



Impacts of an Ohio Child Tax Credit

A Cost Benefit Analysis

Executive Summary

Child poverty is a problem in Ohio. Over 18% of children under the age of five are in poverty, which strains the social safety net and impacts future earnings for current children. This cost-benefit analysis measures the effects of a child tax credit for the state of Ohio targeted at low-income families.

We find that under all specifications, a child tax credit for Ohio is likely to return positive net benefits for society. Depending on the generosity of the credit, we find a state child tax credit would generate anywhere from \$60 million to \$300 million in net benefits to society. The largest of these benefits come in the form of increased future earnings for children who receive support. Additionally, we project large benefits in the form of reduced future crime and reduced future spending on healthcare for children who receive the credit.

Child Poverty

Of Ohio's nearly 2.5 million children, around 18.6% live in households which have fallen below the poverty line in the last year.¹ These children are likely to suffer a variety of unfavorable outcomes throughout their life due to lack of resources. They face an increased chance of being arrested, dropping out of high school, and ultimately remaining in poverty during adulthood.² Both acute and long-term health impacts have been studied, as well, with children in poverty demonstrating higher rates of obesity, asthma, and emergency room use.³ The diversity and depth of evidence associating childhood poverty with adverse outcomes not only during childhood but also later in life illustrates the severity of poverty's consequences.

Poverty at the household and neighborhood level has long-term impacts on chil-

1. *American Community Survey 5-year Public Use Microdata Samples*, Table S1701, U.S. Census Bureau, 2021, <https://data.census.gov/table?q=ohio&tid=ACSST5Y2021.S1701>.

2. Rune V Lesner, "The long-term effect of childhood poverty," *Journal of Population Economics* 31 (2018): 969–1004.

3. Junwen Yang-Huang et al., "Changes in family poverty status and child health," *Pediatrics* 147, no. 4 (2021).

dren’s well-being that last into adulthood. Tools such as the Child Opportunity Index illustrate the capacity of geography to determine children’s outcomes on units as small as census tracts.⁴ Using data from a variety of national and local sources, researchers from Brandeis University and the Ohio State University were able to map educational, health, social, and economic outcomes according to a variety of indexes by census tract. By defining child outcomes on such a precise level, the map shows how environmental and social factors impact the lives of children.

Beyond affecting the lives of impoverished children, poverty can influence the development of entire communities. Non-white children are twice as likely to be impoverished in Ohio as white children, making up 37% of those in poverty.⁵

Child Tax Credit Policies

The federal child tax credit was established in 1997 as a nonrefundable \$400 credit.⁶ Over its 25 years, the child tax credit has enjoyed bipartisan support through several iterations and expansion, the most recent being a temporary expansion under the American Rescue Plan Act (ARPA) of 2021. The current tax credit, which has now reverted to its pre-ARPA value, is available to households with income between \$4,400 and \$200,000. It provides up to \$2000 per child with partial refundability based on income. For a partially refundable credit, taxpayers may only keep a portion of the credit if it surpasses the amount owed. This means that as income decreases, the size of the benefit decreases.

Currently, 12 states have child tax credits of varying levels and availability, with credit amounts ranging from \$100 to \$1,000.⁷ Three states (Colorado, New York, and

4. Dolores Acevedo-Garcia et al., “The child opportunity index: improving collaboration between community development and public health,” *Health affairs* 33, no. 11 (2014): 1948–1957.

5. *American Community Survey 5-year Public Use Microdata Samples*, Table B17001A, U.S. Census Bureau, 2021, <https://data.census.gov/table?q=child+poverty+race+ohio&tid=ACSDT1Y2021.B17001A>.

6. “Child Tax Credit Overview,” National Conference of State Legislatures, 2023, <https://www.ncsl.org/human-services/child-tax-credit-overview#:~:text=Originally%2C%20the%20tax%20credit%20was,the%20earned%20income%20tax%20credit..>

7. Ibid.

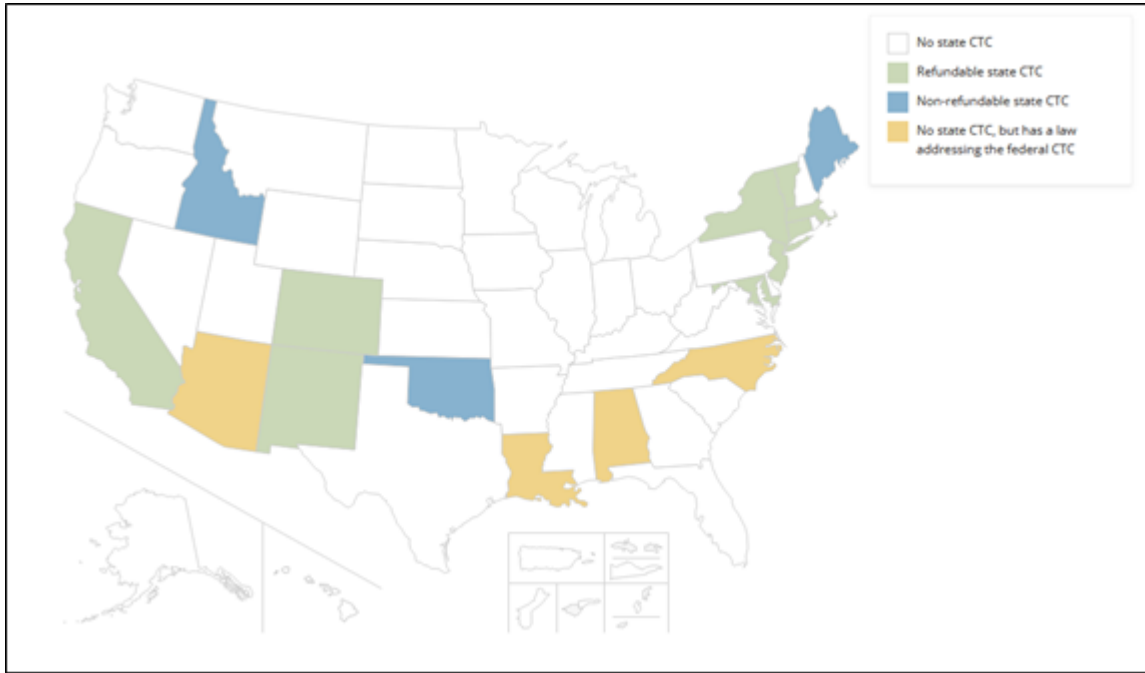


Figure 1: States with child tax credits

Oklahoma) have credits which are given as a percentage of the federal credit. State laws use several different criteria to determine qualification, including qualification for the federal child tax credit, disability status, and number of children in the household.

All but three states have further qualification criteria according to the age of the child. Given research which indicates greater impacts for interventions at early ages, this often means that young children are given larger credits or are the only credit recipients.

Policy Options

We selected three policy alternatives to the status quo to test the potential impacts of a child tax credit in Ohio— a reserved option, a moderate option, and an expansive option. Qualification for receipt of the tax credit in each plan is based

on the median income for single and jointly filed families. We estimate filer families with income below \$55,095 and joint filer families with income below \$102,159 would qualify for the Ohio child tax credits tested here.

- **Reserved Plan:** Children under the age of six of qualifying families will receive \$205 each.
- **Moderate Plan** Children under the age of six of qualifying families will receive \$300 each. Children ages six through seventeen of qualifying families will receive \$205 each.
- **Expansive Plan** Children under the age of six of qualifying families will receive \$500 each. Children ages six through seventeen of qualifying families will receive \$300 each.

The tax credit amounts of \$205 and \$300 are used in Idaho and Maine respectively.⁸ These two states are the closest to Ohio according to the state similarity index developed by David Jarmin.⁹ This suggests that these amounts for a child tax credit would be sensible for Ohio to adopt as well.

Both New Jersey and Maryland have tax credits of \$500.¹⁰ Although these states are less similar to Ohio than other states with child tax credits, their credit has the same straightforward structure as Idaho and Maine. Other states have credits that vary with things such as the number of children and income. In order to better estimate the impact of these credits, we opt for a simpler structure.

Additionally, all proposed credits studied in this analysis are fully refundable. Refundability is a key element of successful poverty prevention tax credits, as it helps ensure money reaches those most in need. For low-income households, a tax bill may be small enough that only some of the credit would be necessary to cover it. A nonrefundable credit would penalize low-income recipients by reducing their

8. Ibid.

9. “How similar is each state to every other? Daily Kos Elections’ State Similarity Index will tell you,” Daily Kos, 2020, <https://www.dailykos.com/stories/2020/2/19/1917029/-How-similar-is-each-state-to-every-other-Daily-Kos-Elections-State-Similarity-Index-will-tell-you>.

10. “Child Tax Credit Overview.”

credit amount to only the value of their taxes. Refundability enables society to reap the full benefits of anti-poverty tax credits.

Methodology

This analysis follows the approach of a study done by the Columbia University Center on Poverty and Social Policy, which published an analysis of proposed federal credits in February of 2021. Their paper, "The Costs and Benefits of a Child Allowance," gathered studies on the immediate and long-term impacts of cash or near-cash transfers in childhood to calculate the potential effects of child tax credits. The team has since released a working paper in March of 2022 with additional studies incorporated to improve the accuracy of the calculations.¹¹

We made several adjustments to these calculations for our analysis. We updated and recalculated most of the impact factors using metrics from Ohio, and adjusted dollar values to February of 2023. These adjustments did not depart heavily from the methodology the researchers from Columbia used.

The most significant change we made to the original analysis was selecting for purely fiscal impacts. For example, the Columbia study calculated improved health outcomes in terms of quality-adjusted life-years (QALY)— a metric meant to represent the value placed on an additional year of life—as well as in terms of medical spending. We focused only on medical spending, making our result a more conservative estimate of the value of this intervention. We similarly left out the neonatal mortality impacts, which were calculated using the value of a statistical life (VSL). By maintaining this narrow focus, our analysis ensures a more conservative estimate of the impacts of an Ohio child tax credit.

11. Irwin Garfinkel et al., "The Benefits and Costs of a Child Allowance," *Journal of Benefit-Cost Analysis* 13, no. 3 (2022): 335–362.

Results

For all three alternatives, our model predicts that benefits will outweigh costs. The three primary drivers of this result are the increased future earnings of eligible children, the expected future reduction in crime, and the expected reduction in spending on healthcare for the eligible children.

Because future earnings are the largest benefit of these policies, we find that net benefits are negative for taxpayers who don't receive any tax credit. However, because only children of low-to-middle income families qualify for this credit, this program likely would have dramatic effects on reducing child poverty.

All three policy alternatives have benefit-cost ratios of approximately 1.5. This means that these are all equally efficient uses of public resources. Because the efficiency of the policies is fairly constant, the effectiveness of the policy increases with the size of the tax credit.

From an equity perspective, we project that the larger tax credits would have greater effects on reducing inequality. Because these credits are fully refundable, they act as cash transfers to the people who qualify. The credit would amount to a higher percentage of family income for lower-income households than middle- or upper-income households.

Still, more research would be needed to fully understand the equity implications of this policy. Ensuring that those who qualify were made aware of the credit and took advantage of it would be critical in realizing the full value of this program.

Distributional Analysis

For all three policy proposals, our model predicts that slight losses of welfare for non-recipients of the tax credit will be accompanied by massive gains in welfare for recipients. Overall, the result is positive net benefits to society. Because the eligibility requirement for these proposed tax credits is strictly income based, lower income households will benefit from the credits.

This is important because our model does not make any adjustments for the

Table 1: Reserved Plan (millions of \$)

Alternative	Direct Benefits (Beneficiaries)	Indirect Benefits (Taxpayers)	Total (Society)
Future Earnings of Child	\$69	\$0	\$69
Future Tax Payments by Child	-\$8	\$8	\$0
Expenditures on Child's Healthcare	\$1	\$6	\$7
Expenditures on Parent's Healthcare	\$1	\$4	\$5
Expenditures on Child Protection	\$0	\$22	\$22
Expenditures and Victim Cost of Crime	\$0	\$63	\$63
Excess Burden for Taxpayers	\$0	-\$24	-\$24
CTC Transfer	\$0	-\$82	-\$82
Administrative Costs	\$0	-\$0.3	-\$0.3
Total	\$63	-\$3	\$60

Table 2: Moderate Plan (millions of \$)

Alternative	Direct Benefits (Beneficiaries)	Indirect Benefits (Taxpayers)	Total (Society)
Future Earnings of Child	\$225	\$0	\$225
Future Tax Payments by Child	-\$27	\$27	\$0
Expenditures on Child's Healthcare	\$3	\$22	\$25
Expenditures on Parent's Healthcare	\$2	\$14	\$16
Expenditures on Child Protection	\$0	\$70	\$70
Expenditures and Victim Cost of Crime	\$0	\$205	\$205
Excess Burden for Taxpayers	\$0	-\$79	-\$79
CTC Transfer	\$0	-\$264	-\$264
Administrative Costs	\$0	-\$1	-\$1
Total	\$203	-\$7	\$196

Table 3: Expansive Plan (millions of \$)

Alternative	Direct Benefits (Beneficiaries)	Indirect Benefits (Taxpayers)	Total (Society)
Future Earnings of Child	\$349	\$0	\$349
Future Tax Payments by Child	-\$41	\$41	\$0
Expenditures on Child's Healthcare	\$4	\$34	\$38
Expenditures on Parent's Healthcare	\$3	\$22	\$25
Expenditures on Child Protection	\$0	\$109	\$109
Expenditures and Victim Cost of Crime	\$0	\$318	\$318
Excess Burden for Taxpayers	\$0	-\$123	-\$123
CTC Transfer	\$0	-\$411	-\$411
Administrative Costs	\$0	-\$2	-\$2
Total	\$316	-\$11	\$305

marginal utility of income. In other words, we are measuring the costs and benefits assuming an average member of our society receives the tax credit.

However, our policy options specify that the people receiving the credit are strictly lower income than those who don't qualify. The average person in our society likely has income near the median, meaning they would be on the edge of qualifying or not.

What this means is that we are likely underestimating the benefits for recipients of the credit and overestimating the costs for those who don't receive the credit. This is because as income increases, the marginal utility that people receive from their income decreases.

In practice, this happens because people who are receiving benefits are receiving a significant percentage of their income while those who are paying additional taxes are losing a much smaller percent of their income. A family living in poverty might get a full month of groceries paid for with this credit, while a millionaire who pays higher taxes might not even notice the change in income.

Sensitivity Analysis

To estimate the range of possible outcomes, we conduct a Monte Carlo simulation with 10,000 replications. In each round of our simulation, we vary the discount rate, the price elasticity for health care spending, the marginal excess burden of taxation, the costs associated with crime, and the costs associated with low birth-weight for children.

For each of these factors, we examined the available research to determine reasonable lower and upper bounds. In each replication of our simulation, we randomly sampled from a uniform distribution for each of these variables.

For each of the three policy alternatives, we expect there to be positive net benefits the majority of the time. All three programs returned positive net benefits in about 90% of simulations.

Among the plans that included credits for children over the age of six, we expect the most expansive plan to have a higher probability of returning positive net

Table 4: Monte Carlo Results (millions of \$)

Alternative	5th Percentile	95th Percentile	Probability of Positive Net Benefits
Reserved Plan	-\$6	\$375	90%
Moderate Plan	-\$24	\$669	87%
Expansive Plan	-\$37	\$1,089	88%

benefits. In the best-case scenario, the expansive plan could even have net benefits upward of \$1 billion, by far the most of any plan.

Discussion

A child tax credit in Ohio would almost certainly provide benefits that outweigh costs. Even excluding a wide swath of potential benefits, our analysis predicts that it is extremely likely that these policies end up being worthwhile.

Examining this policy through an efficiency lens, the benefit-cost ratio of 1.5 across all three policies is a reasonable return on investment. Even though other potential policies might be more efficient, a child tax credit is desirable for other reasons.

One important consideration with a policy like this is where the funds for it come from. Some of the anti-poverty benefits of this policy could be negated if the taxes used to fund it were regressive, such as through property taxes. Conversely, if this program was funded by a progressive income tax, then we would expect the anti-poverty effect to be even more potent.

The real strength of this program is in its potential to improve equity across the state. Child poverty is a problem in Ohio, and this could be an extremely effective tool to address the situation. Helping people during their formative years could have long lasting impacts that generations of future Ohioans will benefit from.

References

- Acevedo-Garcia, Dolores, Nancy McArdle, Erin F Hardy, Unda Ioana Crisan, Bethany Romano, David Norris, Mikyung Baek, and Jason Reece. “The child opportunity index: improving collaboration between community development and public health.” *Health affairs* 33, no. 11 (2014): 1948–1957.
- American Community Survey 5-year Public Use Microdata Samples*. Table S1701. U.S. Census Bureau, 2021. <https://data.census.gov/table?q=ohio&tid=ACSST5Y2021.S1701>.
- American Community Survey 5-year Public Use Microdata Samples*. Table B17001A. U.S. Census Bureau, 2021. <https://data.census.gov/table?q=child+poverty+race+ohio&tid=ACSST1Y2021.B17001A>.
- “Child Tax Credit Overview.” National Conference of State Legislatures, 2023. <https://www.ncsl.org/human-services/child-tax-credit-overview#:~:text=Originally%2C%20the%20tax%20credit%20was,the%20earned%20income%20tax%20credit..>
- Garfinkel, Irwin, Laurel Sariscsany, Elizabeth Ananat, Sophie Collyer, Robert P Hartley, Buyi Wang, and Christopher Wimer. “The Benefits and Costs of a Child Allowance.” *Journal of Benefit-Cost Analysis* 13, no. 3 (2022): 335–362.
- “How similar is each state to every other? Daily Kos Elections’ State Similarity Index will tell you.” Daily Kos, 2020. <https://www.dailykos.com/stories/2020/2/19/1917029/-How-similar-is-each-state-to-every-other-Daily-Kos-Elections-State-Similarity-Index-will-tell-you>.
- Lesner, Rune V. “The long-term effect of childhood poverty.” *Journal of Population Economics* 31 (2018): 969–1004.
- Yang-Huang, Junwen, Amy van Grieken, Yueyue You, Vincent WV Jaddoe, Eric A Steegers, Liesbeth Duijts, Mirte Boelens, Wilma Jansen, and Hein Raat. “Changes in family poverty status and child health.” *Pediatrics* 147, no. 4 (2021).