



ALLEVIATING POVERTY IN OHIO

POLICY ANALYSIS OF TARGETED CASH
TRANSFER POLICIES USING THE OHIO
POVERTY MEASURE MODEL



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Table of Contents

Executive Summary	3
Defining the Problem	4
Measuring Poverty	4
The Ohio Poverty Measure	4
Key Findings	6
Factors Contributing to Poverty in Ohio	14
Rationale for Government Intervention	15
Objectives	15
Possible Solutions to Alleviate Poverty	15
Status Quo	15
Alternative Options	16
Analysis Criteria	19
Solutions Analysis	19
Status Quo	19
Alternative One: Transfers to Eliminate Poverty	20
Alternative Two: Targeted Basic Income	22
Alternative Three: Transfers for Households Living in Deep Poverty	26
Weighted Scoring	29
Recommendation	29
Funding the Cash Transfers	30
Conclusion	31
Technical Appendix	32
Data Analysis Process	32
Ohio Poverty Measure	32
Estimating Revenue from a Corporate Income Tax	33
Bibliography	37

I. Executive Summary

Nearly one in ten Ohioans are living in poverty. Poverty is difficult to measure, and the existing measures do not fully capture poverty across different geographies. There are two nationally recognized poverty measures, the Official Poverty Measure and the Supplemental Poverty Measure, that the Census Bureau reports every year. In this memo we introduce the Ohio Poverty Measure (OHPM), which aims to create the most accurate measure of poverty in the state. The Ohio Poverty Measure draws from methodology of the Supplemental Poverty Measure and other local poverty measures, to create a model that accounts for granular geographic data on the cost of living and household expenditures.

Using 2018 American Community Survey 5-year data, we construct poverty units in Ohio adjusted for family size and geography. For each unit, we modeled the impact of federal poverty reduction programs and accounted for the federal tax liability of each poverty unit using TAXSIM, an online tax policy simulator. This created a unique OHPM threshold for each poverty unit that was used to determine the new poverty rate.

Using the OHPM, we find that 9.68 percent of Ohioans live in poverty. We further break this down looking at deep poverty, the geographic distribution of poverty, and poverty rates by age and race. We model the impact of existing federal anti-poverty programs, and find that nearly half a million Ohioans are moved out of poverty by existing programs, however 1.13 million Ohioans remain in poverty.

With this newfound data and model, we design and then simulate three cash transfer policy alternatives for alleviating poverty in Ohio. Using equity, effectiveness, and cost effectiveness as our criteria, we find that targeted cash transfers to individuals living in poverty could lead to the elimination of poverty in the state of Ohio. This policy proposal would move 1.13 million Ohioans out of poverty. This program would cost the state of Ohio an estimated \$9.8 billion, which we propose could be funded by levying a corporate income tax.

This analysis offers opportunities for further research in funding cash transfer benefit programs through corporate taxation, designing targeted benefit programs for Ohioans living in poverty, refining the Ohio Poverty Measure Model, and using the OHPM for further anti-poverty research towards a goal of reducing and ultimately eliminating poverty in Ohio.

II. Defining the Problem

Nearly one in ten Ohioans are living in poverty. Poverty is difficult to measure and existing measures do not fully capture poverty across different geographies. This memo addresses both the problem of poverty in Ohio, and the accuracy of poverty measurements.

Measuring Poverty

In 2018, 12.9 percent of Ohioans lived in poverty according to the Official Poverty Measure and 10.4 percent of Ohioans lived in poverty according to the supplemental poverty measure, an adapted poverty measure calculated by the Census Bureau since 2011. This discrepancy stems from the way poverty is measured in the United States. The Official Poverty Measure was created in 1969, and the Census Bureau has been reporting on this statistic every year since. The Official Poverty Measure sets the poverty threshold at three times the cost of an economy food plan, adjusted for family size. This is based on a 1955 survey indicating families spent a third of their income on food. Since 1969, this threshold has been adjusted for inflation.¹

The cost of food and household budget patterns have shifted since the construction of this measure. Housing has overtaken food as the largest part of the typical household budget. Recognizing this shortcoming, the National Academy of Sciences published a report in 1995 recommending features for a new poverty measure. Since 2011, the Census Bureau has published data on both the official poverty measure and this new supplemental poverty measure. The supplemental poverty measure takes into account spending on housing, transportation, food, clothing, utilities and additional essential spending. Further, it accounts for varying costs across geographic regions, the impact of safety net programs, and housing status (rents, owns, or owns with a mortgage).

The Ohio Poverty Measure

The Ohio Poverty Measure (OHPM) aims to create the most accurate measure of poverty in the state to date. It uses methodology inspired by the California Poverty Measure, New York City Poverty Measure, Oregon Poverty Measure, and Wisconsin Poverty Measure, which itself was based on the 1995 study by the National Academies of Sciences's framework. The OHPM constructs a quasi-relative poverty measure, using 2018 American Community Survey 5-year data, a dataset of 561,858 individuals in Ohio. The final measure estimates the impacts of government assistance, the tax system, and unavoidable expenses based on geographical cost-of-living numbers. Including governmental assistance, federal taxation, and cost of living adjustments makes the OHPM more precise than the official poverty measure, which does not consider any of these parameters.

The OHPM is a micro-simulation model of poverty in Ohio. We used data from The American Community Survey, the Current Population Survey, the Current Population Survey's Social and Economic Supplement Data, and the Survey of Income and Program Participation. This model is the first one to be constructed at the individual and household levels for Ohio. This feature allows us to provide new insights on the poverty

¹ Citro CF, Michael RT, editors (1995). National Research Council. Measuring poverty: a new approach.

landscape in Ohio. It allows us to provide a more granular picture of poverty in Ohio. In this section, we provide figures and tables breaking down poverty in Ohio by age, race, and geography.

We cleaned the data and removed individuals living in group quarters (nursing homes, correctional institutions, dorms, military barracks, etc.). This eliminated 28,742 observations. Further, we removed college students who rely on family income. This eliminated an additional 344 observations.

We conducted the data analysis in R Studio to create poverty units. Poverty units are groups of people, like a family, who share resources who can meaningfully be assigned a designation of being in poverty or not. We constructed Poverty units using the American Community Survey dataset extracted from IPUMS and included all related individuals, unmarried partners, children of unmarried partners, unrelated children without a parent in the household, and foster children

We constructed a poverty threshold for each poverty unit based on the supplemental poverty thresholds for 2018. We adjusted these thresholds for family size, composition, and geography. The supplemental poverty measure uses geographic data by state and differentiates between metro and non-metro areas within the state. The OHPM looks at data by puma, a smaller geographic unit which allows us to more accurately model the cost of living. These adjustments make the OHPM more precise than the supplemental poverty measure. Finally, we calculated the impact of anti-poverty programs and taxation for each poverty unit. These adjusted poverty units were put into TAXSIM, a federal tax policy stimulator that calculated each unit’s tax liability. This created the final threshold that we compared each household against to determine the poverty rate.

Table 1: Comparing Poverty Measures

Created with OHPM model, shows that the OHPM poverty rate of Ohio is similar to the Supplemental Poverty Measure poverty rate

	Number in dataset	Percent of Ohioans	Estimated Number of Ohioans
Below OHPM	54,441	9.68%	1,132,074 (1.13 million)
Below Federal Poverty Measure ²	72,220	12.9%	1,507,893 (1.5 million)
Below Supplemental Poverty Measure	N/A	10.4%	1,215,666 (1.2 million)

Sources: Census Bureau Income and Poverty in the United State: 2018
 2018 American Community Survey 5-year data
 Authors’ calculations based on the OHPM model

² Only accounts for income.

Key Findings

Using the Ohio Poverty Measure Model, we estimate that 9.7 percent of Ohioans are living in poverty. This number is lower than the federal poverty measure estimate of 13.1 percent.³ The model found 54,411 people in the sample living in poverty with a median annual individual income of \$11,102. Since Ohio currently has an estimated population of 11,693,217, using the OHPM measure, we estimate that 1.13 million Ohioans were living in poverty in 2018.

Table 2 below shows the ACS dataset disaggregated by proximity to poverty.

Table 2: Breakdown of Poverty Across Ohio

Created with OHPM Model, shows breakdown of economic categories and the key finding that 10 percent of Ohioans are “Near Poverty”

	Deep Poverty	Poverty	Near Poverty	Low Income
Percentage of OHPM	<50%	51-100%	100-150%	150-200%
Amount of Individuals in Model	20,592	33,819	56,959	67,770
Percent of All Individuals in Ohio	3.66%	6.01%	10.1%	12.1%
Median Individual Income	\$4,918	\$14,900	\$26,641	\$39,674
Estimated # of Ohioans	427,854	702,569	1,185,087	1,410,021

Source: 2018 American Community Survey 5-year data

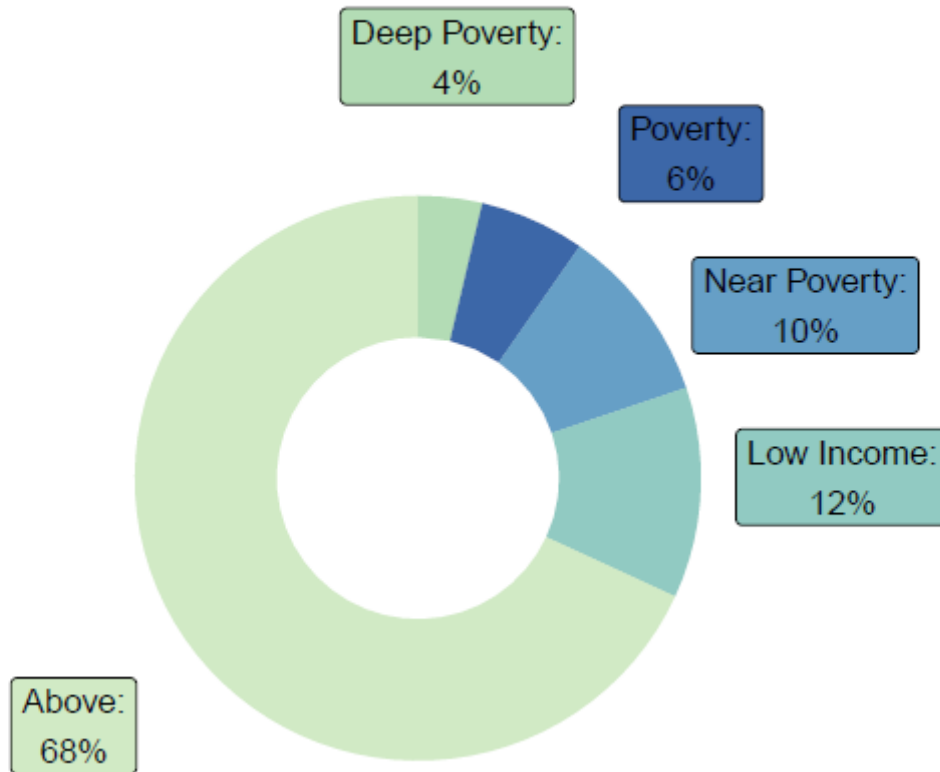
Authors' calculations based on the OHPM model

As seen in Figure 1 below, the model estimates that approximately 32 percent of Ohioans are less than 200 percent of their OHPM threshold, with 10 percent near poverty and 4 percent in deep poverty.

³ The federal poverty measure threshold for a family of four for 2018 was \$25,465.

Figure 1: Breakdown of Poverty Across Ohio

Figure shows breakdown of economic categories and the key finding that 10 percent of Ohioans are Near Poverty



Source: 2018 American Community Survey 5-year data
Authors' calculations based on the OHPM model

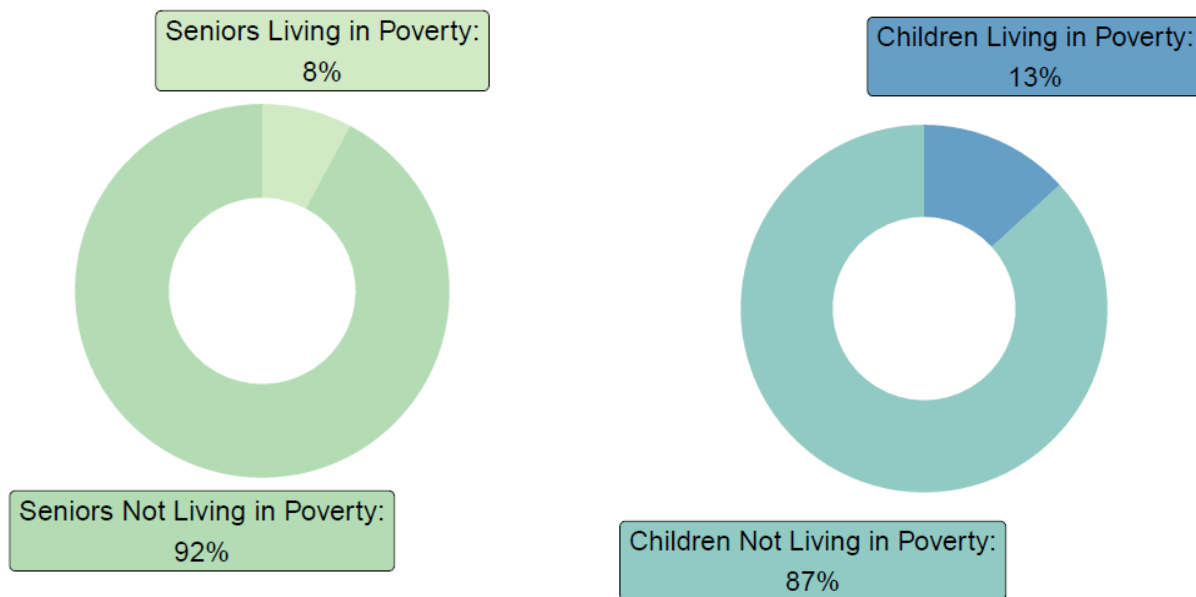
Figure 2, below, shows the poverty rates for children (less than 18 years old) and seniors (above 62 years old). Children account for 22.1 percent of Ohio's population according to the Census Bureau⁴ and make up 29.3 percent of all people living in poverty, leading to a poverty rate of 13.3 percent which is about 4 percent higher than the statewide rate.

According to our model, individuals over 62 years old make up around 23.8 percent of the population and constitute 19.2 percent of all people living in poverty. Their poverty rate of 7.8 percent is also less than the statewide number by almost 2 percent.

⁴ US Census Bureau. (2021). Quick Facts: Ohio.

Figure 2: Child and Senior Poverty

Figure shows that the poverty rate for seniors is 8 percent and children is 13 percent



Source: 2018 American Community Survey 5-year data
Authors' calculations based on the OHPM model

Using the OHPM we were also able to model how effective existing poverty alleviation benefit programs are at moving people out of poverty. We looked at the impact of several federal benefit programs.

The Supplemental Nutrition Assistance Program (SNAP) provides funding that can only be used for food to eligible individuals and households. Eligibility is based on income, household size, and housing expenses. SNAP includes a general work requirement that can be met by completing a training program and searching for work.

Free lunch and breakfast is a food program for school age children to receive free meals before and during the school day. Eligibility is determined by family income.

Housing support can come in the form of subsidized housing or housing vouchers to benefit families based on income, age, or disability.

The Earned Income Tax Credit (EITC) is one of the largest federal anti-poverty programs. EITC eligibility is also income-based, and a family must earn some income to qualify for any EITC credit. There is an additional EITC child credit for families with minor dependents. Families can begin getting benefits through the EITC on every dollar earned in income, however maximum benefits are received at an annual income of \$14,570 for a married couple with two children or \$6,920 for a single filer with no dependents in 2019.⁵

⁵ Center on Budget and Policy Priorities. (2019). Policy Basic: The Earned Income Tax Credit.

The remaining tax credits considered under all tax credits include child and childcare credits. The child tax credit allows households to receive up to \$2,000 per child, and households with a joint filing income up to \$400,000 are eligible for the credit. The minimum income to qualify for any child tax credit is \$2,500. The additional child tax credit is the refundable portion of this credit that can be claimed by families who owe the IRS less than their child tax credit. This allows families to receive an additional benefit, beyond a tax deduction. The child and dependent care credit may be claimed for childcare expenses for children under 13 up to a maximum benefit of \$6,000 for joint filers.

Without any of these anti-poverty programs, the poverty rate in Ohio would be 13.7 percent. The breakdown of each of these programs' effectiveness can be seen below in Table 3.

Table 3: Current Anti-Poverty Policies and their impact on Ohio
Created with OHPM Model, shows federal Anti-Poverty Program effectiveness⁶

Program	Model Individuals in Poverty Without Program	Individuals that Move Out of Poverty with Program	Percentage of Individuals (Out of People in Poverty)	Percentage of Individuals (Out of Total Survey)	Estimated Number of Ohioans Moved Out of Poverty
SNAP	59,727	5,316	9.77%	0.95%	111,055
Free Lunch and Breakfast	54,835	424	0.78%	0.08%	8,821
Housing Subsidies	57,426	3,015	5.54%	0.54%	62,730
EITC	61,813	7,402	13.6%	1.32%	154,005
All Child Tax Credits ⁷	59,006	4,595	8.44%	0.82%	95,603

Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

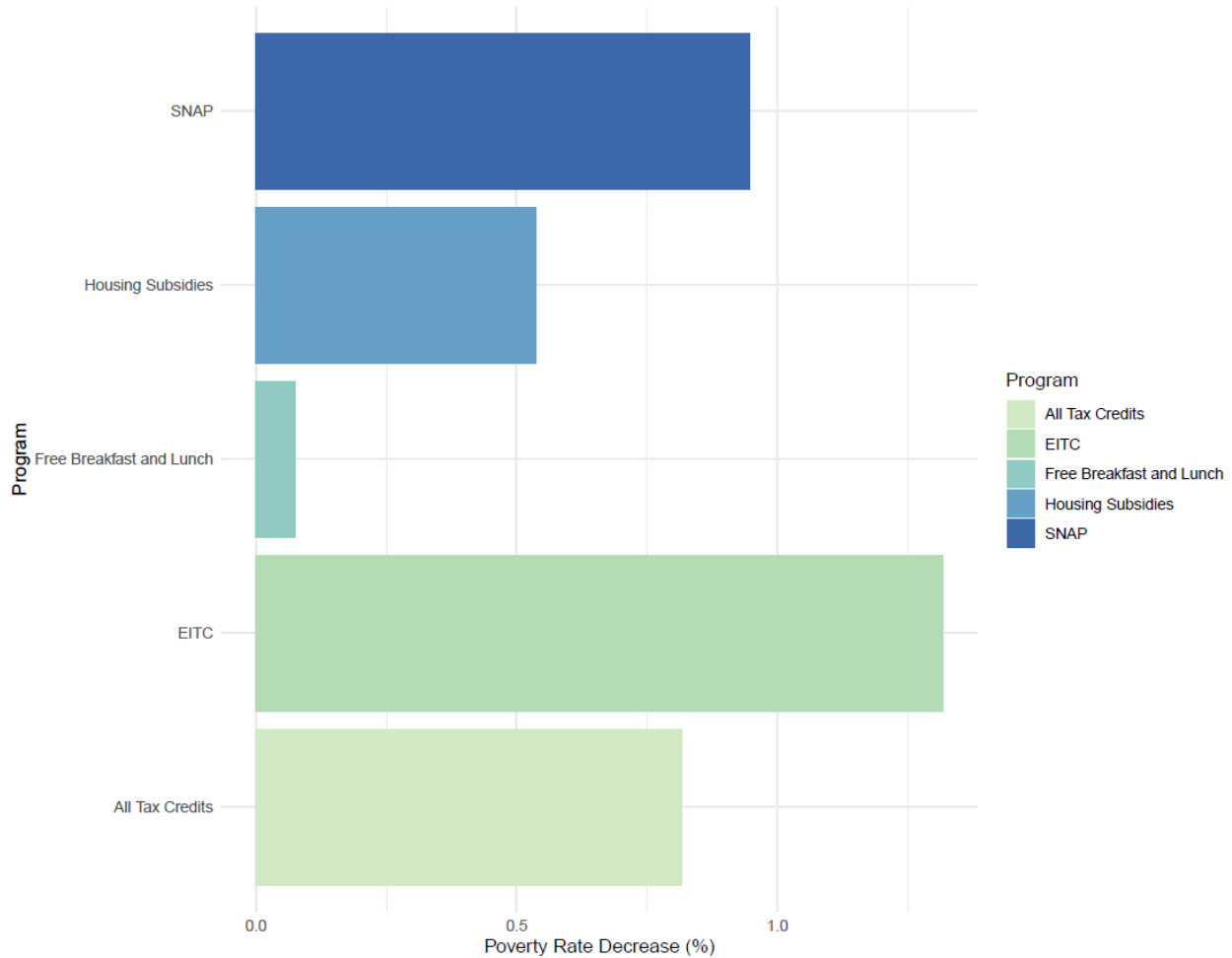
⁶ The estimates laid out in Table 3 are calculated by isolating each program while still including the other anti-poverty programs listed in the table. It is difficult to discern which individual programs lead to an individual moving across the poverty line since many people in and near poverty receive more than one benefit.

⁷ Includes: Child Tax Credit, Additional Child Tax Credit, and Child Care Credit

Table 3 shows that the EITC program is the most successful single program at reducing poverty rates. The impacts of these programs can be seen in Figure 3.

Figure 3: Effectiveness of Anti-Poverty Programs

Figure shows that EITC is the most successful single government subsidy program included in model

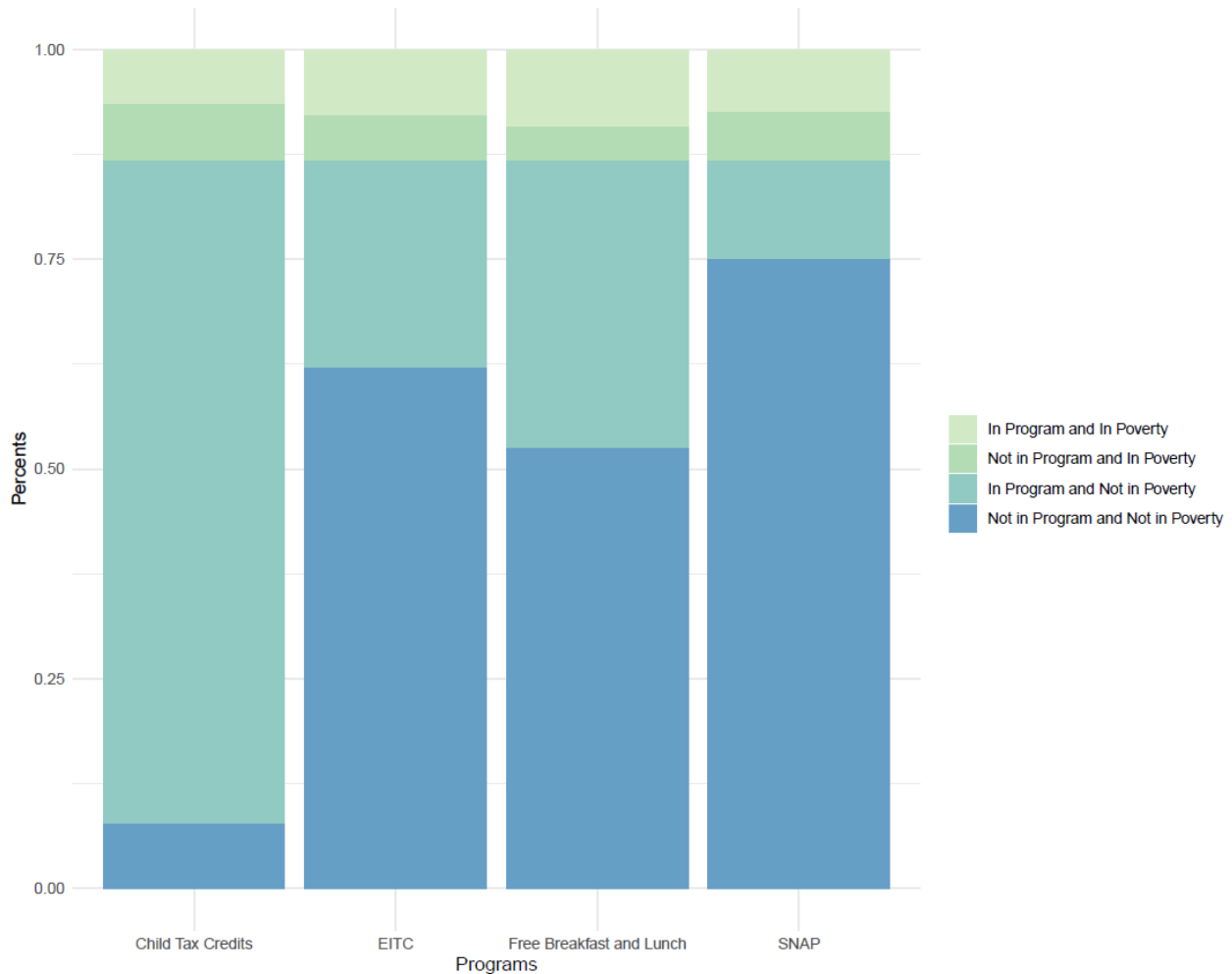


Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Despite the availability of anti-poverty programs, not all people in poverty receive benefits. Non-participation in these programs can be due to eligibility issues, accessibility, administrative burden, lack of information, or citizenship status. Figure 4 below breaks down, for each program, the percentage of households with children who are in poverty and receive the benefit, not in poverty and receive the benefit, in poverty and do not receive the benefit, and not in poverty and do not receive the benefit. The child tax credit has the highest participation rate among people in poverty, indicating that the program is reaching most households who qualify. In contrast, a large percentage of Ohioans in poverty do not participate in SNAP. Although this is not

inclusive of the entire population, the figure shows the limitations of existing anti-poverty programs.

Figure 4: Impact of Anti-Poverty Programs on Households with Children
Figure shows that many people in poverty are not in these programs

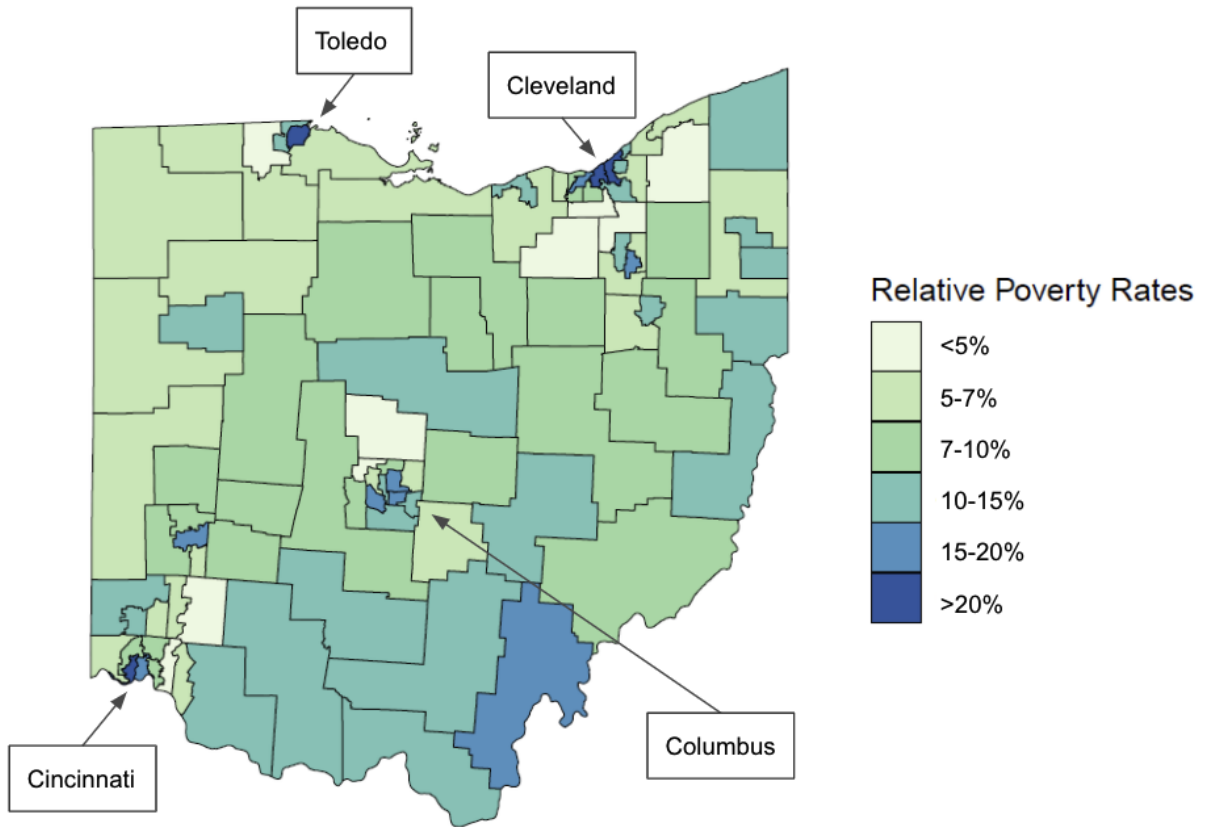


Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

When the data are mapped out using Public Use Microdata Areas (PUMA), it is evident that poverty in the state is most concentrated in urban centers and in the southern region of the state, particularly where Ohio overlaps with Appalachia. In contrast, the lowest rates of poverty can be found in the suburbs surrounding metro areas. These findings can be seen in Figure 5 below. These trends are consistent with what has previously been observed about geographic poverty patterns in Ohio in measures such as the Official Poverty Measure.

Figure 5: Geographic Distribution of Poverty in Ohio

Figure shows that the highest poverty rates are in urban areas and that southeast Ohio has higher poverty rates than northwest Ohio⁸



Source: 2018 American Community Survey 5-year data
Authors' calculations based on the OHPM model

Table 4 below also highlights that the lowest poverty rate is in a suburban area, while Table 5 shows that the highest poverty rate is in a metro area. The range of poverty rates across the state is a 20 percent spread, showing the great geographic cost-of-living differences.

⁸ The bins for poverty rates in the range of 5 to 10 percent are made smaller to increase the granularity because most poverty rates fell into this range

Table 4: Top Five Lowest Poverty Rates by PUMA

Created with OHPM Model, shows that the lowest poverty rate is in the suburbs of Akron

Location	Poverty Rate
04103 - Columbus (Far Northwest), Dublin & Hilliard (North) Cities	3.38%
01801 - Summit County (North & Northwest)--Hudson, Twinsburg & Macedonia Cities	3.46%
00903 - Cuyahoga County (South)--Broadview Heights, North Royalton & Strongsville Cities	3.64%
04000 - Delaware County	3.96%
05507- Hamilton County (East)--Loveland, Montgomery Cities & Forestville	4.40%

Table 5: Top Five Highest Poverty Rates by PUMA

Created with OHPM Model, shows that the and the highest is in Cleveland and the top five highest poverty rates are in urban areas

Location	Poverty Rate
00908 - Cleveland City (East) & Bratenahl Village	24.3%
00500 - Toledo City (East)	24.3%
00906 - Cleveland City (Central)	22.4%
05503 - Cincinnati City (West)	20.8%
05504 - Cincinnati City (Central)	19.6%

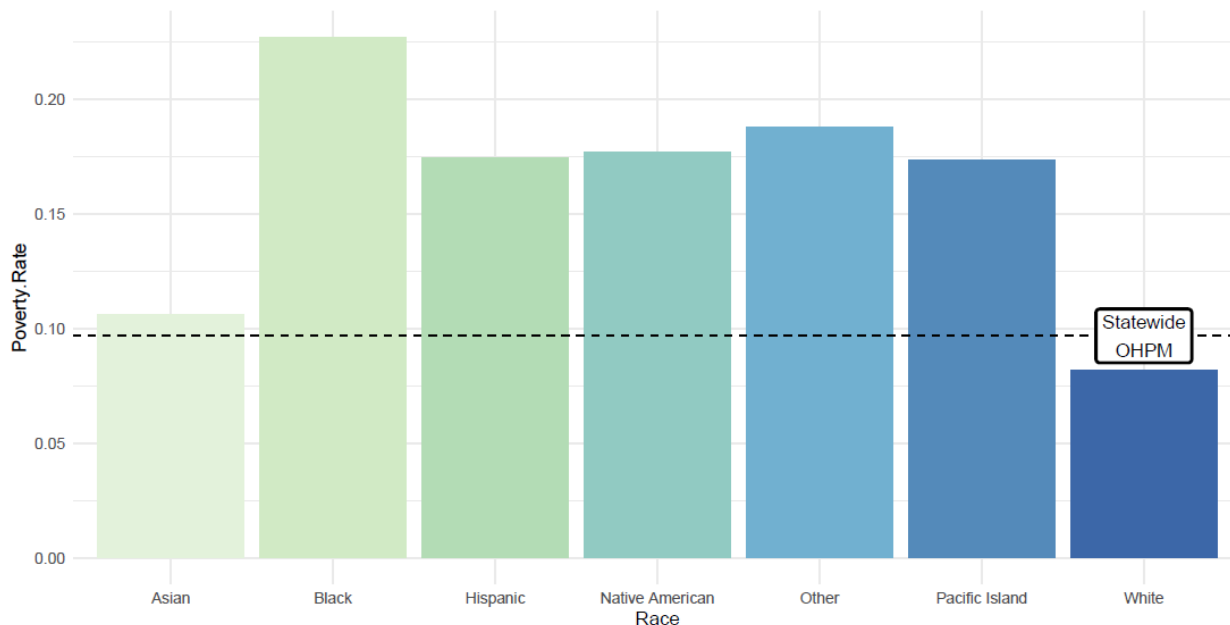
The OHPM also surfaced other inequities in the distribution of wealth by race, shown by Figure 6. These findings are particularly staggering when considering the racial composition of Ohio. Our analysis found that nearly 1 in 4 Black Ohioans are living in poverty, compared to about 1 in 12 white Ohioans. This severe disparity also plays out for smaller populations of racial and ethnic minorities, for example, while there are only estimated to make up 4 percent of Ohio, the model indicates that nearly 18 percent of the Hispanic population⁹ is living in poverty. Native Americans (0.3 percent of Ohio)

⁹ Hispanic is an ethnicity, not a race, so this category represents individuals who are also counted in other race categories.

and Pacific Islanders (0.1 percent of Ohio) are also experiencing poverty at disproportionate levels.¹⁰

Figure 6: Poverty rates in Ohio, by racial groups

Figure shows that Black Ohioans and other Ohioans of color are disproportionately living in poverty when compared to the percentage of impoverished white Ohioans



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Table 6 specifies these findings further. Across racial groups, nonwhite Ohioans are experiencing poverty at a higher rate than communities of color nationally. Black, Hispanic, and Asian peoples' national poverty rates are lower than what our model shows in Ohio.¹¹ This is an imperfect comparison, since the Census Bureau estimates use the Official Poverty Measure. But still provide a framework for contextualizing the Ohio data.

¹⁰ Note: Due to the smaller population sizes and thus smaller numbers of representatives in the data, observations about these populations are limited.

¹¹ The Census Bureau poverty report does not currently include Pacific Islanders, Native Americans, or other racial groups.

Table 6: Poverty Rates by Race

Created with the OHPM Model, shows that Black Ohioans and other Ohioans of color are disproportionately living in poverty when compared to the percentage of impoverished white Ohioans. Data from the Virginia and Oregon poverty measures is included for comparison.

Race	Poverty Rate	Number of Respondents in Data Set (N)	Virginia Poverty Measure	Oregon Poverty Measure
Asian	10.6%	12,792	12.3%	-
Black	22.7%	58,849	18.1%	17.4%
Hispanic ¹²	17.4%	16,285	23.1%	16.7%
Native American	17.7%	4,413	-	18.3%
Other	18.8%	5,348	16.1%	13.7%
Pacific Islander	17.3%	542	-	-
White	8.19%	494,024	8.1%	12.4%

Sources: 2018 American Community Survey 5-year data; Oregon Poverty Measure, Oregon State University, October 2020; Virginia Poverty Measure, University of Virginia, May 2013; Authors' calculations based on the OHPM model

Factors Contributing to Poverty in Ohio

Poverty in Ohio has increased over the past two decades, and is exacerbated by increasing income inequality. The poverty rate in Ohio increased from 13.1 percent in 2007 to 15.5 percent in 2011, driven by the economic impact of the great recession¹³. The rate then declined slightly, to 13.8 percent in 2018. Although this data is not yet available, a sharp increase is expected in new reports due to the impacts of the COVID-19 pandemic and adjoining economic crisis.

Despite growth in both gross domestic product and productivity, wages and incomes have been stagnant in the United States for the past few decades. Between 1979 and 2016, income for the 1 percent richest Americans has increased seven times faster than income for the bottom 20 percent. This wage stagnancy also causes a decline in purchasing power for Americans at the bottom, as inflation has continued to rise. Industry transformation, driven by globalization and automation has also contributed to

¹² Hispanic is an ethnicity, not a racial group. As such, there is overlap where some Ohioans included in both Black and white racial categories are also included in Hispanic and vice versa.

¹³ Bishaw, A and Semega, J. (2008). Income, Earnings, and Poverty Data From the 2007 American Community Survey.

wage decline. Ohio lost 302,000 manufacturing jobs between 1994 and 2015.¹⁴ This job loss specifically represents the loss of middle class jobs with union representation. Simultaneously, there has been an increase in service sector jobs, largely minimum wage jobs without union representation.

Poverty has a compounding effect due to low social mobility in the United States and the high cost of living in poverty.

Rationale for Government Intervention

In the United States, poverty is tied to reduced access to housing, food, healthcare, and education. These increased barriers lead to lower life expectancies, lower education attainment, lower employment rates, and higher rates of exposure to community violence and incarceration. These negative outcomes are often cyclical in impoverished communities, resulting in generational trauma. Not only are these harms challenging on an individual level, they are also extremely costly to society as a whole.

The Ohio legislature must act to alleviate poverty in Ohio because the status quo does not adequately address the unacceptable distributional outcomes of poverty in Ohio. As the data from the Ohio Poverty Measure show, the burden of poverty falls disproportionately on Black Ohioans, Native American Ohioans, Hispanic Ohioans, and single mothers. Existing policies are making an impact (see Key Findings in Section II), but more aggressive and expansive action is needed in order to address these outcome inequities.

Objectives

In order to address extreme inequality in Ohio, the most responsive policy solution will lead us to:

- a reduction in the poverty and deep poverty rates
- an increase in median salary incomes for those currently living in poverty and near poverty
- a narrowing of the poverty gap that currently exists between Black, Native, Hispanic, and Pacific Islander Ohioans compared to white Ohioans
- a reduction in the geographic inequities
- a significant reduction in the amount of children and the elderly experiencing poverty
- more cost-effective policies in reducing poverty than existing benefit programs

III. Possible Solutions to Alleviate Poverty

Status Quo

Current anti-poverty policies for Ohioans are primarily federal policies: SNAP, free lunch and breakfast, housing subsidies, EITC, and childcare credits. Combined, these programs move 4 percent of Ohioans out of poverty annually (see Table 3 and Figure 3 for a full breakdown). In Ohio, federal EITC recipients also receive up to an additional

¹⁴ Aull, C. (2015). Fact check/Did Ohio lose 300,000 manufacturing jobs because of NAFTA - Ballotpedia.

30 percent match by the state of Ohio, making it the largest state level anti-poverty policy.¹⁵

Modeling Alternatives

All of the alternatives modeled below are cash transfers to individuals; however, measuring poverty using OHPM occurs at the Poverty Unit level. In effect, this means that we will at times be measuring the impact of these individual interventions at the poverty unit level. We will also only be focusing on targeted cash transfers for Ohioans that are considered low-income, near poverty, or below the poverty line. This analysis does not consider universal cash transfers since we are focused on reducing poverty through the most cost-effective policy.

In creating and estimating the impact of these alternatives we assume a 100 percent take-up rate. No social benefit program currently has such a high take-up rate and it is unlikely any of these alternatives if implemented would. However, in order to estimate the maximum costs and impact of the programs we assume all eligible Ohioans will utilize the cash transfer programs.

In addition, we do not factor in or estimate administrative costs associated with implementing these policy alternatives. We estimate that administrative expenses would be a fraction of overall program expenditure given that administering the federal Earned Income Tax Credit costs less than 1 percent of overall expenditure.¹⁶

Alternative Options

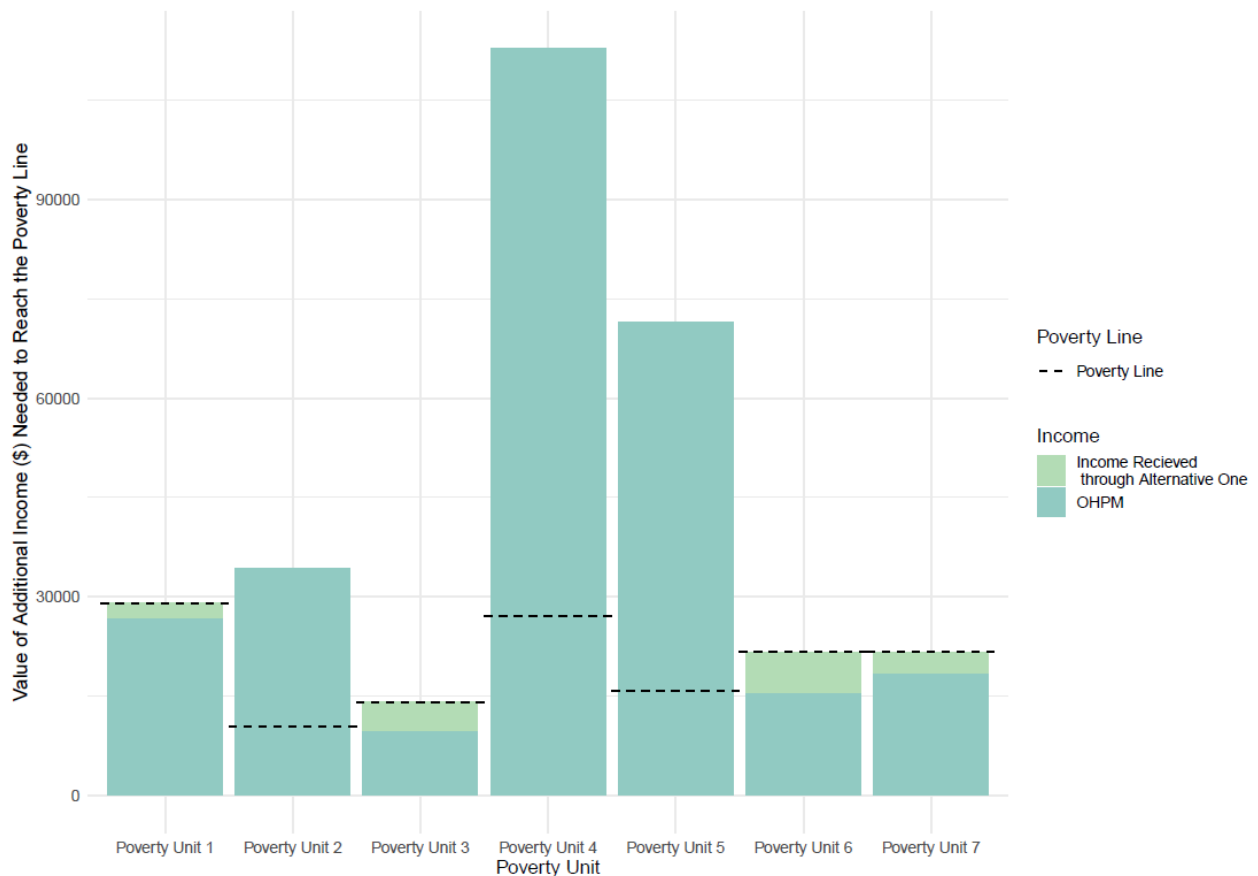
Alternative One: Transfers to Eliminate Poverty

The quickest way to alleviate poverty is to put cash into the pockets of the estimated 1.13 million Ohioans living at or below the OHPM poverty threshold. Figure 7 shows how this would work for an example of seven poverty units. The units with green bars that surpass their poverty line (vertical dashed lines) such as Poverty Units 2, 4, and 5 all do not qualify for the Alternative One cash transfer. The units that are living below their poverty line before the transfer (Units 1, 3, 6, and 7) received a cash transfer in the amount shown by the teal bar section that would increase their OHPM to equal their poverty line.

¹⁵ It is important to note the OHPM model does not account for the Ohio state EITC. This would likely have some impact on the poverty rate and additional calculations made using the OHPM model.

¹⁶ Congressional Research Service. (2018) The Earned Income Tax Credit (EITC): An Economic Analysis.

Figure 7: Example of Policy Alternative One with Seven Poverty Units
Figure shows how people who are in poverty receive a cash transfer in this alternative to make their effective income equal to their respective poverty lines.

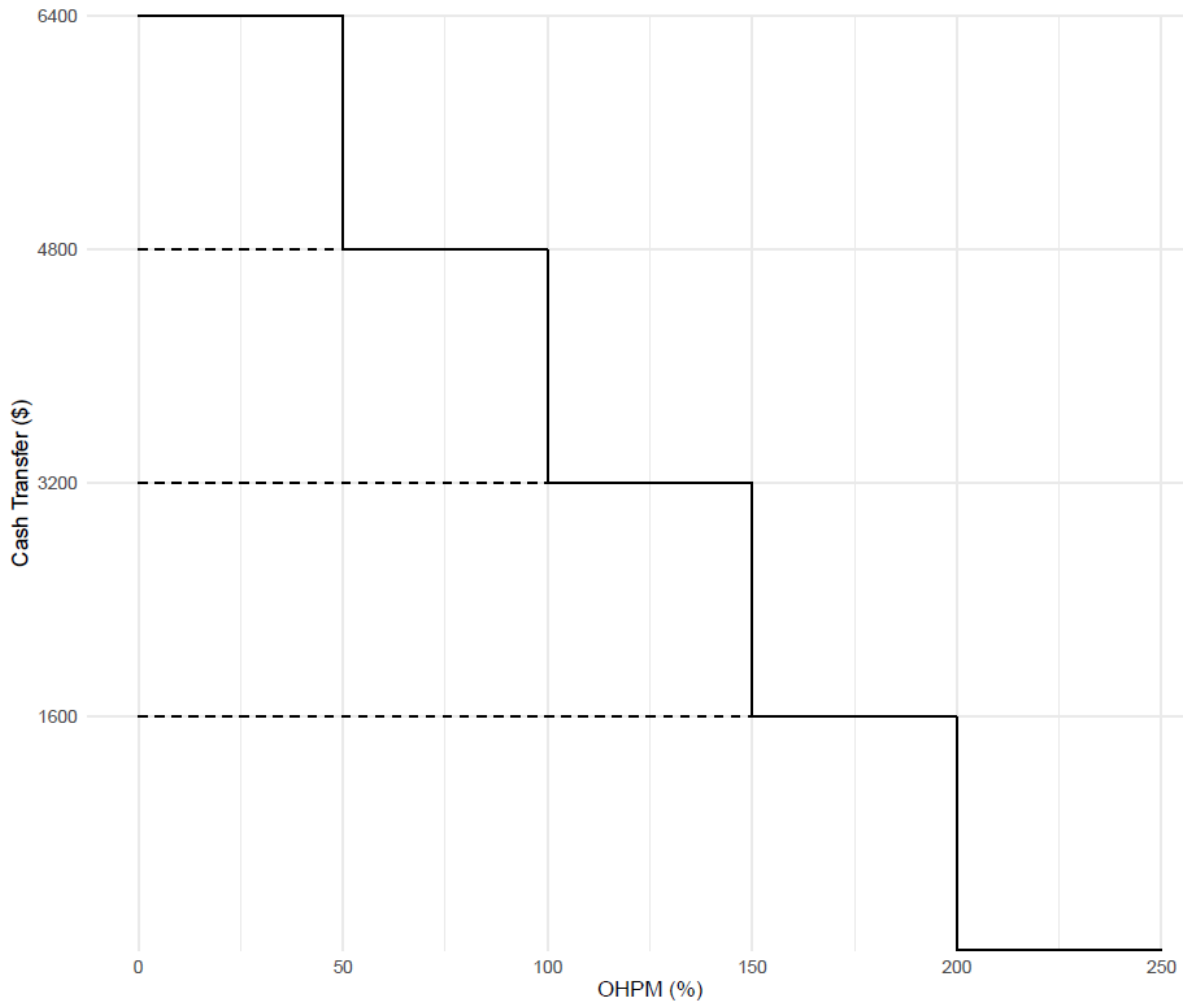


Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Alternative Two: Targeted Basic Income

Guaranteed income seeks to reduce poverty by raising a household's effective income through direct cash transfers to adult individuals. Table 7 explains the thresholds and transfer amounts and Figure 8 explains it graphically.

Figure 8: Explanation of Policy Alternative Two Eligibility and Transfers
Figure shows how the direct cash transfer amount changes with increasing OHPM values



Source: 2018 American Community Survey 5-year data
Authors' calculations based on the OHPM model

Table 7: Explanation of Transfer Amount Based on OHPM Percentage for Alternative Two

Created with the OHPM Model, table shows how the direct cash transfer amount changes with increasing OHPM values

OHPM Bracket	Amount of Benefit
0 - 50 percent OHPM	\$6400/yr benefit (max)
50 - 100 percent OHPM	\$4800/yr benefit (75 percent)
100 - 150 percent OHPM	\$3200/yr benefit (50 percent)
150 - 200 percent OHPM	\$1600 (25 percent)

An example of guaranteed income policy has been implemented in a trial period in Stockton, California. Their policy based their guaranteed income eligibility on the median income earned in the city. Stockton is giving its 125 trial participants \$500 for 24 months. Their preliminary results look promising with the treatment group showing statistically significant improvements in emotional health, a 12 percent increase in full-time employment,¹⁷ as well as many testimonies that say that the program improved their household’s food and financial security. The policy alternative we are putting forth for Ohio bases its eligibility using percentages of the OHPM threshold to create four bracket categories. Guaranteed income is an attractive alternative because it includes a large proportion of Ohioans and helps people above as well as below the poverty line.

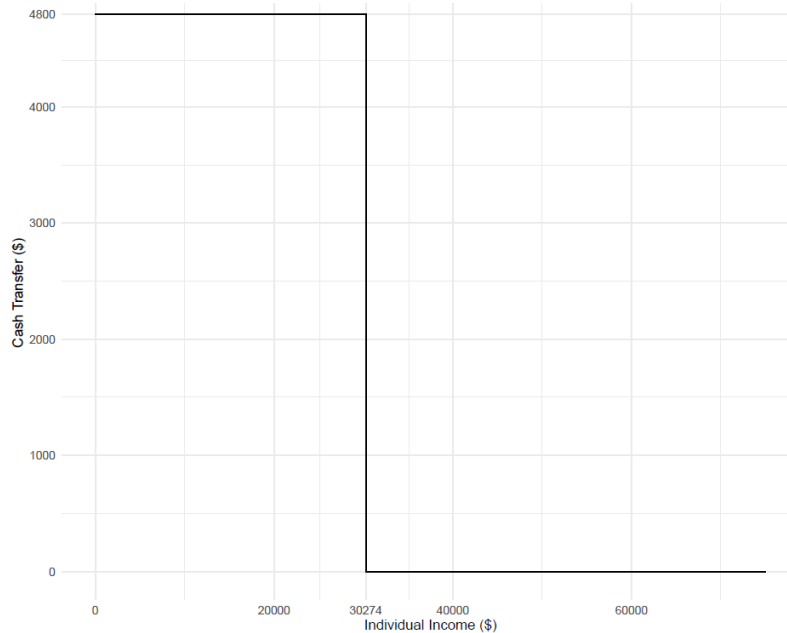
Alternative Three: Transfers for People Living in Deep Poverty

Ohioans living in deep poverty are currently the most disadvantaged by the existing safety net since the most-effective benefit program is the Earned Income Tax Credit, which requires income to qualify. Data show that the harms outlined earlier are compounded for those living in deep poverty. Increasing access to cash for those living in deep poverty can open up opportunities for recipients and their families.

Figure 9 below demonstrates how this flat rate transfer would work. All those who earn less than \$30, 274 (half of the maximum income for individuals living in poverty) would receive this cash transfer.

¹⁷ West, S., Castro Baker, A., Samra, S., Coltrera, E. (2021). Stockton Economic Empowerment Demonstration. Preliminary Analysis: SEED’S First Year. https://static1.squarespace.com/static/6039d612b17d055cac14070f/t/603ef1194c474b329f33c329/1614737690661/SEED_Preliminary+Analysis-SEEDs+First+Year_Final+Report_Individual+Pages+-2.pdf

Figure 9: Explanation of Policy Alternative Three Eligibility and Transfers
Figure shows how the direct cash transfer eligibility changes with increasing OHPM



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

IV. Analysis Criteria

Each of these policy alternatives will be evaluated based on three criteria outlined below. Policies are rated on a scale of 1-5 for each criteria and weighted by priority per the objectives outlined earlier. After rating the status quo based off of these criteria, we determined scores for the alternatives by using the status quo as a baseline. Each proposal is then assigned a final rating based on the weighted sum of these three evaluative criteria.

Equity | weighted at 40 percent

This criteria will consider the distributional costs and benefits of each proposal and their likelihood to adequately improve the economic standings of the following categories:

- Race
- Urban/Rural
- Households with Children

Effectiveness | weighted at 35 percent

This criteria will explore the efficacy of each proposal by comparing the total number of individuals who move above the poverty line, the number of individuals in each economic grouping detailed in Table 2 and by comparing the change in median income in each economic grouping. The median income for all individuals living in poverty is \$11,102.

Cost Effectiveness | weighted at 25 percent

This criteria will evaluate the costs implicated by implementing each proposal. Key considerations here will be cash transfer costs, administrative burden, existing infrastructure, and program development and management.

V. Solutions Analysis

Status Quo

See Section III, Tables 2-5 and Figures 1-6 for more information about the status quo.

Equity: Nearly 1 in 4 Black Ohioans live in poverty despite making up only 13.1 percent of Ohio's population. Urban centers and rural parts of Ohio that overlap with Appalachia are disproportionately affected by higher poverty rates. *Score: 1*

Effectiveness: Less than half a million Ohioans are moved out of poverty by the existing benefit programs that largely rely on federal policy. This leaves 1.13 million people in poverty. *Score: 2*

Cost Effectiveness: A patchwork of existing policies makes identifying overall cost challenging, however federal estimations of the cost effectiveness of safety net benefit programs suggest the costs do not outweigh the social benefits. *Score: 2*

Alternative One: Transfers to Eliminate Poverty

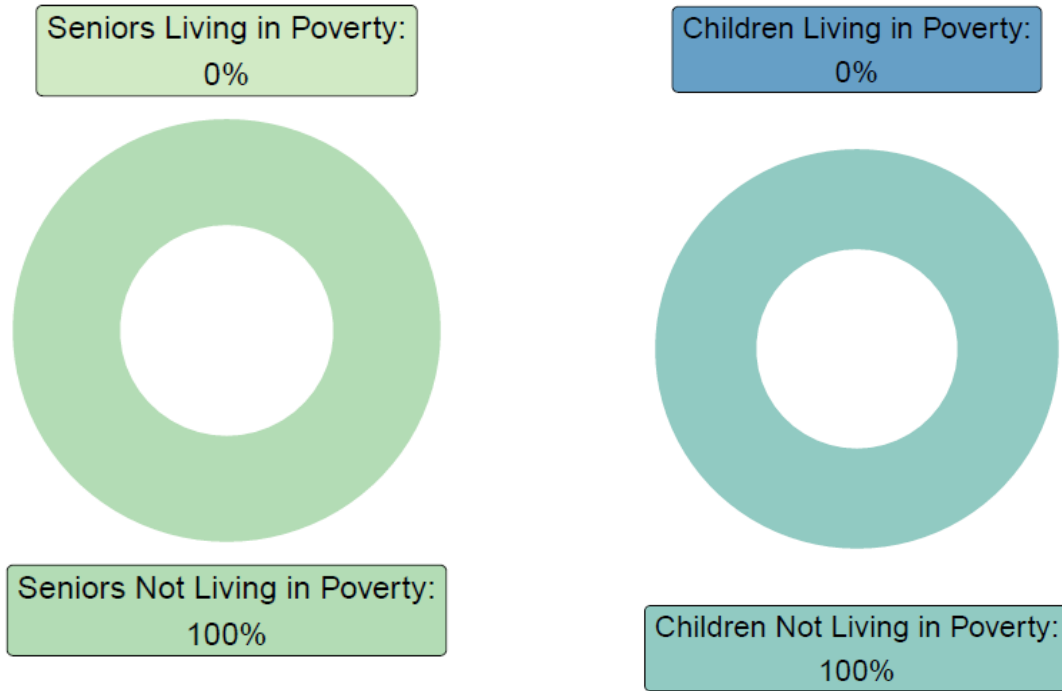
Our simulation of transfers to eliminate poverty estimated this alternative would reduce poverty to 0 percent, provide cash transfers to 1.13 million Ohio adults (9.68 percent of Ohioans), and cost \$9.8 billion in direct transfer costs. This amounts to an average cost of \$8,637.87 per person moved across the poverty line. These transfers would be annual payments that would amount to 1.45% of Ohio's annual gross domestic product (GDP).¹⁸

Equity: Since this policy would eliminate poverty for all Ohioans, it would also eliminate the gap in poverty rate between white and Black Ohioans seniors and children, and those living in urban and rural areas (Figure 10, Figure 11). However, because this program is race-neutral, this policy will not directly address the systemic and structural inequities that persist for Black Ohioans and other Ohioans of color. This may result in disparate outcomes for Ohioans of color who may have less access to steady and safe employment, housing, healthcare, education, and other resources and markets. We expect Ohioans in Appalachia and in dense city centers may also have similar disadvantages in accessing resources and markets when compared to their suburban counterparts. *Score: 4.5*

¹⁸ For calculating this percentage we used Ohio's 2018 gross domestic product: \$676.1 billion. Cite: Ohio Development Service Agency's Research Office. (2020). The Ohio Poverty Report.

Figure 10: Child and Senior Poverty in Alternative One

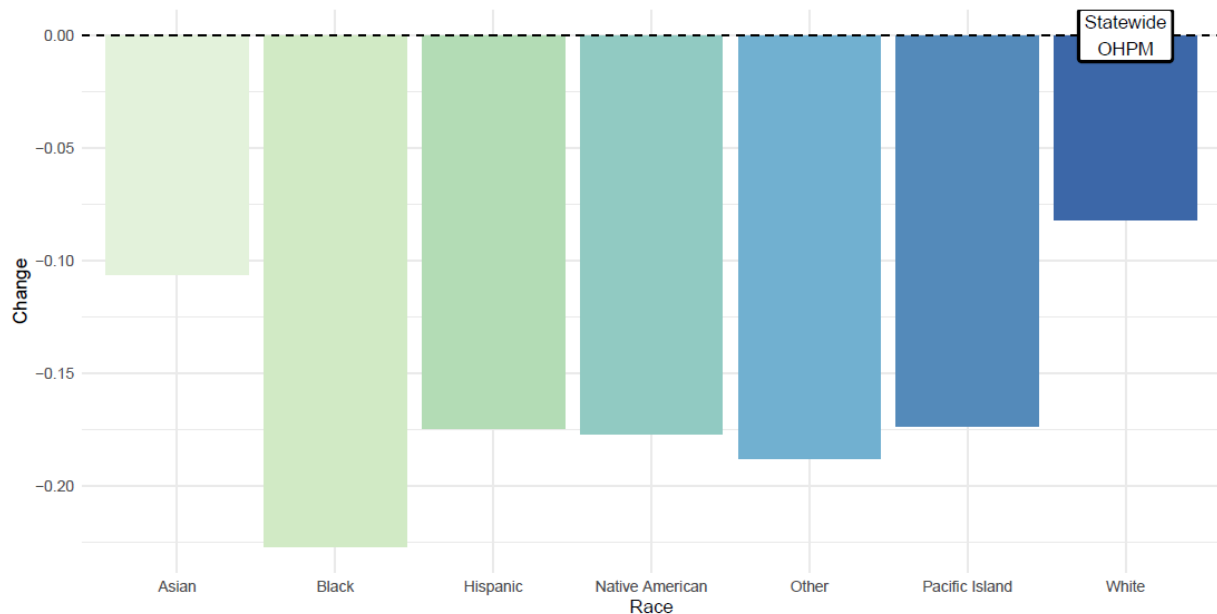
Figure shows how alternative one reduces child and senior poverty to 0 percent



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Figure 11: Changes in Poverty Rate by Racial Group with Alternative One

Figure shows how alternative one reduces overall poverty to 0 percent

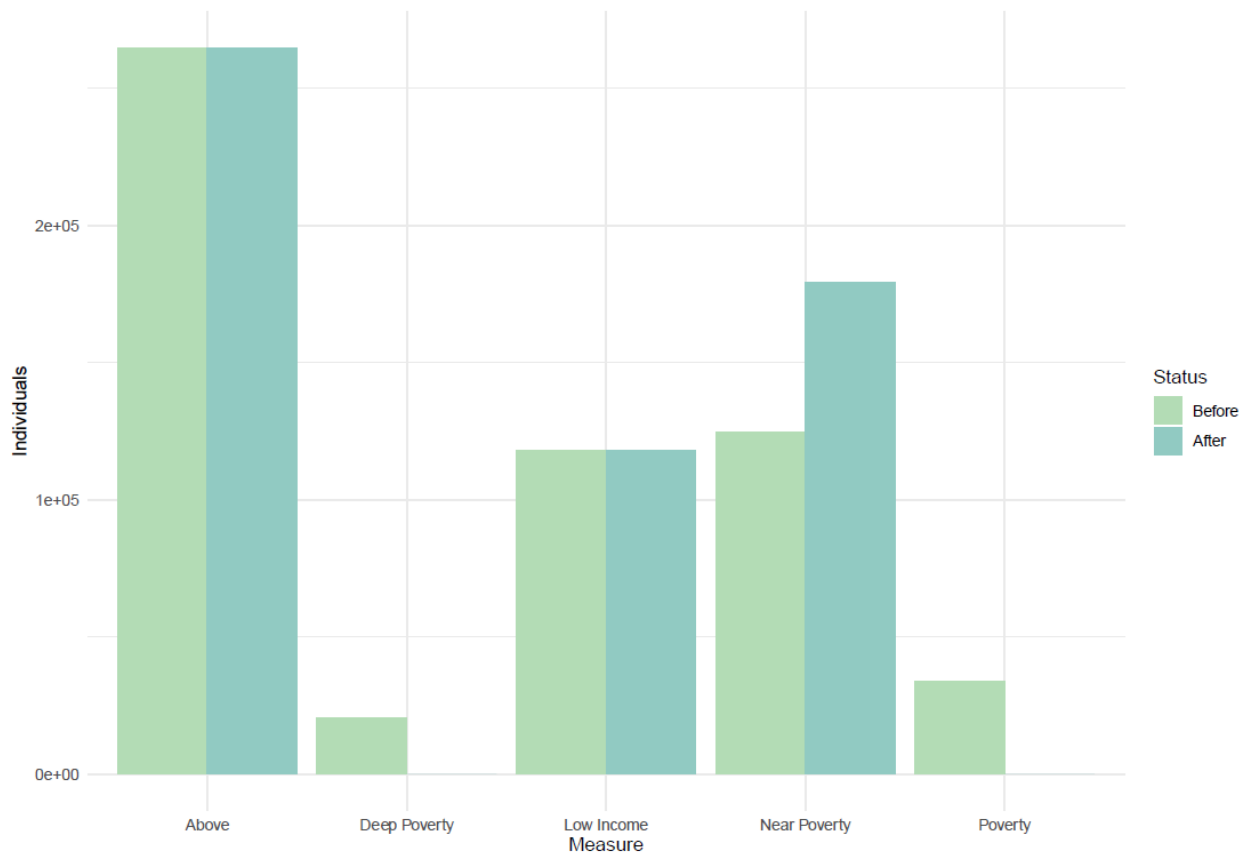


Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Effectiveness: This program would enable every Ohioan to leave poverty, amounting to 1.13 million people above the Ohio Poverty Measure threshold. While this program would be transformative, it would not guarantee a path towards stable employment and regular income outside of receiving this benefit, leaving uncertainty over the medium and long-term impact of a policy that takes the impoverished population and places them in the low-income bracket (Figure 12). However, we can be confident that this would increase the quality of life and opportunities for the 1.13 million Ohioans affected by this policy. *Score: 4.5*

Figure 12: Changes in Economic Group with Alternative One

Figure shows how alternative 1 reduces people in poverty to 0 percent, now all individuals are near poverty, low-income, or above



Source: 2018 American Community Survey 5-year data

Authors' calculations based on the OHPM model

Cost Effectiveness: To implement this program statewide would cost \$9.8 billion in cash transfers, in addition to some administrative costs. This amounts to \$8,637.87 per person moved across the poverty line not including administration. This is significantly more costly than existing programs; however, the amount of households reached by this policy would be much higher than the status quo. *Score: 3.5*

Alternative Two: Targeted Basic Income

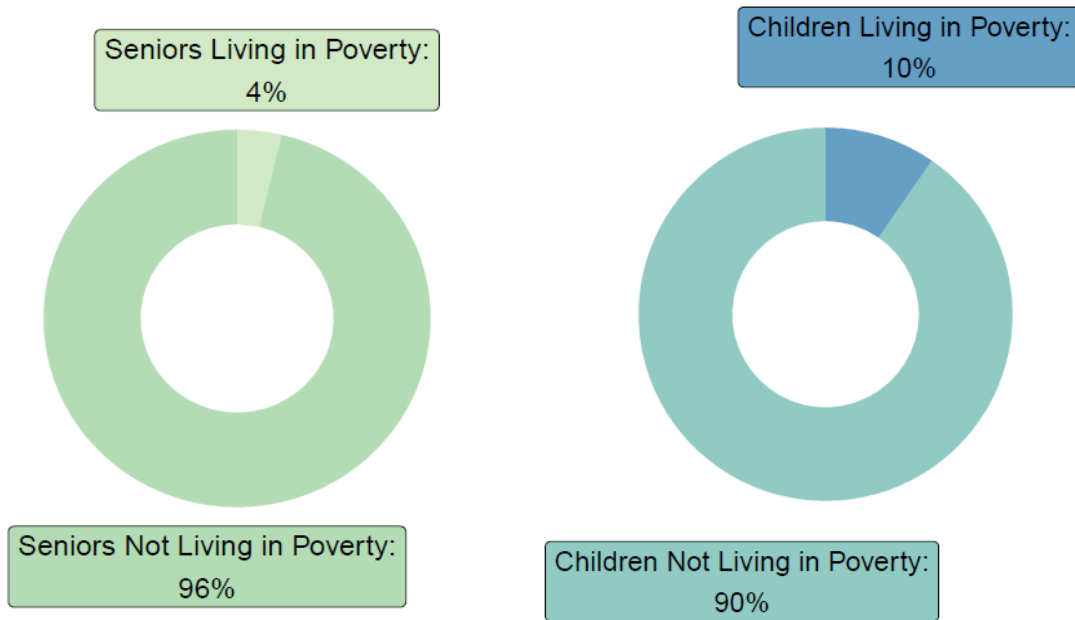
The targeted basic income policy alternative simulation cuts poverty by a third, resulting in a new poverty rate of 5.9 percent. It provides cash transfers to 3,727,181 Ohio adults (31.9 percent of Ohioans) ranging from \$1600-6400 based on poverty status (see table 6). The targeted basic income policy would cost \$12.2 billion annually in direct transfers. This amounts to 1.8% of Ohio’s GDP and is an average transfer of \$27,988.55 per Ohioan receiving a benefit.

Equity: This policy would reduce the size of the gap between Black and white Ohioans living in poverty (Figure 14). It would also lead to significant reductions in poverty in both the urban and rural regions of the state most affected by poverty (Figure 15, Table 8). Additionally, this program's wider scope would increase the access to cash for Ohioans that are not in poverty, but are near the poverty line or in lower income communities. Although this program is not directly targeted at those currently living in poverty, it still reduces the state poverty rate to 5.9 percent. Alternative two reduces the senior and child poverty rate to 4 percent and 10 percent respectively (Figure 13).

Score: 4

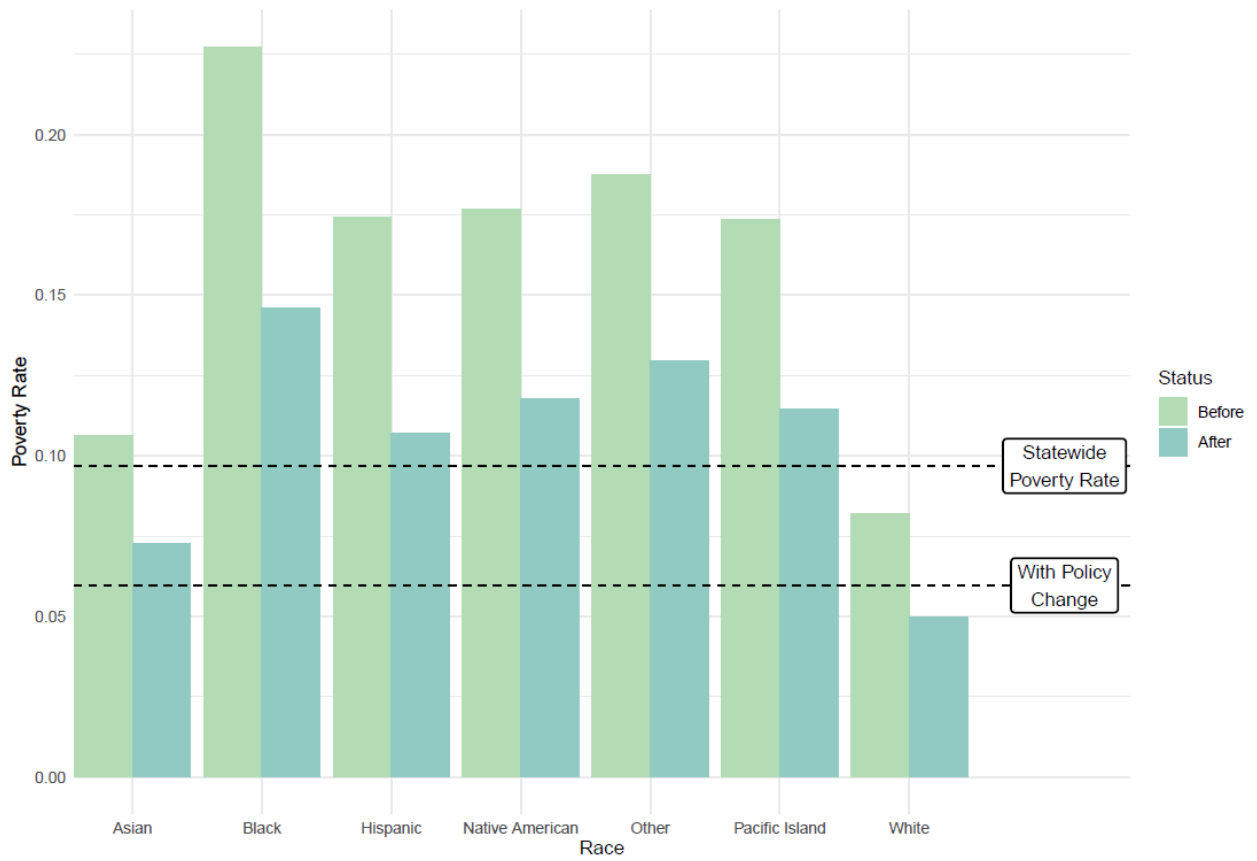
Figure 13: Child and Senior Poverty in Alternative Two

Figure shows how alternative two reduces child and senior poverty to 4 percent and 10 percent respectively



Source: 2018 American Community Survey 5-year data
Authors’ calculations based on the OHPM model

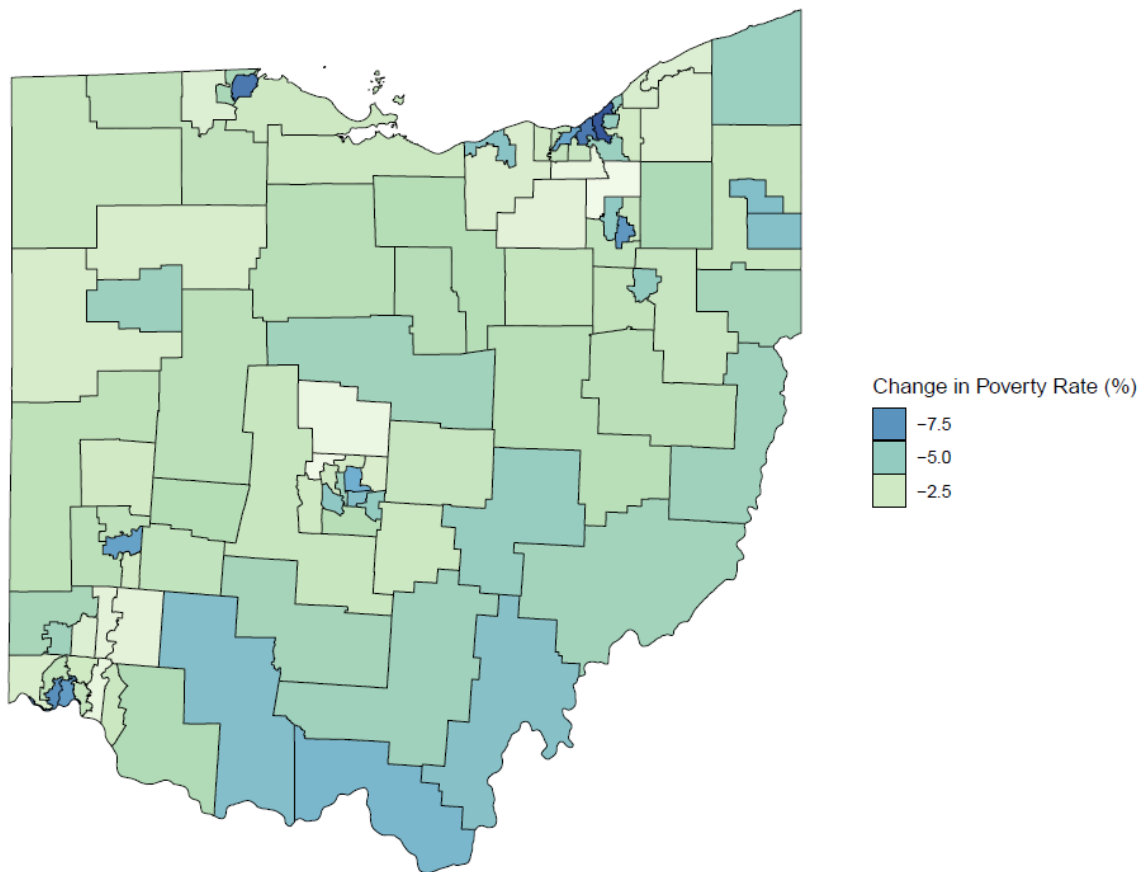
Figure 14: Changes in Poverty Rate by Racial Group with Alternative Two
Figure shows how alternative two reduces poverty rate across all racial groups



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Figure 15: Changes in Poverty Rate by PUMA with Alternative Two

Figure shows how alternative two reduces poverty rate across all PUMAS and where it is most effective



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Table 8: Highest and Lowest Poverty Rates by PUMA in Alternative Two

Created with OHPM Model, shows that the lowest poverty rate is in the suburbs of Cleveland and the highest is in urban Toledo

	Location	Individuals	Percent
Lowest Poverty Rate	00903- Cuyahoga County (South)--Broadview Heights, North Royalton & Strongsville Cities	117	2.27%
Highest Poverty Rate	00500- Toledo City (East)	1,014	16.0%

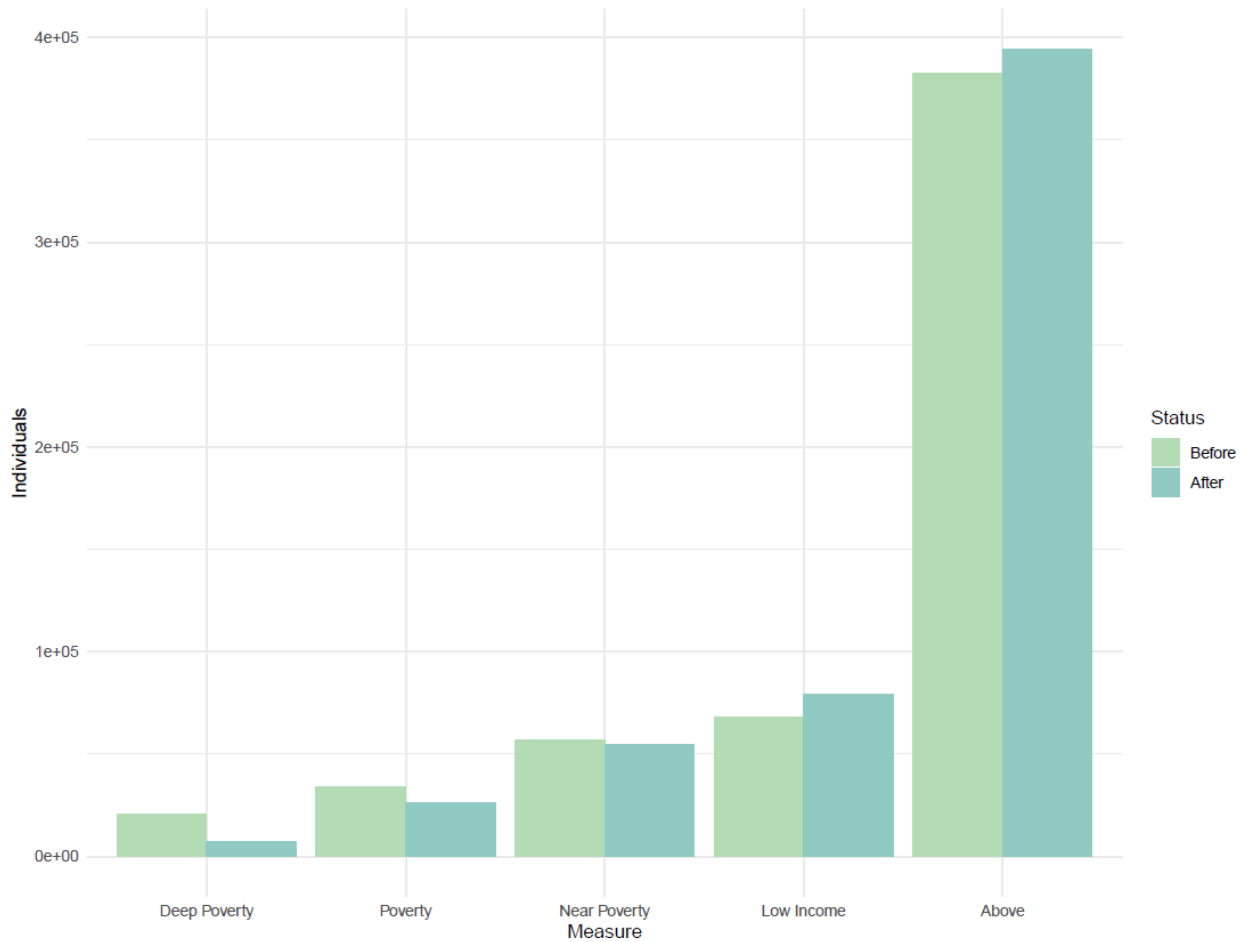
Effectiveness: Alternative two moved individuals from lower economic groupings to higher ones (Figure 16). Deep Poverty and Poverty all saw a decrease, leading to

increases in the Near Poverty and Low Income populations. Table 9 below shows how the median incomes of adults benefiting from the program increased.

Score: 3

Figure 16: Impact of Guaranteed Income on Poverty in Ohio with Alternative Two

Figure shows that cash transfers help reduce the amount of people in deep poverty and poverty



Source: 2018 American Community Survey 5-year data

Authors' calculations based on the OHPM model

Table 9: Impact of Guaranteed Income on Poverty in Ohio with Alternative Two

Created with OHPM Model, shows that the median incomes of all people in program increases

Economic Groupings at Time of Policy Implementation	Median Adult Income Before Policy	Median Adult Income After Policy
Deep Poverty	\$4,918	\$11,318
Poverty	\$14,900	\$19,700
Near Poverty	\$26,641	\$29,841
Low Income	\$39,674	\$41,274
Above	\$91,032	\$91,032

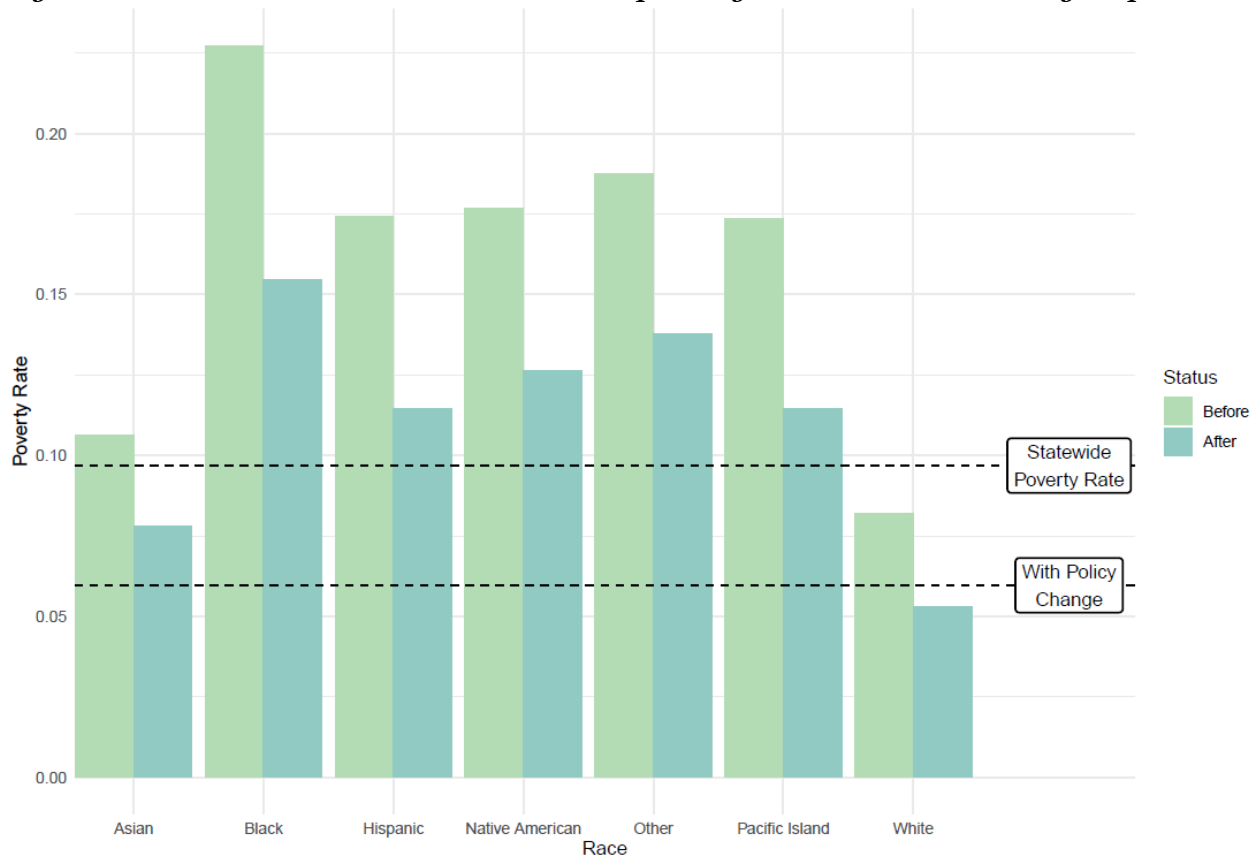
Cost Effectiveness: For the entire state of Ohio, we predict that this program would cost \$12.2 billion dollars without accounting for administration costs. Using this strategy, each percentage decrease in poverty costs \$157.2 million and helps 5,618 individuals. Another way to look at its cost-effectiveness is that to remove one person from poverty, it will, on average, cost the state \$27,988.55. *Score: 2*

Alternative Three: Transfers for Individuals Living in Deep Poverty

The simulation for transfers for individuals living in deep poverty policy estimated the alternative would reduce poverty in the state of Ohio to 6.3 percent by giving cash transfers of \$4800 each to 2,302,597 Ohio adults. This policy results in an \$11 billion annual expenditure, 1.6% of Ohio’s GDP.

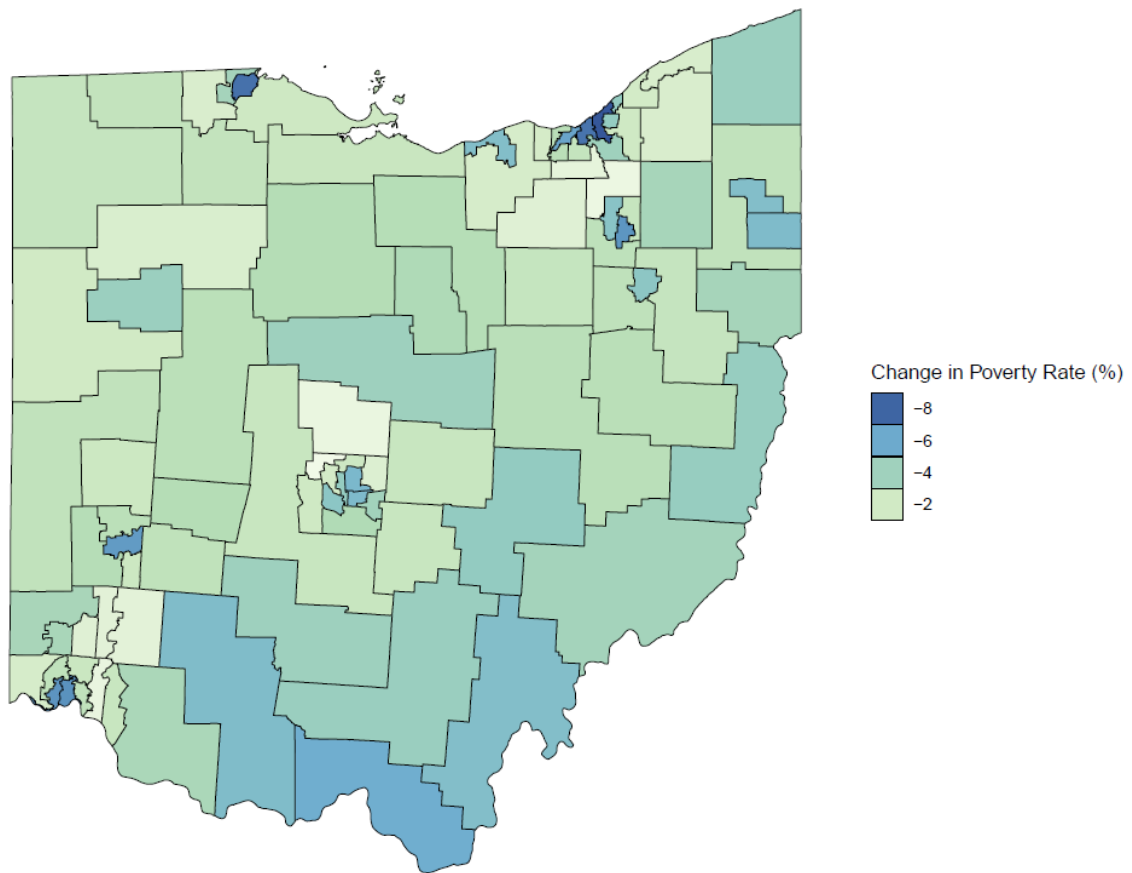
Equity: Similarly to alternative two, transfers to individuals living in deep poverty reduced the size of inequity experienced by Black Ohioans and other nonwhite Ohioans living in poverty when compared to white Ohioans (Figure 17). It also led to reductions in poverty for those living in areas particularly afflicted with a high poverty rate (Figure 18, Table 10). By its design, this alternative targeted the most disadvantaged Ohioans as far as access to cash, but it excluded the majority of Ohioans living in poverty and those with low incomes who are above the poverty threshold. It resulted in the same percentage decrease in poverty rate for children and seniors. *Score: 3.5*

Figure 17: Changes in Poverty Rate by Racial Group with Alternative Three
Figure shows how alternative three reduces poverty rate across all racial groups



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Figure 18: Changes in Poverty Rate by PUMA with Alternative Three
Figure shows how alternative three reduces poverty rate across all PUMAS and where it is most effective



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Table 10: Highest and Lowest Poverty Rates by PUMA in Alternative Three
Created with OHPM Model, shows that the lowest poverty rate is in the suburbs of Cleveland and the highest is in Toledo

	Location	Individuals	Percent
Lowest Poverty Rate	00903- Cuyahoga County (South)--Broadview Heights, North Royalton & Strongsville Cities	126	2.44%
Highest Poverty Rate	00500- Toledo City (East)	1,052	16.6%

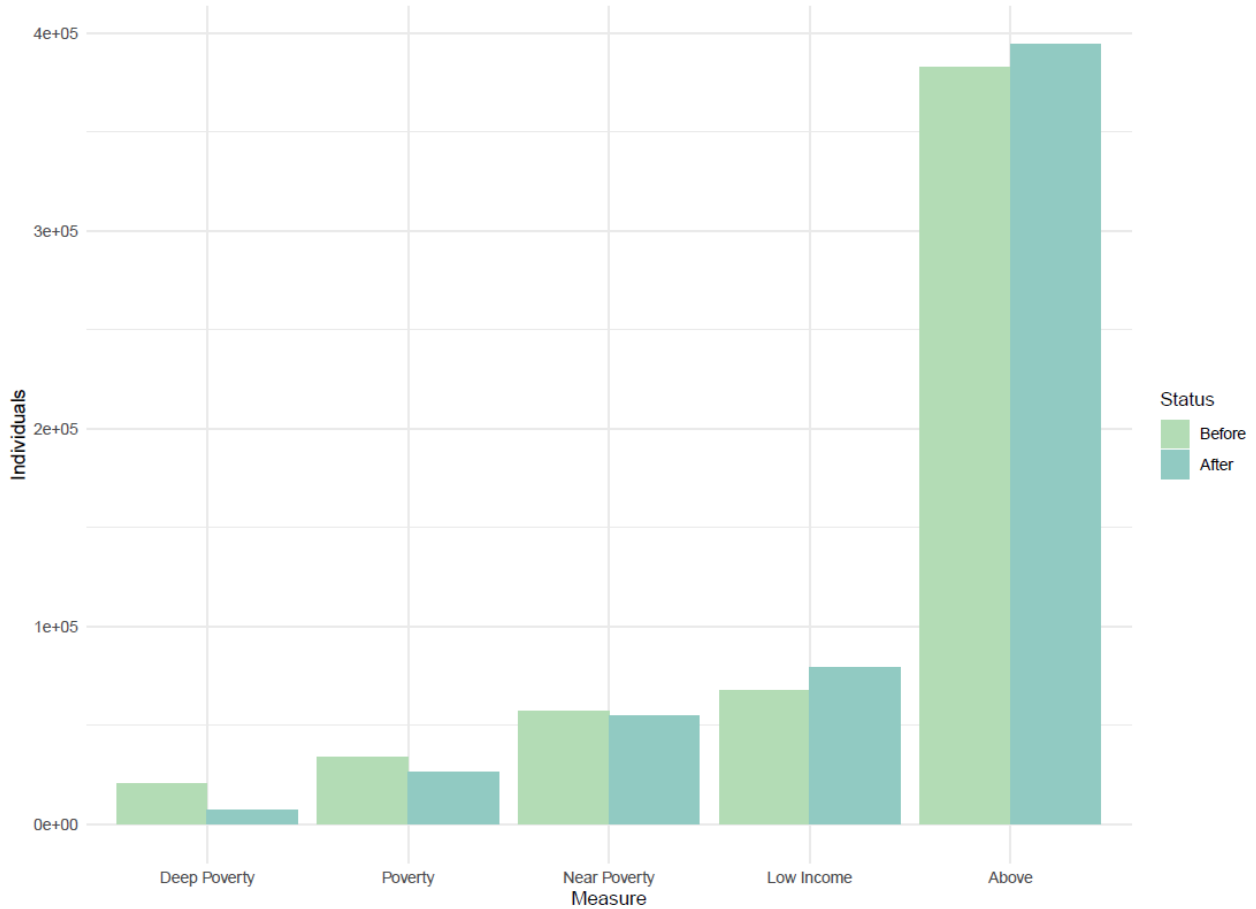
Effectiveness: This program was the least effective at reducing the overall poverty rate in the state, bringing it down to 6.3 percent, which is still a 3.38 percent reduction. It also

decreased the amount of people in deep poverty and raised those individuals' median income by \$4,800 (Figure 19, Table 11). As a result, this policy proposal is significantly more effective than the status quo and was the alternative that moved the most people to above the low-income threshold.

Score: 3

Figure 19: Impact of Deep Poverty Cash Transfers on Poverty in Ohio with Alternative Three

Figure shows that cash transfers help reduce the amount of people in deep poverty and poverty



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Table 11: Impact of Deep Poverty Cash Transfers on Poverty in Ohio with Alternative Three

Created with OHPM Model, shows that the median incomes of all people in program increases

Economic Groupings at Time of Policy Implementation	Median Adult Income Before Policy	Median Adult Income After Policy
Deep Poverty	\$4,918	\$9,718
Poverty	\$14,900	\$19,700
Near Poverty	\$26,641	\$30,984
Low Income	\$39,674	\$39,674
Above	\$91,032	\$91,032

Cost Effectiveness:

This program would ultimately cost \$11.1 billion and move 389,841 Ohioans out of poverty, this comes out to be \$28,351.18 per person. Making it more cost-effective than the Targeted Basic Income proposal, but roughly \$20,000 more per person than the first alternative. *Score: 2.5*

Weighted Scoring

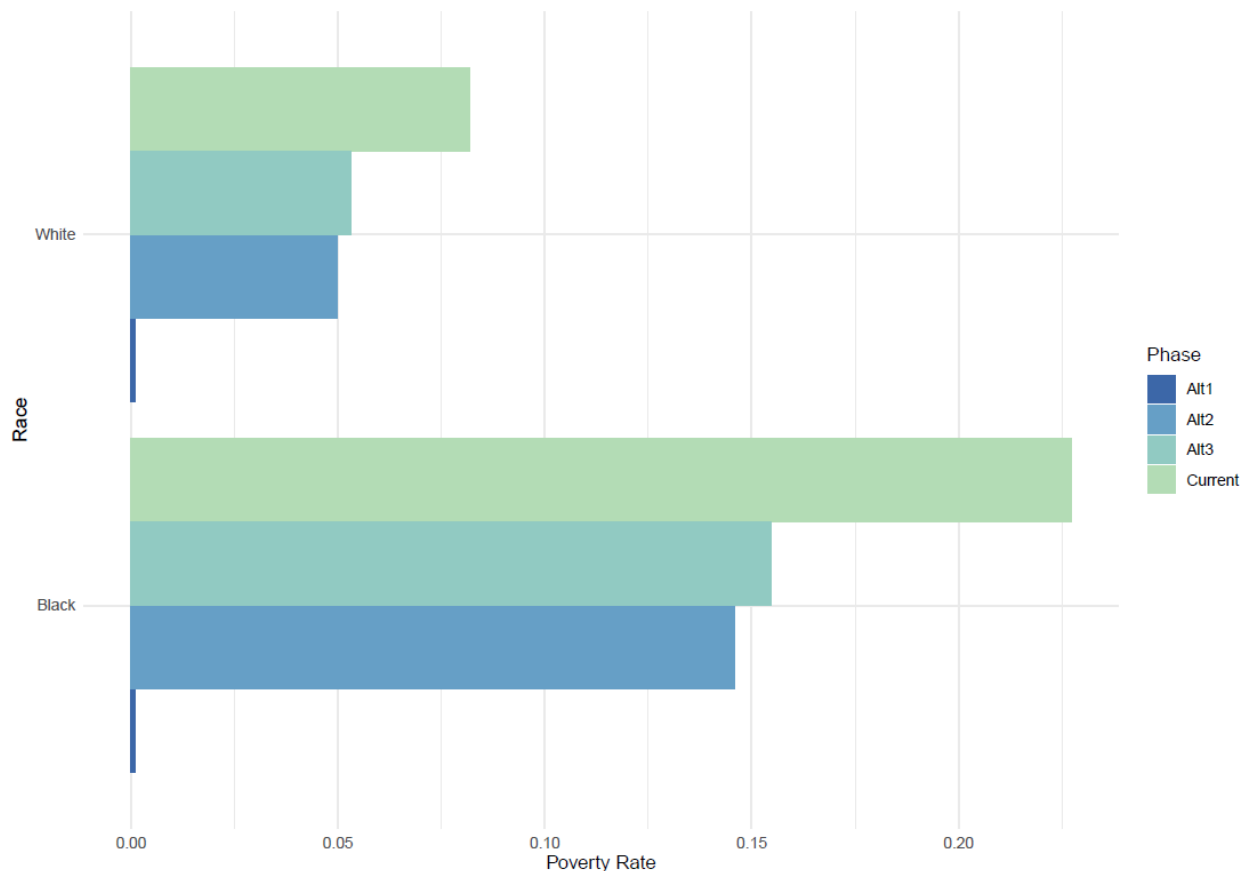
	Equity	Effectiveness	Cost Effectiveness	Total
Status Quo	$1 * 0.4 = 0.4$	$2 * 0.35 = 0.7$	$2 * 0.25 =$	1.6
Eliminate Poverty	$4.5 * 0.4 = 1.8$	$4.5 * 0.35 = 1.6$	$3.5 * 0.25 = 0.88$	4.28
Targeted Basic Income	$4 * 0.4 = 1.6$	$3 * 0.35 = 1.05$	$2 * 0.25 = 0.5$	3.15
People in Deep Poverty	$3.5 * 0.4 = 1.4$	$3 * 0.35 = 1.05$	$2.5 * 0.25 = 0.63$	3.08

VI. Recommendation

Our analysis finds the most equitable, effective, and cost-efficient alternative is Alternative One: Transfers to Eliminate Poverty. A comparison of the alternative programs' impact on poverty rate by race is shown in Figure 20. This program would reduce poverty in the state by 100 percent.

Figure 20: Comparison of All Three Alternatives and the Status Quo on Poverty Rate for Black and White Individuals

Figure shows that all alternatives reduce the racial poverty divide and that alternative one is the most equitable



Source: 2018 American Community Survey 5-year data
 Authors' calculations based on the OHPM model

Funding the Cash Transfers

Ohio presently has no corporate income tax.¹⁹ If levied only on publicly traded companies in Ohio, 21.1 percent corporate tax could raise the \$9.8 billion needed to fund the cash transfers. This is based on the 2018 net income for all publicly traded companies in Ohio.²⁰ Realistically, we anticipate implementing a lower tax rate on all corporations in Ohio, public and private, to fund the poverty elimination program.

¹⁹ According to research and analysis from the Tax Policy Center, while Ohio does not levy corporate income taxes generally there are a subset of corporations that are the exception. They also impose a Commercial Activity Tax based on gross receipts, but it is an insignificant amount of taxation (\$150 for those in Ohio with gross receipts between \$150,000 and 1 million), with the max being an additional 0.26 percent of gross receipts over \$1 million. Banks also pay a franchise tax of 1.3 percent of their net worth as well as a litter tax. Cite: Tax Policy Center. (2021). State Corporate Income Tax Rates. Retrieved 2 May 2021, from <https://www.taxpolicycenter.org/statistics/state-corporate-income-tax-rates>

²⁰ We were not able to efficiently and accurately estimate the annual net incomes of privately owned companies.

VII. Conclusion

We set out to build a better poverty measure for Ohio and model a policy solution to reduce poverty. We built the Ohio Poverty Measure (OHPM) from the American Community Survey and Current Population Survey. The model created a more granular and accurate poverty measure for the state of Ohio and estimated that 9.68 percent of Ohioans are living in poverty. We used this data set and the OHPM to model the impact of several different cash transfer policies. We found the most effective, efficient, and equitable policy to be a cash transfer that completely eliminates poverty in Ohio through a \$9.8 billion transfer that ensures every Ohio household is over their OHPM poverty threshold.

This policy could be funded through a 21.1 percent tax on publicly held corporations in Ohio. The exact mechanism of a tax and estimation of privately held corporate profits was beyond the scope of this memo and requires further research. Additionally, we recommend further research on the implementation side of such a cash transfer, and long term projections. We anticipate that the annual transfer would not remain at \$9.8 billion, but decline as additional Ohioans enter the labor market, and are able use this transfer to improve their long term economic outlook. Further research is needed in how annual cash transfers may generate inflation over time and modeling cash transfer amounts beyond year one of the policy.

Most importantly, our findings show that it is feasible for Ohio to completely eliminate poverty. The OHPM offers an opportunity for other researchers and policy makers to continue to work on poverty reduction policies towards the goal of a 0 percent poverty rate.

VIII. Technical Appendix

Data Analysis Process

1. Download IPUMS Data
 - a. Current Population Survey (CPS)
 - i. 2018 5-Year
 - b. American Community Survey (ACS)
 - i. 2018 5-Year Survey
 - ii. Need variables from IPUMS that were selected to make ipums.csv document
2. Process Data Through Each Model Section (9 in Total)
 - a. Each code calculates related variables needed to calculate the poverty index
 - i. Code translates demographic information into family/poverty units and aligns code to be compatible with TAXSIM
3. Calculate Poverty Index
 - a. Determine state of poverty given inputs
4. Model Policy Alternatives

Ohio Poverty Measure

Resources	Expenses	Net Tax Liability
Pre-tax cash income <ul style="list-style-type: none"> • Variable: hhincome • In OG ACS data 	MOOP <ul style="list-style-type: none"> • Variable: acs_moop • Made in MOOP.rmd 	Tax provisions (the combination of taxes paid including income and payroll taxes, as well as tax credits and refunds); tax credits include EITC <ul style="list-style-type: none"> • This entire chunk will be taxsim code • Add tax credits + refunds and subtract taxes for net tax liability
Housing Subsidies <ul style="list-style-type: none"> • Variable: pov_unit_house_sub_val (at unit poverty variable) • Made in Housing.rmd 	Transportation <ul style="list-style-type: none"> • Variable: unit_commute_exp • Made in work.rmd 	
SNAP <ul style="list-style-type: none"> • Variable: ann_snap_benefit (annual SNAP benefit for the household= poverty unit) • Made in SNAP.rmd 	Childcare <ul style="list-style-type: none"> • Variable: childcare_exp • Made in childcare.rmd 	

School Meals <ul style="list-style-type: none"> • Variable: free_lunch_value + free_break_value • Made in School Lunch.rmd 	
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WIC and LIHEAP are not currently included in the model.

Estimating Revenue from a Corporate Income Tax

Privately Owned Corporations Based in Ohio	2018 Annual Net Income (in millions)
Parker-Hannifin	1,061
CBIZ	62
Installed Building Products	372
Cardinal Health	287
Installed Building Products	55
Lincoln Electric Holdings	1,641
RPM International	334
Applied Industrial Technologies	55
Nordson Corp	377
Fifth Third Bancorp	2,118
Timken	303
TransDigm Group	901
Proctor and Gamble	9,485
Avient	160
Worthington Industries	195
Ferro Corp	80
EW Scripps	20
Teradata	30
Cintas	843
Sherwin-Williams	1,109

Alliance Data Systems	963
J.M. Smucker	1,332
Kroger	3,110
Scotts Miracle-Gro	64
Advanced Drainage Systems	56
First Financial Bancorp	173
Meridian Bioscience	24
Owens Corning	545
Park-Ohio Holdings Corp	54
Sotera Health	neg*
Commercial Vehicle Group	41
Dana Inc	427
Farmers National Bancorp	33
Greif Inc	209
Materion Corp	21
Welltower Inc	785
Diebold Nixdorf	neg
Huntington Bancshares	1,323
Owens-Illinois (O-I Glass)	257
Invacare	neg
KeyCorp	1,800
Premier Financial	191
American Electric Power	1,924
Goodyear Tire & Rubber Co	693
Myers Industries	neg
Olympic Steel	34
The Andersons	41
Lancaster Colony	135
Mettler-Toledo	513
TravelCenters of America	neg

United Community Financial	165
Vertiv Co	neg
Air Transport Services	69
AtriCure	neg
Babcock and Wilcox	neg
Big Lots	190
Covia Holdings	neg
Designer Brands Inc	67
FirstEnergy Corp	981
Mace Security International	2**
Peoples Bancorp	46
Preformed Line Products	27
Sifco Industries	neg
American Financial Group	530
Chemed Corp	206
Cleveland-Cliffs	1,128
Core Molding Technologies	neg
Design Milk	neg
Energy Focus	neg
LSI industries Inc	neg
Marathon Petroleum	2,780
Medspace Holdings	73
Progressive	2,594
QSAM Biosciences	neg
Ranpak Holdings Corp	neg
Rocky Brands	15
Verso	171
Avalon	62
Cedar Fair Entertainment	127
Cincinnati Financial	287

Civista Bancshares	92
Intellinetics	neg
Jo-Ann Stores	96.5***
LCNB	15
M/I Homes	108
MPLX	1,743
NACCO	35
Ohio Valley Bancorp	11.9
SB Financial Group	11
State Auto Financial	12
TFS Financial Corp	84
The Wendy's Company	460
Abercrombie & Fitch	7
Athersys	neg
Park National	110
Root, Inc	neg
The Gorman-Rupp	40
TimkenSteel	neg
Total Net Income (in millions):	\$46,483
Expected Revenue (in millions) After 21.1 percent Tax:	\$9,808
<i>Additional Notes:</i>	
Unless indicated otherwise, all numbers are in millions and are sourced from publically available 2018 data using macrotrends.net .	
* = negative net income	
** = 2020 Annual Net Income, 2018 data was not available.	
*** = Net Income was sourced from Crain's Akron Business (2021). Jo-Ann Stores to go Public. Retrieved May 1, 2021 from https://www.craainscleveland.com/retail/jo-ann-stores-go-public	

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