GSRP Sites and Median Federal Poverty Level, 2023-24

The estimated number of four-year-olds within each median FPL level was calculated by first calculating the ratio of four-year-olds (4YOs) in households with children under the age of six (U.S. Census Bureau, 2023a; U.S. Census Bureau, 2023b). Four-year-olds were estimated by dividing the Census's grouped category of three-year-olds (3YOs) and 4YOs in households by two (U.S. Census Bureau, 2023b), assuming that the number of 3YOs and 4YOs is distributed across the population evenly by income relative to all children under the age of six. After the ratio of 4YOs to all children under the age of six is estimated, it is multiplied by the number of children under six -year-olds in each FPL category.

Using the column labels and data provided by the Census (U.S. Census Bureau, 2023a; U.S. Census Bureau, 2023b), the formulas for the estimated number of 4YOs for each FPL levels in a census tract are:

- **Ratio of 4YOs to children under the age of six (Ratio):** (B09001_004E / 2) / (B09001_003E + B09001_004E + B09001_005E).
- **No Kids:** B09001_003E + B09001_004E + B09001_005E = 0.
- **Number of 4YOs in 0% to 49% FPL:** Ratio * B17024_003E.
- **Number of 4YOs in 50% to 99% FPL:** (Ratio * B17024_004E) + (Ratio * B17024_005E).
- **Number of 4YOs in 100% to 149% FPL:** (Ratio * B17024_006E) + (Ratio * B17024_007E).
- **Number of 4YOs in 150% to 199% FPL:** (Ratio * B17024_008E) + (Ratio * B17024_009E) + (Ratio * B17024_010E).
- **Number of 4YOs in 200% to 299% FPL:** Ratio * B17024_011E.
- **Number of 4YOs in 300% to 399% FPL:** Ratio * B17024_012E.
- **Number of 4YOs in 400% to 499% FPL:** Ratio * B17024_013E.
- **Number of 4YOs in 500% FPL and Up:** Ratio * B17024_014E.

A median is a middle value of data sorted in ascending (or descending) order. It indicates a value where 50% of the data are below it (aka lower half) and 50% of the data are above it. Because federal poverty levels are provided in ranges (instead of exact percentages), the end value of the FPL range was also accepted as the upper end of the lower half when presenting the results of a median calculation. The estimated median FPL for four-year-olds for each census tract was calculated as follows:

- **No Kids:** The number of estimated 4YOs is 0.
- **49% FPL:** 50%+ of the total estimated 4YOs have a household income between 0% and 49% of the FPL.
- **99% FPL:** 50%+ of the total estimated 4YOs have a household income between 0% and 99% of the FPL.
- **149% FPL:** 50%+ of the total estimated 4YOs have a household income between 0% and 149% of the FPL.
- **199% FPL:** 50%+ of the total estimated 4YOs have a household income between 0% and 199% of the FPL.
- **299% FPL:** 50%+ of the total estimated 4YOs have a household income between 0% and 299% of the FPL.
- **399% FPL:** 50%+ of the total estimated 4YOs have a household income between 0% and 399% of the FPL.
- **499% FPL:** 50%+ of the total estimated 4YOs have a household income between 0% and 499% of the FPL.
- **500% + FPL:** 50%+ of the total estimated 4YOs have a household income between 0% and 500% and up of the FPL.

An interpretation of (for example) the **median of 199% FPL** would be: at least half (50%+) of the estimated number of 4YO children in a given census tract live in households whose incomes fall below or at 199% of the federal poverty level. Though the median ranges seem to overlap, children from lower income levels are not counted multiple times in higher median ranges. A census tract can have only one median value.

The geographic type of each census tract was determined using the Department of Education's (2021) classification of ZIP codes' geography. The proportion of a census tract's intersection with a ZIP code was determined using the R Statistic software. This proportion was assumed to mirror a ZIP code's classification as either a city, suburb, rural

area, or town. Census tracts were classified based on their largest proportion of a specific geographic classification (as either a city, suburb, town or rural).

The Child Opportunity Index is provided by diversitydatakids.org and Boston University as a tool to estimate the resources and opportunities available for children in a geographic area. It looks at three domains specific to Michigan: social and economic capacity, health and environment, and education. 'Very High' means an area that has a lot of resources available, while 'Very Low' means there are few resources.

References:

diversitydatakids.org (2024). Child Opportunity Index 3.0 database. Institute for Child, Youth and Family Policy at the Heller School for Social Policy and Management at Brandeis University. Retrieved October 22, 2024, from https://www.diversitydatakids.org/child-opportunity-index.

2020 Cartographic Boundary File (KML), Current Census Tract for Michigan, 1:500,000. Retrieved March 14, 2024, from https://catalog.data.gov/dataset/2020-cartographic-boundary-file-kml-current-census-tract-for-michigan-1-500000

U.S. Census Bureau (2023a). Age by Ratio of Income to Poverty Level in the Past 12 Months. *American Community Survey, ACS 5-Year Estimates Detailed Tables, Table B17024*. Retrieved March 20, 2025, from https://data.census.gov/table?q=ACSDT5Y2023.B17024&g=040XX00US26,26$1400000.

U.S. Census Bureau (2023b). Population Under 18 Years by Age. *American Community Survey, ACS 5-Year Estimates Detailed Tables, Table B09001*. Retrieved March 19, 2025, from https://data.census.gov/table?q=ACSDT5Y2023.B09001&g=010XX00US$1400000_040XX00US26$1400000

U.S. Department of Education (2021). Education Demographic and Geographic Estimates Program (EDGE): Locale Boundaries. National Center for Education Statistics.