *KIDS COUNT Data Book* includes an index derived from standard scores (or zscores) based on 50-state averages and standard deviations for 16 indicators of well-being. PRB staff created a modified version of the national KIDS COUNT Index by calculating index scores

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for each racial/ethnic group in each state. For each variable, standard scores were derived by subtracting the mean state value (across 50 states and five racial/ethnic groups) from the observed estimate for a given state and racial/ethnic group and dividing the result by the standard deviation for that distribution of estimates, as shown in the following formula:

$$z_{sr} = \frac{x_{sr} - \mu}{\acute{0}}$$

In this formula, *z* represents the *z*-score for a given state (*s*) and racial/ethnic group (*r*), and *x* represents the estimate of child well-being for a given state (*s*) and racial/ethnic group (*r*). The Greek letter mu represents the mean across the 250 state values (50 states * 5 racial/ethnic groups), and the Greek letter sigma represents the standard deviation.

Standardization is useful for this because although all of the indicators are expressed as percentages the range of values across the 12 measures is very different. For example, the percent of African-American babies born at normal birthweight is highest in Maine at 91 percent, just 7 percentage points higher than the lowest in Mississippi (at 84 percent). But the highest percent of African-American eighth graders who scored at or above proficient in math (28 percent in Massachusetts) is nearly five times the lowest rate (6 percent in Alabama). By standardizing these variables and putting them on the same scale, we are able to capture this state-level variation and account for the fact that percentage values have different meanings across indicators.

The main drawback of using standard scores is that the resulting index values are difficult to interpret. Therefore, to show the differences in values across racial/ethnic groups and states, we converted these z-scores to a scale ranging from zero to 1,000, using this formula:

$$f_{sr} = \left(\frac{z_{sr} - z_{min}}{z_{max} - z_{min}}\right) * 1,000$$

In this formula, *f* represents the final index value for a given indicator, state (*s*) and racial/ethnic group (*r*), while *z* represents the z-score calculated in the previous formula for a given state (*s*) and racial/ethnic group (*r*). Z_{min} and Z_{max} represent the smallest and largest z-scores, respectively, across all racial/ethnic groups and states for a given indicator. Index values are put on a scale ranging from zero to 1,000. We used a scale from zero to 1,000 (instead of zero to 100) so that people would not misinterpret the index values as percentages. Lower values represent worse outcomes for children, while higher values represent more positive outcomes for children.

We then constructed national index values by weighting the state-level index values for each racial/ethnic group based on the share of the national population under 18 in that group in each state.

MISSING DATA AND DATA SUPPRESSION

Missing data pose a potential problem because if data are missing for even one indicator for a given state and racial/ethnic group, then we are unable to construct complete summary index values for that state/group. This issue is most likely to affect states with smaller populations and fewer racial/ethnic minorities. For example, it would not be possible to produce reliable estimates for Latino children in Maine for all 12 indicators of well-being.

We present state-level index values for Latinos and the following non-Hispanic racial groups: African Americans, American Indians, Asians and Pacific Islanders, and whites. However, statelevel index values for these groups are not displayed if four or more of the 12 estimates in the index are deemed to be unreliable. We present national-level index values for these same racial/ethnic groups. National and state index values are not calculated for those who identified as two or more races because too many estimates are missing to construct reliable index values.

Multiyear estimates were used where possible to boost the sample size and increase data reliability. Seven of the 12 indicators are based on three- and five-year estimates from the American Community Survey (six indicators were developed using three-year estimates and five-year estimates were used for children who live in low-poverty areas).

Evaluating survey data

Nine of the 12 indicators are based on survey data and therefore have some degree of error.

The following is a list of those nine and their respective data source:

National Center for Education Statistics, National Assessment of Educational Progress (NAEP)

Fourth graders who scored at or above proficient in reading Eighth graders who scored at or above proficient in math

United States Census Bureau, American Community Survey (ACS)

Children ages 3 to 5 enrolled in nursery school, preschool or kindergarten Young adults ages 19 to 26 who are in school or working Young adults ages 25 to 29 who have completed an associate's degree or higher Children birth to 17 who live with a householder who has at least a high school diploma Children birth to 17 who live in two-parent families Children birth to 17 who live in families with incomes at or above 200 percent of poverty Children birth to 17 who live in low-poverty areas (poverty <20 percent) Since all of the indicators in this index are expressed as percentages, we use the coefficient of variation (CV) to determine whether an estimate should be suppressed. The CV is calculated using this formula:

$$CV_{sr} = \frac{SE_{sr}}{x_{sr}} * 100$$

In this formula, the coefficient of variation (*CV*) for each state (*s*) and racial/ethnic group (*r*) is calculated by dividing the standard error (*SE*) of the estimate by the estimate itself and multiplying the result by 100. An estimate with a small CV is considered more reliable when compared to an estimate with a larger CV. There are no strict rules for an exact cutoff point for a reliable CV. Generally, smaller CVs are better. The Centers for Disease Control and Prevention reviewed the criteria for data suppression used by 22 of the 23 major data systems (*Healthy People 2010 Criteria for Data Suppression*) and found that 30 percent is a common CV level used to suppress estimates. We suppressed estimates where the CV was greater than or equal to 30 percent.

Administrative data

The remaining three indicators are collected from administrative data sources:

National Center for Health Statistics, National Vital Statistics System - Final Birth Data

Babies born at normal birthweight

Females ages 15 to 19 who delay childbearing until adulthood

National Center for Education Statistics, Common Core of Data (CCD)

High school students graduating on time

Because these three measures are based on administrative data and theoretically comprise the entire population of their respective groups, results are not statistically evaluated to determine the reliability. However, in accordance with guidelines established by the National Center for Health Statistics, we suppress all data that are based on fewer than 20 events. Also in accordance with those guidelines, we suppress results where the inverse of the number of events is fewer than 20. For example, in a given state where 205, of the total 220 babies born, were normal birthweight, the result would be suppressed since the remaining 15 were low birthweight and do not meet the threshold of 20. Results from the Common Core of Data are not subject to these guidelines, although all of the results did meet these criteria.

LIMITATIONS

Because we needed to include data that were comparably collected in every state and included a large enough sample to provide valid estimates for the five largest racial groups, we were unable to incorporate some key components that impact a child's successful transition into adulthood. For example, we were not able to find data that met our criteria that measures a young person's involvement in the juvenile justice system, an indicator that disproportionately impacts children of color's chances of success. In addition to limited data availability, the data included in the Race for Results Index are not longitudinal. Therefore we are able to paint a picture of a point in time for groups of children, but cannot see how each indicator builds on each other from birth into middle age to actually track a child's trajectory over time. Finally, we did our best to suppress estimates that were deemed unreliable, but there might be instances — especially in smaller states with fewer racial/ethnic minorities — where estimates are volatile.

¹ Office of Management and Budget. (1997). *Revisions to the standards for the classification of federal data on race and ethnicity*. Washington, DC. Retrieved from www.whitehouse.gov/omb/fedreg_1997standards/