## What Child Poverty Looks Like in Tennessee

September 14, 2022

## Key Takeaways

- In 2020, an estimated 278,000 Tennessee children below the age of 18 lived in households with incomes below the official poverty level. At 18.8\%, the child poverty rate had reached a 10 -year low.
- Some of the highest rates of poverty were found among:
- Black, Hispanic, and multiracial children and those identified as some other race,
- Children with one or more disabilities,
- Families led by single mothers,
- Primarily Spanish-speaking households,
- Homes with at least one foreign-born parent.
- Counties' child poverty rates ranged from $3 \%$ in Moore County to $48 \%$ in Hancock over the course of 2016-2020, and trends varied significantly by county and by time period.
- Counties with more children living in poverty tend to be more rural and have lower population growth, poorer health, less education, worse economic conditions, higher incarceration rates, and fewer 2-parent households.
- We caution readers not to mistake correlation with cause-and-effect. Sometimes two data points may be correlated, but there is some other factor at play.

Note: The U.S. Census Bureau will release 2021 American Community Survey 1-year estimates on September 15, 2022. The analyses in this report were completed before these data were made available.

## Overview

When families don't have the resources to meet basic needs, children's health, education, and well-being can suffer. (1) (2) Tennessee operates dozens of public programs aimed at helping low-income children and their families meet these needs and achieve better outcomes. This series seeks to answer key questions about child poverty in Tennessee - one measure of economic well-being - to help inform these approaches and investments.

This report provides a picture of the children, families, and communities in Tennessee with the highest rates of child poverty. Future work will examine the connections between child poverty and health, educational achievement, and well-being - as well as the programs, policies, and community norms and assets that successfully break those connections.

## Who Faces Child Poverty in Tennessee?

In 2020, an estimated 278,000 Tennessee children below the age of 18 lived in households with incomes below the official poverty level. At 18.8\%, the child poverty rate had reached a 10-year low (Figure 1). Over the past decade, that number topped out in 2013 at about 390,000 , or $27 \%$. By 2020, both the number and percentage of Tennessee children in poverty had dropped by nearly $30 \%$. $\ddagger \ln 2019$ - the most recent year for which detailed data are available - nearly $20 \%$ of children lived below the poverty level and another 23\% lived in households just above it (Figure 2).

Figure 1. Tennessee's Child Poverty Rate Hit 10-Year Lows in 2019 and 2020

*To account for pandemic-related disruptions, the 2020 ACS 1-year estimates use a new experimental estimation methodology and are not considered comparable to prior years' ACS data.
Source: 2010-2020 American Community Survey 1-Year Estimates (3)
Figure 2. In 2019, About 20\% of Tennessee Children Lived in Poverty and Another 23\% Were Just Above It


FPL is the federal poverty level
Source: 2019 American Community Survey 1-Year Estimates and the U.S. Census Bureau (3) (4)

Tennessee's $18.8 \%$ child poverty rate in 2020 was about $20 \%$ higher than the estimated $15.7 \%$ national rate (Figure 3). This put Tennessee at the 12th highest child poverty rate in the nation (Figure 4). Because the nation's child poverty rate has improved at about the same rate as Tennessee's, the gap between Tennessee and the U.S. has not changed considerably over the last decade.

Figure 3. Child Poverty in Tennessee Exceeds the U.S. Rate, and Both Have Fallen at About the Same Pace Over the Last Decade
Percent of Children Below Age 18 in Households Under the Federal Poverty Line (2010-2020)

*To account for pandemic-related disruptions, the 2020 ACS 1-year estimates use a new experimental estimation methodology and are not considered comparable to prior years' ACS data.
Source: 2010-2020 American Community Survey 1-Year Estimates (3)
Figure 4. Tennessee Had the Country’s 12th Highest Child Poverty Rate in 2020
Child Poverty Rate by State (2020)


Source: 2020 American Community Survey 1-Year Estimates (3)

## How Poverty Varies by Child Characteristics

The child poverty rate in Tennessee varies considerably for children with different demographic characteristics.

- Children with disabilities had higher poverty rates than those without (Figures 5).
- White and Asian children had significantly lower rates of poverty than all other racial and ethnic groups - including black Hispanic, and multiracial children and those identified as some other race (Figure 6).
- Since peaking around 2013, the rates for black and Hispanic children and children reporting some other race improved the most but still lag rates for white and Asian children (Figure 7).
- Overall, the youngest children are the most likely to experience poverty, especially among some already disproportionately affected groups (Figures 5 and 8).

Figure 5. Tennessee's Child Poverty Rates Can Vary Considerably for Children with Different Characteristics


Source: 2019 American Community Survey 1-Year Estimates (3)
Figure 6. White and Asian Children in Tennessee Are Less Likely to Live in Poverty Than All Other Racial and Ethnic Groups


Figure 7. Child Poverty Rates for Disproportionately Affected Groups Have Improved the Most in Recent Years, but Large Gaps Remain
Poverty Rates Among Tennessee Children by Race/Ethnicity


*Dotted lines represent years in which data were not reported Source: 2019 American Community Survey 1-Year Estimates (3)

Figure 8. The Youngest Among Some Already Disproportionately Affected Children in Tennessee Had the Highest Poverty Rates


Source: 2019 American Community Survey 1-Year Estimates (3)

## Poverty Among Households with Children

Families led by single mothers, primarily Spanish-speaking households, and homes with at least one foreign-born parent all have disproportionately high poverty rates.

- Family Structures - In 2019, nearly 60\% of all families below the poverty level were singlemother households. About 37\% of all single-mother-led families were in poverty in 2019 compared with $21 \%$ of single-father-led families and $7 \%$ of married couple families (Figure 9).
- Family Size - Larger families are much more likely to have below-poverty incomes than smaller ones (Figure 10).
- Primary Language at Home - Nearly one-third of children in primarily Spanish-speaking households lived in poverty - compared with 18\% of children in English-speaking homes. The former also made up 12\% of all Tennessee children in poverty (Figure 11).
- Parent Nativity - Children who live with a foreign-born parent are more likely to experience poverty than those who don't (Figure 12). For example, about half of children in a family with a single, foreign-born parent lived in poverty in 2019 and accounted for $8 \%$ of all children in poverty.

Figure 9. Most Tennessee Families in Poverty Are Led by Single Mothers


HoH is head of household. Source: 2019 American Community Survey 1-Year Estimates (3)
Figure 10. Larger Families in Tennessee Are More Likely to Live in Poverty Than Smaller Ones


Source: 2019 American Community Survey 1-Year Estimates (3)

Figure 11. Tennessee Children in Spanish-Speaking Homes Are More Likely to Live in Poverty than Those in English-Speaking Ones

*Only reported for children ages 6-17.
Source: 2019 American Community Survey 1-Year Estimates (3)
Figure 12. Tennessee Children with a Foreign-Born Parent in the Home Are More Likely to Live in Poverty Than Other Children


Source: 2019 American Community Survey 1-Year Estimates (3)

## A Note about our Data:

In this report, we use a combination of one-year estimates and five-year estimates created by the U.S. Census Bureau. One-year estimates can accurately capture metrics for larger geographical areas while five-year estimates are needed to create accurate estimates for smaller areas, including most Tennessee counties. Because of the difference in time period, one-year estimates and five-year estimates should not be compared, and neither should overlapping five-year estimates (e.g. 20152019 vs. 2016-2020). Due to complications in data collection during 2020 as a result of COVID-19, it is also not recommended to compare 2020 one-year estimates with other years. (16)

## Where is Child Poverty Highest in Tennessee?

Counties' child poverty rates ranged from 3\% in Moore County to $48 \%$ in Hancock over the course of 2016-2020 (Figure 13). These county-level differences were even more pronounced for poverty rates among children under six years old - ranging from 6\% in Williamson to 60\% in Johnson (Figure 14). They were larger still when comparing zip codes in Tennessee (Interactive Map).

Figure 13. Tennessee Counties' Child Poverty Rates Ranged from 3\% in Moore to $48 \%$ in Hancock Over the Course of 2016-2020
Poverty Rate Among Children Below Age 18 by County (2016-2020)


Source: 2016-2020 American Community Survey 5-Year Estimates (5)
Figure 14. Tennessee Counties' Poverty Rates for Kids Below Age 6 Varied from 6\% in Williamson to 60\% in Johnson in 2016-2020
Poverty Rate Among Children Below Age 6 by County (2016-2020)


Source: 2016-2020 American Community Survey 5-Year Estimates (5)

# Interactive Map of Tennessee's Child Poverty Rates by Zip Code 

Access an Interactive Map at SycamoreTN.org


Source: 2016-2020 American Community Survey 5-Year Estimates (5)
Across Tennessee, changes in child poverty have varied substantially by county and by time period. For example, the change from the first to the second half of the 2010s ranged from a $70 \%$ reduction in Moore County (from 11\% to 3\%) to more than doubling in Sequatchie (from 16\% to 39\%) (Figure 15). Meanwhile, Table 1 shows annual child poverty estimates for 2010-2019 for Tennessee's 20 largest counties, which paints a more complex picture of county trends. For example, all 20 counties had 2019 child poverty rates below their peak rate of the decade, which occurred in most counties sometime between 2011-2014. However, the 2019 rate was the 10-year low for only four of the counties.

Figure 15. Overall Child Poverty in Tennessee Improved between the 1st and 2nd Halves of the 2010s, but Most Counties' Rates Worsened
Change in Child Poverty Rates by County (2016-2020 rate v. 2011-2015 rate)


Source: 2011-2015 and 2016-2020 American Community Survey 5-Year Estimates (5)

Table 1. Child Poverty Rates in Tennessee's 20 Largest Counties
Note: Dotted line represents each county's 2019 rate.

| County | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2010-2019 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Anderson | 23\% | 23\% | 34\% | 42\% | 21\% | 41\% | 14\% | 22\% | 22\% | 26\% |  |
| Blount | 17\% | 19\% | 20\% | 20\% | 24\% | 20\% | 13\% | 21\% | 7\% | 12\% |  |
| Bradley | 26\% | 33\% | 33\% | 34\% | 25\% | 27\% | 18\% | 24\% | 26\% | 17\% |  |
| Davidson | 32\% | 31\% | 29\% | 31\% | 33\% | 28\% | 22\% | 24\% | 28\% | 18\% |  |
| Greene | 36\% | 48\% | 42\% | 31\% | 21\% | 20\% | 26\% | 27\% | 25\% | 29\% |  |
| Hamilton | 25\% | 31\% | 22\% | 27\% | 22\% | 22\% | 18\% | 16\% | 18\% | 19\% |  |
| Knox | 15\% | 19\% | 21\% | 21\% | 24\% | 21\% | 17\% | 18\% | 15\% | 16\% |  |
| Madison | 32\% | 35\% | 23\% | 33\% | 30\% | 31\% | 28\% | 24\% | 32\% | 34\% |  |
| Maury | 13\% | 28\% | 30\% | 19\% | 24\% | 16\% | 14\% | 8\% | 13\% | 7\% |  |
| Montgomery | 23\% | 23\% | 31\% | 23\% | 15\% | 17\% | 16\% | 17\% | 17\% | 17\% |  |
| Putnam | 30\% | 34\% | 34\% | 47\% | 26\% | 22\% | 28\% | 34\% | 7\% | 22\% |  |
| Robertson | 18\% | 26\% | 19\% | 13\% | 17\% | 20\% | 13\% | 23\% | 16\% | 16\% |  |
| Rutherford | 22\% | 14\% | 17\% | 15\% | 18\% | 13\% | 14\% | 15\% | 12\% | 16\% |  |
| Sevier | 21\% | 21\% | 19\% | 25\% | 25\% | 18\% | 26\% | 15\% | 26\% | 22\% |  |
| Shelby | 30\% | 32\% | 33\% | 36\% | 36\% | 32\% | 35\% | 30\% | 35\% | 26\% |  |
| Sullivan | 30\% | 28\% | 27\% | 31\% | 31\% | 25\% | 26\% | 26\% | 28\% | 27\% |  |
| Sumner | 20\% | 12\% | 8\% | 14\% | 18\% | 11\% | 13\% | 9\% | 12\% | 12\% |  |
| Washington | 22\% | 23\% | 25\% | 24\% | 20\% | 23\% | 21\% | 18\% | 17\% | 22\% |  |
| Williamson | 8\% | 7\% | 11\% | 8\% | 6\% | 5\% | 7\% | 3\% | 2\% | 4\% |  |
| Wilson | 16\% | 20\% | 10\% | 18\% | 15\% | 7\% | 11\% | 14\% | 10\% | 12\% |  |

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## Table 2. What Community Characteristics Are Associated with Higher Child Poverty Rates in Tennessee?

|  | Strong, statistically significant association. |  |
| :---: | :---: | :--- |
|  | ** | Moderate, statistically significant association. |
| * | Weak, statistically significant association |  |
| $x$ | No statistically significant association. |  |


| Community <br> Demographics | x | \% of population that is a race/ethnicity other than white, non-Hispanic |
| :--- | :---: | :--- |
|  | ${ }^{* * *}$ | lower 10-year population growth |
|  | $*$ | more rural |
| Family Structure <br> in the Community | $* *$ | higher \% of births to unmarried mothers |
|  | $* *$ | higher \% of children living in single-parent households |
|  | x | marriage rate |
|  | x | divorce rate |


| Educational | $* * *$ | lower average score on the ACT |
| :--- | :---: | :--- |
|  | $* *$ | lower \% of adults age $25+$ with at least a bachelor's degree |
|  | $* *$ | lower \% of adults age $25+$ with at least an associate's degree |


| Economic | $* * *$ | larger income difference between high- and low-income households |
| :--- | :---: | :--- |
|  | $* *$ | higher unemployment rates |
|  | $* *$ | lower long-term economic mobility |
|  | x | $\%$ of households experiencing severe housing problems |



| $* *$ | higher \% of births that are low birthweight |
| :---: | :--- |
| $* *$ | worse community health |
| $* *$ | higher uninsured rates among total population |

## Civic Engagement

| $* *$ | lower voter participation among those registered |
| :---: | :--- |
| $x$ | number of membership organizations per 1k population |


| Community Safety | $x$ | violent crimes per 100k population |
| :--- | :--- | :--- |
|  | $* *$ | higher county jail incarceration rate |

Note: Statistical significant associations are those linear relationship with a p-value of 0.05 or less. Correlations coefficents range from -1.0 to +1.0 . "Strong" are those with a coefficient of $>+0.5$ or $<-0.5$. "Moderate" are those ranging between $\pm 0.3-0.5$. "Weak" are those with a coefficient of $<+0.3$ or >-0.3.
See our Methods Appendix for full definitions of each measure.
Source: The Sycamore Institute's analysis of data from the U.S. Census Bureau, Tennessee Department of Education, Kids Count, U.S. Centers for Disease Control \& Prevention, Tennessee Secretary of State, Opportunity Atlas, U.S. Bureau of Labor Statistics, FBI Uniform Crime Reporting, the U.S. Department of Housing and Urban Development, Vera Institute, and the Social Capital Project (3) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15)

## Characteristics of High and Low Poverty Counties

Counties with higher child poverty rates tended to be more rural, experience less growth, and have poorer health, lower education, worse economic conditions, and fewer 2-parent households (Figure 16). We explored measures for multiple aspects of community life to better understand any differences between counties with high and low rates of child poverty. Table 2 outlines each of the characteristics we tested and notes where counties with higher child poverty rates had meaningful and statistically significant differences from counties with lower child poverty rates. The sections that follow summarize key findings about these correlations. See the Appendix for more information about each measure and the full statistical results of our analyses.

We caution readers not to mistake correlation with cause-and-effect. Correlation means that two factors move in the same or opposite directions at the same time. Causality means that changes in one factor lead to changes in another. Establishing cause-and-effect requires more sophisticated research design - like statistical controls, experimental designs with random assignments or matching techniques, or longitudinal designs. Sometimes two data points may be correlated, but there is some other factor at play.

## Community Demographics

Counties with higher levels of child poverty tend to be more rural and have less population growth over time:

- Rurality - The 20 counties with the highest child poverty rates are nearly $20 \%$ more rural than the 20 counties with the lowest child poverty rates.
- Population Growth - Counties with the highest child poverty rates grew less than $1 \%$ on average between the 2010 and 2020 American Community Survey (ACS) 5-Year Estimates. Meanwhile, counties with the lowest child poverty levels grew approximately $13 \%$.

The proportion of white vs. non-white residents was not significantly different between counties with the highest and lowest levels of child poverty.

## Family Structures in the Community

Counties with higher poverty levels tend to have more single-parent births and households:

- Single-Mother Births - On average, $48 \%$ of children born in the 20 counties with the highest child poverty rates were born to unmarried mothers - compared with $39 \%$ in the 20 counties with the lowest child poverty rates.
- Single-Parent Households - About $28 \%$ of kids in the highest child poverty counties lived in single-parent households vs. about $22 \%$ in the 20 counties with the lowest child poverty rates.

Marriage and divorce rates vary little from one county to the next - including between those with high and low child poverty.

Figure 16. Counties with the Highest and Lowest Child Poverty Rates Are Different Across Many Areas of Community Life


Note: Highest child poverty counties were the 20 counties with the highest 2016-2020 child poverty rates. Lowest were the 20 counties with the lowest rates. All metrics shown had a statistically significant linear relationship with with county child poverty rates.
*The ratio of the 80th percentile of income to the 20th percentile.
**Percent of adults who were born between 1978-1983, came from homes at the 50th (middle) and 25th (low) percentiles of incomes nationwide compared to similar families at the time, and are now in the top $30 \%$ of household incomes for their age cohort nationwide.
Sources: The Sycamore Institute's analysis of data from the U.S. Census Bureau, Kids Count, U.S. Centers for Disease Control \& Prevention, Tennessee Secretary of State, Opportunity Atlas, the U.S. Bureau of Labor Statistics, and Vera Institute (5) (7) (8) (9) (10) (11) (14)

## Educational Achievement

Counties with higher child poverty rates tended to have fewer residents with post-secondary degrees and lower ACT scores:

- Adult Post-Secondary Completion - In the 20 counties with the highest child poverty rates, $21 \%$ of residents $25+$ had at least an associate's degree and $15 \%$ at least a bachelor's - versus $31 \%$ and $23 \%$, respectively, in the 20 counties with the lowest rates of child poverty.
- Standardized Test Performance - Standardized test scores vary widely across counties with the highest and lowest rates of child poverty. In the 20 counties with the highest levels of child poverty, students scored below the population average on the American College Testing (ACT) exam, while students in the 20 counties with the lowest levels of child poverty performed better than the population average. Standardized test performance had a strong and statistically significant relationship with child poverty rates, with scores decreasing as child poverty rates increased across counties (see Appendix Table A2).


## Economic Conditions \& Well-Being

Counties with higher levels of child poverty also had lower levels of economic mobility, higher unemployment, and larger income gaps:

- Economic Mobility - The probability of moving from low- or middle- income status in childhood to the top 20th percentile in adulthood was less likely in counties with higher child poverty rates.
- Unemployment - An average of $8 \%$ of adults were unemployed from 2018-2020 in the 20 counties with the highest child poverty rates - compared to $7 \%$ in the counties with the lowest child poverty rates.
- Differences in Household Income - There was a strong and significant relationship between the ratio of incomes among households in the 80th and 20th percentile in each county. As the gap between these income levels grew, counties were more likely to have higher rates of child poverty.

Severe housing problems were not associated with higher or lower levels of child poverty across counties. Housing problems included overcrowding, high housing costs, lack of kitchen facilities, and lack of plumbing facilities, and were experienced at similar rates across all 95 counties.

## Community Health

Counties with higher levels of child poverty had higher uninsured rates, more chronic medical conditions, and a slightly higher percentage of low birthweights:

- Uninsured Rates - Counties with higher child poverty rates were more likely to have a higher uninsured rate among residents. An average of $11 \%$ of residents in the 20 counties with the highest child poverty rates were uninsured, compared to $9 \%$ in the 20 counties with the lowest child poverty rates.
- Community Medical Conditions - Examining a combined prevalence of 13 chronic diseases and medical conditions, counties with higher levels of child poverty were significantly more likely to have higher levels of adults with chronic medical conditions. Chronic medical conditions among adults 18 and older included: arthritis, asthma, high blood pressure, high cholesterol, cancer, chronic kidney disease, chronic obstructive pulmonary disease (COPD), coronary heart disease, depression, diabetes, obesity, all teeth lost (among those 65+), and history of stroke.
- Low Birthweights - Among the 20 counties with the highest levels of child poverty, approximately $9 \%$ of children were born with low birthweight, compared to $8 \%$ on average among the counties with the lowest child poverty rates. While these averages are not dramatically different, we found a linear relationship across all 95 counties with low birthweight births were more common in counties with higher rates of child poverty.


## Civic Engagement

- Voter Participation - Counties with higher voter turnout in 2020 were more likely to have lower child poverty rates. This measure of civic engagement was significantly different across all 95 counties, with less voter participation among counties with higher child poverty rates. Approximately 70\% of those registered voted in the 20 counties with the lowest child poverty rates, compared to an average of $68 \%$ in the 20 counties with the highest child poverty rates.

There was no linear relationship between county child poverty rates and the number of membership organizations in a county.

## Community Safety

- Jail incarceration rate - Counties with higher child poverty rates also had higher jail incarceration rates. The average rate among the 20 counties with the highest child poverty rates was about 9.5 jail incarcerations for every 1,000 people ages $15-64$, while the average among the 20 lowest was 8.1.

While there was a difference in violent crime rates between the 20 counties with the highest and lowest child poverty rates -401 violent crime offenses per every 100,000 people compared to 345 - the relationship was not statistically significant across all 95 counties.

## Parting Words

Poverty can negatively affect children's long-term well-being. A data-driven understanding of child poverty in Tennessee can help federal, state, and local policies and programs to meet the needs of and produce better outcomes for those they seek to aid. This report is the first in a series to help stakeholders better understand the geography of child poverty in Tennessee, the children, families, and communities most likely to be affected, and if and how current programs, policies, and community norms and assets can break the connections between poverty and poor long-term outcomes.
$\ddagger$ Disruptions caused by COVID-19 limit the level of detail available and the comparability of the American Community Survey's 1 -year estimates for 2020. Each year, the ACS produces estimates based on a sample of the U.S. population. If the sample is too small or doesn't accurately reflect the population in some key way, these estimates will likely be incorrect. Pandemic-related disruptions fundamentally shifted who the Census Bureau was able to reach and who responded to the survey. To account for these changes, the Census Bureau changed how they weighted survey responses to produce estimates for the larger population. They also released far fewer estimates than in years past. Because both the sample surveyed and the estimation methods differ from prior years, the 2020 estimates are not considered comparable to prior estimates.

## References

1. Gitterman, Benjamin, et al. Poverty and Children Health in the United States. American Academy of Pediatrics.
2. https://publications.aap.org/pediatrics/article/137/4/e20160339/81482/Poverty-and-Child-Health-in-the-United-

States
2. Duncan, Greg and Hoynes, Hilary. Reducing Child Poverty Can Promote Children's Development and

Productivity in Adulthood. Society for Research in Child Development. October 2, 2021.
https://www.srcd.org/research/reducing-child-poverty-can-promote-childrens-development-and-productivity-adulthood
3. U.S. Census Bureau. American Community Survey 1-Year Estimates. 2022. Data accessed from https://data.census.gov/.
4. -. 2019 Poverty Thresholds by Size of Family and Number of Children. Accessed on August 16, 2022 from https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html.
5. -. American Community Survey 5-Year Esimates. Data accessed from https://data.census.gov/
6. Tennessee Department of Education. Data Downloads \& Requests. Data accessed from
https://www.tn.gov/education/data/data-downloads.html.
7. Tennessee Commission on Children \& Youth (TCCY). Tennessee Indicators. The Annie E. Casey Foundation Kids Count Data Center. https://datacenter.kidscount.org/data\#TN/2/0/char/0
8. U.S. Centers for Disease Control \& Prevention. 500 Cities \& PLACES Data Portal.
https://chronicdata.cdc.gov/browse?category=500+Cities+\%26+Places
9. Tennessee Secretary of State. Statistical Analysis of Voter Turnout for the November 3, 2020 Election as

Submitted by the Counties. [Online] https://sos-tn-gov-files.tnsosfiles.com/2020November.pdf
10. U.S. Census Bureau and Opportunity Insights. Analysis of IRS Data. The Opportunity Atlas. Data accessed from https://www.opportunityatlas.org
11. U.S. Bureau of Labor Statistics. BLS Reports. Accessed from https://www.bls.gov/opub/reports/
12. FBI Uniform Crime Reporting \& Tennessee Bureau of Investigation. Tennessee Crime States. Crime Insight TBI. https://crimeinsight.tbi.tn.gov/tops
13. America's Health Rankings. Analysis of U.S. Department of Housing and Urban Development Data. https://www.americashealthrankings.org/explore/annual/measure/severe housing problems/state/TN
14. U.S. Department of Justice and Tennessee Department of Correction via Vera Institute. 2020-2021 Jail Populations by County. Data accessed on September 13, 2022 from https://trends.vera.org/methodology/.
15. U.S. Census Bureau via U.S. Congress Joint Economic Committee. 2015 County Business Patterns. The Social Capital Project. Data accessed on September 12, 2022 from https://www.jec.senate.gov/public/index.cfm/republicans/socialcapitalproject.
16. U.S. Census Bureau. Understanding and Using ACS Single-Year and Multiyear Estimates. 2018.
https://www.census.gov/content/dam/Census/library/publications/2018/acs/acs general handbook 2018 ch03.pdf.

## THE SYCAMORE INSTITUTE

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## Methods Appendix

We analyzed the connections between household and community characteristics and child poverty rates. One of the main criteria for selecting the household and community characteristic measures was data availability at the county level. Additionally, we aimed to select county-level metrics that reflected a diverse set of metrics that have been shown in the literature to affect child and family well-being. Our measures and their sources are described in Table A1.

We took the following steps to analyze the associations between these measures and county child poverty rates to arrive at what was both meaningful and statistically significant:

- First, we assessed variation in the characteristic across all counties through correlation analyses and scatter plots. If there is little variation across all counties, then it is unlikely that there will be meaningful variation across high- and low-child poverty counties.
- Second, we conducted correlation analyses to assess statistical significance and the degree to which child poverty and the household or community characteristic had a linear relationship in either a positive or negative direction. (Table A2)
- Finally, we present averages of each characteristic for the top and bottom 20 counties. While these comparisons differ from the bivariate analysis described above, they allow for a more straightforward way to present the differences between the counties who have the highest and lowest child poverty rates. (Table A2)


## Table A1. Metrics and Data Sources

| Community Characteristic | Definition | Years | Source |
| :---: | :---: | :---: | :---: |
| Child poverty | \% of children under 18 living in poverty | 2011-2015 and 2016-2020 <br> 5-year estimate, <br> 2010-2020 1-year estimates | American Community Survey |
| Community Demographics |  |  |  |
| Non-white population | \% of population that is a race/ethnicity other than white, non-Hispanic | 2016-2020 5-year estimate | American Community Survey |
| Population trends | \% change between 5-year population estimates for 2011-2015 to 2016-2020 | 2010-2014 and 2016-2020 5-year estimates | American Community Survey |
| Rurality | \% of population that lives in an area considered rural (0-100\%) | 2010 | U.S. Census Bureau |
| Family Structure in the Community |  |  |  |
| Births to unmarried mothers | \% of births to unmarried mothers | 2020 | Centers for Disease Control \& Prevention, National Center for Health Statistics |
| Children in single-parent households | \% of children living in households headed by a single parent | 2016-2020 5-year estimate | American Community Survey |
| Marriage rate | Annual rate of recorded marriages per 1,000 resident population | 2020 | Tennessee Department of Health, Office of Vital Records and Statistics (as reported by Tennessee Commission on Children and Youth) |
| Divorce rate | Annual rate of recorded marriages per 1,000 resident population | 2020 | Tennessee Department of Health, Office of Vital Records and Statistics (as reported by Tennessee Commission on Children and Youth) |
| Educational Achievement |  |  |  |
| Associate's degree or more | \% of residents with at least an Associate's degree | 2016-2020 5-year estimate | American Community Survey |
| Bachelor's degree or more | \% of residents with at least <br> a Bachelor's degree | 2016-2020 5-year estimate | American Community Survey |
| Standardized test performance | Z score reflecting ACT test scores by county | 2020 | Tennessee Department of Education |
| Economic Well-Being |  |  |  |
| Unemployment | \% of population 16 and older who were unemployed but seeking work | 2020 | Bureau of Labor Statistics (as reported by County Health Rankings) |
| Income ratio | Ratio of high income ( $80^{\text {th }}$ percentile) to low income (20th percentile) | 2016-2020 5-year estimate | American Community Survey (as reported by County Health Rankings) |


| Community <br> Characteristic | Definition | Years | Source |
| :--- | :---: | :---: | :---: |
| Economic <br> mobility - <br> middle to high <br> income | Probability of moving from <br> middle income status in <br> childhood to top 20\% in <br> adulthood | Adults born between 1978- <br> 1983 in homes at 50 <br> percentile of incomes <br> nationwide who are now in <br> top 20\% of household <br> incomes for their cohort | Opportunity Atlas |

## Table A2. Results of Analyses of Child Poverty Rates and Community

 Characteristics| Community Characteristic | Correlation Coefficient with Child Poverty Rates (-1.0 - +1.0) | P-Value* | County Avg for 20 Counties w/ the Highest Child Poverty Rates | County Avg for 20 Counties w/ the Lowest Child Poverty Rates |
| :---: | :---: | :---: | :---: | :---: |
| Community Demographics |  |  |  |  |
| Non-white population | -0.0058 | 0.9557 | 12.5\% | 12.3\% |
| Population trends | -0.5174 | $\mathrm{P}<0.0001$ * | 0.7\% | 12.6\% |
| Rurality | 0.2451 | 0.0162* | 77.5\% | 57.6\% |
| Family Structure in the Community |  |  |  |  |
| Births to unmarried mothers | 0.3978 | 0.0001* | 47.5\% | 38.9\% |
| Children in single parent households | 0.3317 | 0.0010* | 28.1\% | 22.5\% |
| Marriage rate | -0.160 | 0.878 | 6.4 per 1k pop. | 7.0 per 1k pop. |
| Divorce rate | -0.0688 | 0.507 | 3.41 k pop. | 3.5 per 1k pop. |
| Educational Achievement |  |  |  |  |
| Associate's degree or more | -0.4828 | $\mathrm{P}<0.0001^{*}$ | 21.3\% | 31.5\% |
| Bachelor's degree or more | -0.43 | $\mathrm{P}<0.0001^{*}$ | 14.8\% | 23.4\% |
| Standardized test performance (z-score) | -0.5517 | $\mathrm{P}<0.0001$ * | -0.56 | 0.68 |
| Economic Well-Being |  |  |  |  |
| Unemployment | 0.4019 | $\mathrm{P}<0.0001^{*}$ | 8.0\% | 6.7\% |
| Income differences | 0.5149 | P<0.0001* | 5.2 | 4.2 |
| Economic mobility middle to high income | -0.2974 | 0.0034* | 12.2\% | 13.3\% |
| Economic mobility low to high income | -0.3940 | 0.0001* | 5.6\% | 7.1\% |
| Severe housing problems | 0.1461 | 0.1577 | 12.6\% | 11.9\% |
| Community Health |  |  |  |  |
| Low birth weight | 0.3279 | 0.0012* | 9.2\% | 8.1\% |
| Community medical condition scale (z-score) | 0.3460 | 0.0006* | 0.60 | -0.68 |
| Overall uninsured | 0.3460 | $\mathrm{P}<0.0001^{*}$ | 11.1\% | 9.3\% |
| Civic Engagement |  |  |  |  |
| Voter participation | -0.3255 | 0.0013* | 67.8\% | 70.4\% |
| Membership organizations | 0.0098 | 0.9246 | 9.8 per 1k pop. | 9.6 per 1k pop. |
| Community Safety |  |  |  |  |
| Violent crime rate | 0.0848 | 0.4141 | 400.6 offenses per 100k pop. | 344.9 offenses per 100k pop. |
| Jail incarceration rate | 0.3062 | 0.0025* | 9.52 per 1k age 15-64 | 8.06 per 1k age 15-64 |

*Denotes a statistically significant linear relationship with a p-value of 0.05 .


[^0]:    Source: 2010-2019 American Community Survey 1-Year Estimates (3)

