



METHODOLOGY FOR ESTIMATING THE IMPACT OF THE EXPANDED CHILD TAX CREDIT IN THE AMERICAN RESCUE PLAN

The American Rescue Plan Act of 2021 (ARPA) expanded the Child Tax Credit (CTC), lifting millions of children out of poverty nationwide. Co-Equal has developed a methodology to determine the CTC's effects on children and families in each congressional district. The data sources used are publicly available as described in detail below.

The Expanded CTC

ARPA makes three changes to the CTC. First, it increases the value of the credit from \$2,000 per child to \$3,000 per child (and \$3,600 per child under age 6). The size of the credit begins to phase out for heads of households making \$112,500 and married couples making \$150,000. Second, it raises the CTC's eligibility age to include children who are 17 years old. Third, it converts the CTC from a partially refundable credit to a fully refundable credit. Previously, if the CTC was larger than a taxpayer's income tax liability, the refundable share was capped at \$1,400 per child.

Households Benefiting from the Expanded CTC

The number of households who benefit from the expanded CTC is primarily based on the 2014-2018 American Community Survey (ACS).¹ For each household, the pre-expansion CTC benefit is calculated using the laws in effect immediately before ARPA's passage. The expanded CTC for each household is calculated using ARPA's new rules. The difference between these two estimates is then used to determine the number of households who benefit from the CTC expansion.

Number of Children in Poverty

Estimates for the number of children in poverty are based on the ACS and an analysis of the Current Population Survey (CPS) conducted by the Center on Poverty and Social Policy (CPSP) at Columbia University. ACS and CPS have different strengths and weaknesses. The ACS has a very large sample size but tends to overestimate poverty levels. The CPS, by contrast, more accurately measures poverty but has a sample size that is only large enough for analysis at the state level. Consequently, the child poverty rate in each state comes from the CPSP's analysis of

¹ U.S. Census Bureau, 2018 American Community Survey 5-Year Public Use Microdata Samples, <https://www.census.gov/programs-surveys/acs/microdata/access.html>. We use "household" as a shorthand for the household-family grouping (the "Supplemental Poverty Measure unit") used by the Census Bureau to determine poverty status. Liana Fox, Brian Glassman, & Jose Pacas, *The Supplemental Poverty Measure using the American Community Survey*, SEHSD Working Paper 2020-09, <https://www.census.gov/content/dam/Census/library/working-papers/2020/demo/SEHSD-WP2020-09.pdf>.

the CPS, while the distribution of children within a state living in poverty by congressional district comes from the ACS.²

For each state, the total number of children living in poverty before and after the CTC expansion is estimated by multiplying the number of children in each state (from the ACS) by the statewide poverty rates before and after the CTC expansion (from the CPSP).³

For each district, the number of children in poverty is estimated by multiplying the number of children in poverty in the state (derived using the CPSP as explained above) by the proportion of the state's children in poverty who reside in the district (derived using the ACS):

$$\text{Children in poverty in district} = \text{Children in poverty in state (CPSP)} \times \frac{\text{Children in poverty in district (ACS)}}{\text{Children in poverty in state (ACS)}}$$

Children are considered to live in poverty if their household's resources are less than the Census Bureau's "Supplemental Poverty Measure" threshold.⁴ Household resources are calculated using the pre-expansion CTC to estimate the number of children in poverty in each district before the CTC expansion. The resources are then recalculated using the expanded CTC to estimate the number of children in poverty in each district after the CTC expansion.

The change in the number of children in poverty in each district equals the number of children in poverty in the district before the expansion minus the number of children in poverty in the district after the expansion.

Average Additional CTC benefit

The average additional CTC benefit equals the total increase in CTC benefits after the CTC expansion divided by the number of households receiving a larger benefit because of the expansion.⁵ The average additional CTC benefit for households in poverty is calculated using the same formula while limiting the sample only to those households that were living in poverty before the CTC expansion.

² The ACS data has geography at the Public Use Micro Area (PUMA) level. Where local data is needed, a crosswalk can be used to match each PUMA to the county or counties in which it is located. The crosswalk is provided by the Missouri Census Data Center. Missouri Census Data Center, MABLE/Geocorr18 Version 1.0: Geographic Correspondence Engine, <http://mcdc.missouri.edu/applications/geocorr2018.html>.

³ CPSP, *A Poverty Reduction Analysis of the American Family Act* (2021), <https://static1.squarespace.com/static/5743308460b5e922a25a6dc7/t/600f2123fdfa730101a4426a/1611604260458/Poverty-Reduction-Analysis-American-Family-Act-CPSP-2020.pdf>.

⁴ Liana Fox, Brian Glassman, & Jose Pacas, *The Supplemental Poverty Measure using the American Community Survey*, SEHSD Working Paper 2020-09, <https://www.census.gov/content/dam/Census/library/working-papers/2020/demo/SEHSD-WP2020-09.pdf>.

⁵ The 5-year 2018 ACS household weights are used in obtaining counts of households for each district.

Example

Here is an example for the state of Hawaii, a state with two congressional districts, which simplifies the example. The example uses rounded numbers throughout.

Number of children in poverty in Hawaii

Using the ACS, we estimate that there are 306,000 children in Hawaii. The CPSP finds the child poverty rate for Hawaii is 15.1% before the CTC expansion and 9.8% after the CTC expansion.

Number of children in poverty in Hawaii before CTC expansion = $.151 * 306,000 = 46,200$

Number of children in poverty in Hawaii after CTC expansion = $.098 * 306,000 = 30,000$

Number of Hawaiian children in poverty by district

There are two congressional districts in Hawaii.

Before the CTC expansion

Using the ACS, we determine that before the CTC expansion, 47% of Hawaiian children in poverty live in District 1 and 53% live in District 2.

Children in poverty before CTC expansion in District 1: $.47 * 46,200 = 21,700$

Children in poverty before CTC expansion in District 2: $.53 * 46,200 = 24,500$

After the CTC expansion

After simulating the effect of ARPA in the ACS, we determine that after the CTC expansion, 47.5% of Hawaiian children in poverty live in District 1 and 52.5% live in District 2.

Children in poverty after CTC expansion in District 1: $.475 * 30,000 = 14,250$

Children in poverty after CTC expansion in District 2: $.525 * 30,000 = 15,750$

Reduction in child poverty by district

Children lifted out of poverty after CTC expansion in District 1: $21,700 - 14,200 = 7,500$

Children lifted out of poverty after CTC expansion in District 2: $24,500 - 15,700 = 8,700$

Reduction in poverty for District 1: $7,500 / 21,700 = 34.9\%$

Reduction in poverty for District 2: $8,700 / 24,500 = 35.3\%$