

Income Inequality in Ohio



Authored by:

Nithya Nagarathinam, Julia Rosales, and Diego Villegas

Table of Contents

Executive Summary	2
Introduction	3
Problem Definition	4
National Overview	4
Ohio Overview	5
Data	6
Income Inequality Metrics	7
Key Findings: Assessing Income Inequality in Ohio	8
Factors Associated with Income Inequality in Ohio	12
Policy Alternatives to Reduce Income Inequality	14
Status Quo	14
Fully Refundable Earned Income Tax Credit (EITC)	14
Raise the Minimum Wage	15
Ohio Negative Income Tax (ONIT)	16
Analysis Criteria	17
Policy Alternative Analysis and Microsimulations	17
Analyze Alternatives & Confront Tradeoffs	20
Analysis Conclusions	22
Discussion	23
References	24

Executive Summary

This study analyzes the impact of public policy options on inequality in the state of Ohio. Ohio has a state Gini coefficient of 0.45 which is slightly below the national value of 0.48. The top 1% of Ohioans earn 10% of the state's income while the bottom 50% earn 13%. Across most of the state the 90th percentile earner makes five to 9 times the 10th percentile earner, but there are parts of the state such as urban Cincinnati and Columbus where the 90th-percentile earner makes as much as 18 to 21 times as much as the 10th-percentile earner.

In the second part of the report, we define the problem of inequality in Ohio at the state and country level and present an analysis of policy solutions to mitigate income inequality in Ohio. We simulate projected outcomes of three different policies and we analyze their effects on income inequality using the Gini coefficient. The policy alternatives to status quo identified and evaluated in this report are:

1. Refundable EITC
2. Increasing the Minimum Wage of Ohio
3. Ohio Negative Income Tax (ONIT)

Our analysis and microsimulations show that making the EITC fully refundable would reduce the state level the Gini coefficient for household income by 4.4%; Increasing the minimum wage to \$15 from the current \$9.30 will reduce the state level Gini coefficient for household income by the same percentage; and a negative income tax will reduce the state level Gini coefficient for household income by 13%. However, we caveat our analysis by noting that the simulations do not fully account for all the confounding factors and therefore should be treated as an exploratory exercise.

Introduction

In Ohio, earners at the top 1% in the income distribution make roughly 19 times more than the rest of the population. This is an average annual income difference of \$812,800. Out of the 50 states in the US, Ohio ranks 29th in income inequality.¹ This trend in inequality in Ohio is consistent with the national trend. Since 1980, the Gini coefficient has risen 20% in the U.S, and the national income shares of the 1% compared to the bottom 50% have completely flipped. Forty years ago, the top 1% of the income distribution earned 10% of the national income and now holds 20%. On the other hand, the bottom 50% dropped from earning 20% of national income forty to roughly 13% today.²

In this report, we measure and assess income inequality in Ohio using the 2018 American Community Survey (ACS), data supplements from the 2018 Current Population Survey (CPS), and simulated tax liability data from the National Bureau of Economic Research.³ We also analyze policy alternatives aimed to reduce income inequality and provide estimates of their impact through a series of microsimulations using the dataset described above.

This report is organized into five sections. In the first section, we survey income inequality trends, present key findings from our primary data analysis which measures income inequality in the state of Ohio along differing dimensions, and discuss factors associated with income inequality. In the second section, we take our data insights from section one to construct three policy alternatives that aim to reduce income inequality in Ohio. In the third section, we present two criteria which we will use to evaluate policy solutions. In our fourth section, we analyze the proposed policy solutions by conducting microsimulations to project the estimated impacts of our proposed policy solutions on income inequality in Ohio. Section five presents the conclusions of our analysis.

Problem Definition

National Overview

Although the United States economy has grown over the years, the benefits of the United States' economic growth have been disproportionately captured by the most well-off Americans. Figure 1 illustrates how individuals of all income levels experienced relatively proportional income

¹ Sommeiller, Estelle, and Mark Price. 2018. "The New Gilded Age: Income Inequality in the U.S. by State, Metropolitan Area, and County." Economic Policy Institute (blog). Accessed January 29, 2022.

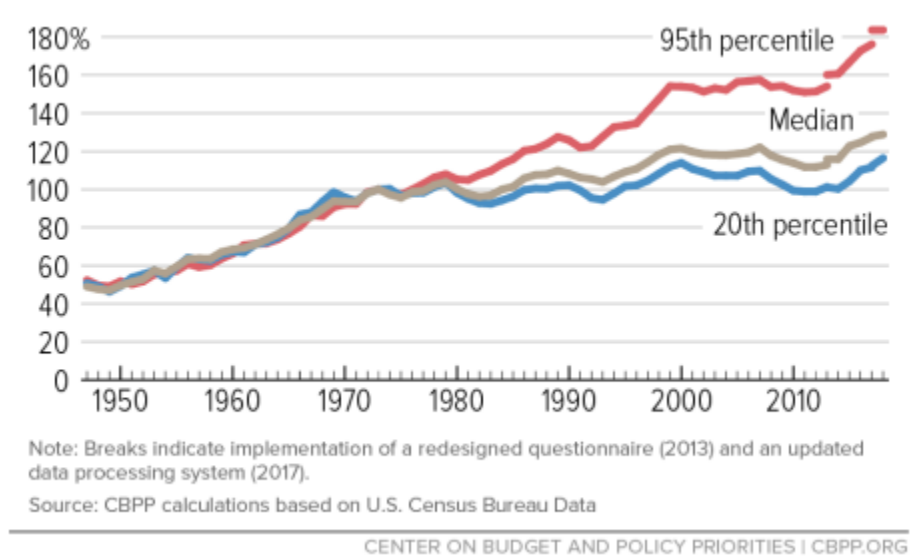
² Alvaredo, Facundo, Chancel, Pickety, Saez, Zucman. 2018. "World Inequality Report." World Inequality Lab.

³ Feenberg, Daniel Richard, and Elizabeth Coutts, An Introduction to the TAXSIM Model, Journal of Policy Analysis and Management vol 12 no 1, Winter 1993, pages 189-194.

growth between 1950 and the mid-to-late 1970s.⁴ Between the late 1970s and early 1980s, this began to change as the income gained by those at the top of the income distribution continued to grow but the income gained by those at the middle or the bottom of the distribution began to stagnate.⁵

Figure 1: Income Gains Widely Shared in Early Postwar Decades—But Not Since Then ⁶

Figure shows the real family income gain between 1947 and 2018, as a percentage of 1973 levels



The unequal increases in income over the years has led to a United States that is experiencing increasing economic inequality due to a large concentration of income among the nation’s highest earning individuals/households. Figure 2 illustrates that despite the downward trend in income concentration between the early 1930s and the late 1960s, the U.S. is now reaching levels of income concentration that are comparable to the peak income concentration levels witnessed in 1928.⁷ While all states are experiencing some degree of income inequality that closely resembles the overall national trends, the level of income inequality varies considerably from state to state. The remainder of this section will seek to assess the level of income inequality experienced by Ohio.

Figure 2: US Income Concentration at the Top Has Risen Sharply Since the 1970s ⁸

Figure shows the share of total before-tax income flowing to the highest income households (including capital gains) from 1913 - 2018

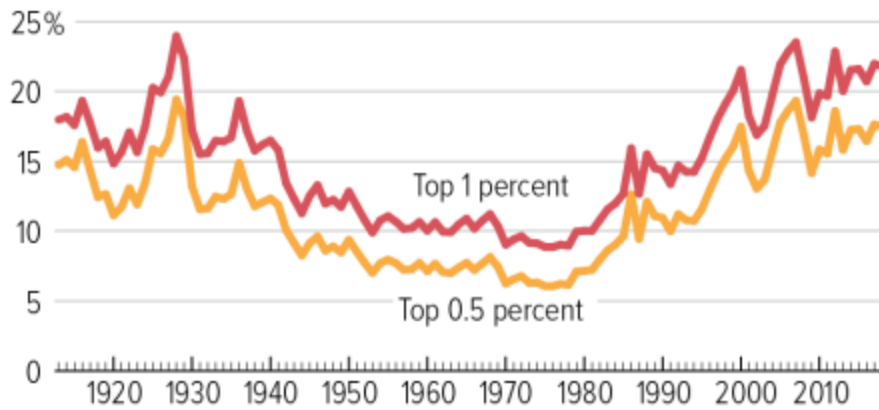
⁴ Stone, Chad, Danilo Trisi, Arloc Sherman, and Jennifer Beltrán. “A Guide to Statistics on Historical Trends in Income Inequality.” Center on Budget and Policy Priorities, January 13, 2020. https://www.cbpp.org/sites/default/files/atoms/files/11-28-11pov_0.pdf.

⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.



Source: Emmanuel Saez, based on IRS data

CENTER ON BUDGET AND POLICY PRIORITIES | CBPP.ORG

Ohio Overview

While Ohio experiences lower nominal levels of income concentration compared to the national statistics, Figure 3 demonstrates Ohio’s similar income concentration trends compared to national trends. In 2015, nearly 15.8% of the income earned in Ohio was concentrated among Ohio’s wealthiest 1% of households. This concentration has manifested partly as a result of unequal income growth rates since 1973; the top 10% of Ohio households realized a 49% (inflation-adjusted) annual income gain over this period, while the bottom 90% of Ohio households realized a 8% (inflation-adjusted) annual income decrease over the period.⁹ Because of this trend, the top 1% has captured nearly 86% of Ohio’s overall annual income growth since 1973.¹⁰

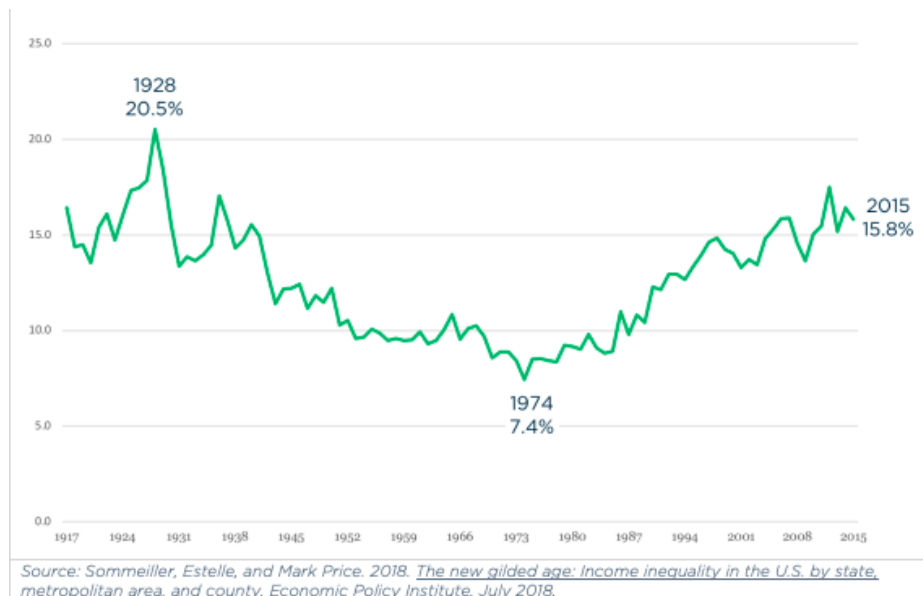
Income inequality is a concern for Ohio given the documented evidence that increasing income inequality is associated with lower rates of intergenerational economic mobility, lower population health and wellbeing, increased crime, and lower levels of economic growth.¹¹

⁹ Stein, Ben. 2018. “Unfair Share: Ohio’s Wealthiest Pull Further Away from the Rest of Us.” *Policy Matters Ohio*, Work & Wages, , July, 4.

¹⁰ Ibid.

¹¹ Pickett, Kate E., and Richard G. Wilkinson. 2015. “Income Inequality and Health: A Causal Review.” *Social Science & Medicine* 128 (March): 316–26. <https://doi.org/10.1016/j.socscimed.2014.12.031> ; Bivens. 2017. “Inequality Is Slowing U.S. Economic Growth: Faster Wage Growth for Low- and Middle-Wage Workers Is the Solution.” <https://www.epi.org/publication/secular-stagnation/> ; Fajnzylber, Pablo, Daniel Lederman, and Norman Loayza. 2002. “Inequality and Violent Crime.” *The Journal of Law and Economics* 45 (1): 1–39. <https://doi.org/10.1086/338347> .; Chetty, Raj, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. 2014. “Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States.” w19843. National Bureau of Economic Research. <https://doi.org/10.3386/w19843>.

Figure 3: Share of All Income Held by Ohio's Top 1 Percent ¹²



Data

Unless otherwise noted, income inequality measurements for Ohio in this study are arrived at by utilizing the 2018 American Community Survey (ACS), data supplements from the 2018 Current Population Survey (CPS), and simulated tax liability data from the National Bureau of Economic Research.¹³ Below are a list of the main variables that we refer to throughout this report:

- **Pre-Tax Personal Income:** total personal income from all sources such as wages, business, farm, investments, government public assistance, and welfare. Benefits received on behalf of children are also included.¹⁴
- **Household Income:** sum of pre-tax income received by all members of a household
- **Transfers:** SNAP, rent subsidies, lunch and breakfast for student children
- **Expenses:** medical, commuting, and childcare expenses
- **Tax Liability:** estimated taxes owed calculated using NBER's simulation tool

¹² Ibid.

¹³ Feenberg, Daniel Richard, and Elizabeth Coutts, An Introduction to the TAXSIM Model, Journal of Policy Analysis and Management vol 12 no 1, Winter 1993, pages 189-194.

¹⁴ These payments are sometimes referred to as Temporary Assistance for Needy Families (TANF), Aid to Families with Dependent Children (AFDC), Aid to Dependent Children (ADC), Welfare or welfare to work, General Assistance, General Relief, Emergency Assistance, and Diversion Payment; does NOT include Supplemental Security Income (SSI), food assistance (such as food stamps and benefits from the Supplemental Nutrition Assistance Program, or SNAP), rental assistance, education assistance, child care assistance, transportation assistance, or assistance with heating or cooling costs or any other energy assistance (such as Low Income Home Energy Assistance Program, or LIHEAP)

- **Household Net Income:** household income plus government transfers minus expenses and minus tax liability
- **Equivalence Adjustment of Income:** a type of income measurement that takes into consideration the number of people living in a household
- **Public Use Microdata Area (PUMA):** non-overlapping, statistical geographic areas calculated by the U.S. Census which partitions states or other equivalent regions into geographic areas that have a population of at least 100,000.

Income Inequality Metrics

Similar to national trends, income inequality in Ohio has increased considerably since the late 1970s. Several measures of income inequality exist in the literature, each with its own strengths, weaknesses, and policy implications. This report uses the following measures:

- **Gini Coefficient:** a measure of income inequality within a region that indicates the region's deviation from perfect economic inequality (meaning all members of society earn equal shares of the region's total income). The gini coefficient or gini ratio ranges from 0 to 1—0 indicating perfect income equality and 1 indicating perfect income inequality.
- **Income Inequality Ratio:** This odds ratio is calculated by taking the income distribution for a region and dividing the income earned by the individual or household at the 90th percentile by the income earned by the individual or household at the 10th percentile of the distribution. The resulting 'income inequality ratio' will thus indicate how much more the individual or household at the 90th percentile of the income distribution earns compared to the individual or household at the 10th percentile of the income distribution. The ratio will always be greater than or equal to 1. Under perfect equality, the income inequality ratio would equal 1.
- **Income Share by Percentile:** This measure simply indicates the share of total income a specified range of the income distribution (e.g., top 10%, bottom 50%) holds.

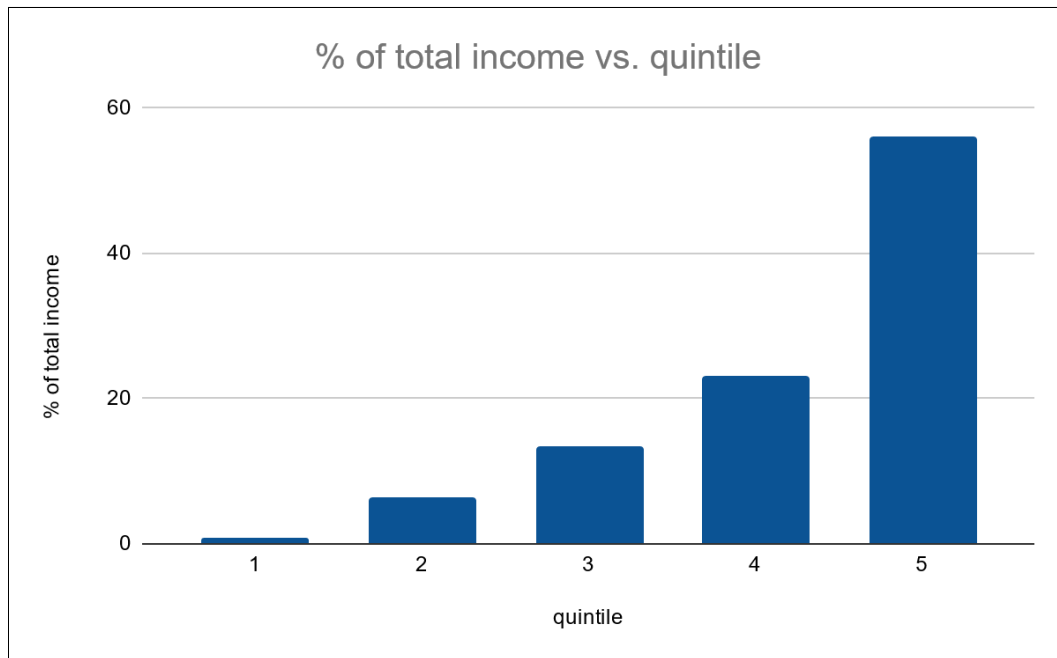
Key Findings: Assessing Income Inequality in Ohio

Using the aforementioned data, this section outlines the key findings from our primary data analysis which utilizes pre-tax income data in order to assess the severity of income inequality in Ohio prior to any status quo policy interventions (i.e., the taxes and transfers system). While income inequality is often analyzed at the individual level, it is common for members of one household to share resources. We thus additionally measure pre-tax income inequality at the household level to further our understanding of income inequality in Ohio.

Individual Income

In 2018 and using pre-tax personal income, Ohio had a gini coefficient of 0.435, which would indicate the existence of moderate income inequality aggregated at the state level. The median individual annual income from all sources including government assistance was \$25,391 and the average was \$35,573. With respect to income shares by percentiles of Ohio's income distribution Figure 4 depicts the bottom 25% of the population earns 2% of the total state income, the bottom 50% earns 13% of the total income, and the top 1% earns 10% of the total income.

Figure 4: Share of Pre-Tax Personal Income in Ohio

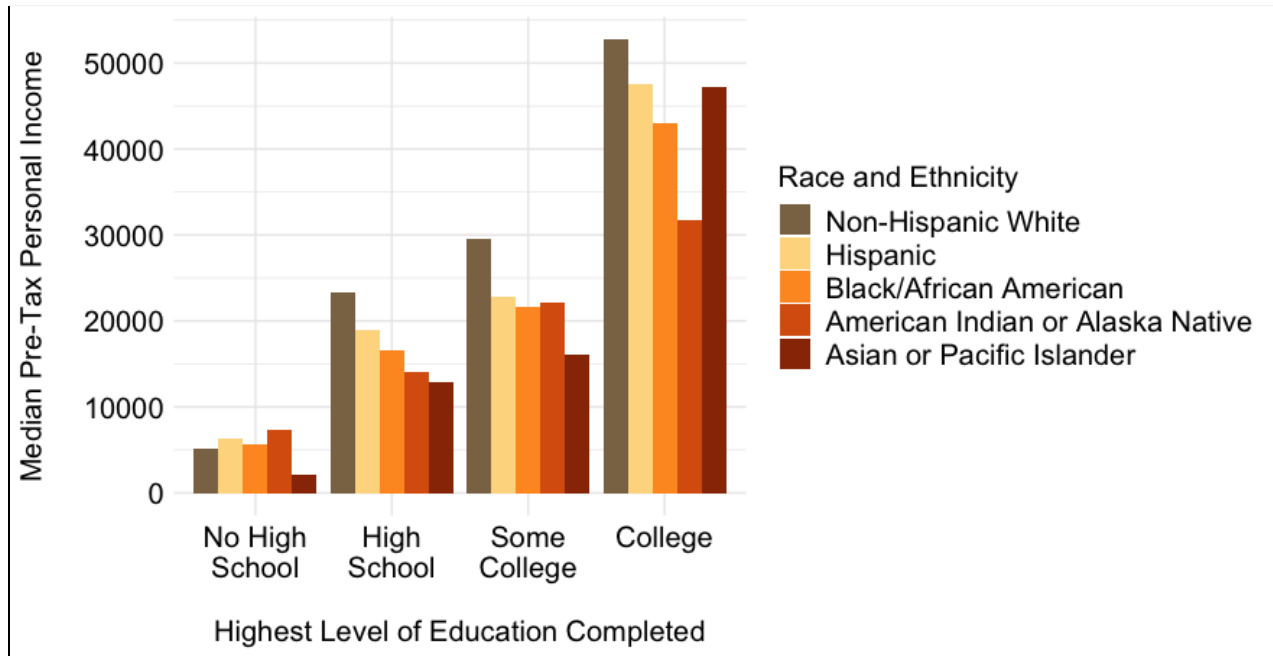


Source: Author's calculations using the 2018 American Community Survey

If we disaggregate the Ohio population, we also see substantial income inequality by race, ethnicity, and education level. In 2018, Ohio residents with higher levels of education universally realized higher median pre-tax incomes compared to residents with lower levels of education. Averaged across race and ethnicity, individuals with a high school diploma are earning \$11,858 more than those without a high school diploma. On the other hand, individuals with a college degree earn about \$27,293 more than those with only a high school diploma on average across all race and ethnic groups. Nonetheless, despite universal income gains across race and ethnic groups with increased years of education, Figure 5 clearly demonstrates that the magnitude of the income gain varies substantially across race and ethnic groups at all levels of education.

Figure 5: Median Pre-Tax Personal Income by Race and Ethnicity

This graph shows the median pre-tax personal income by race/ethnicity and highest level of education.



Source: Author’s calculations using the 2018 American Community Survey

Household Pre-Tax Income

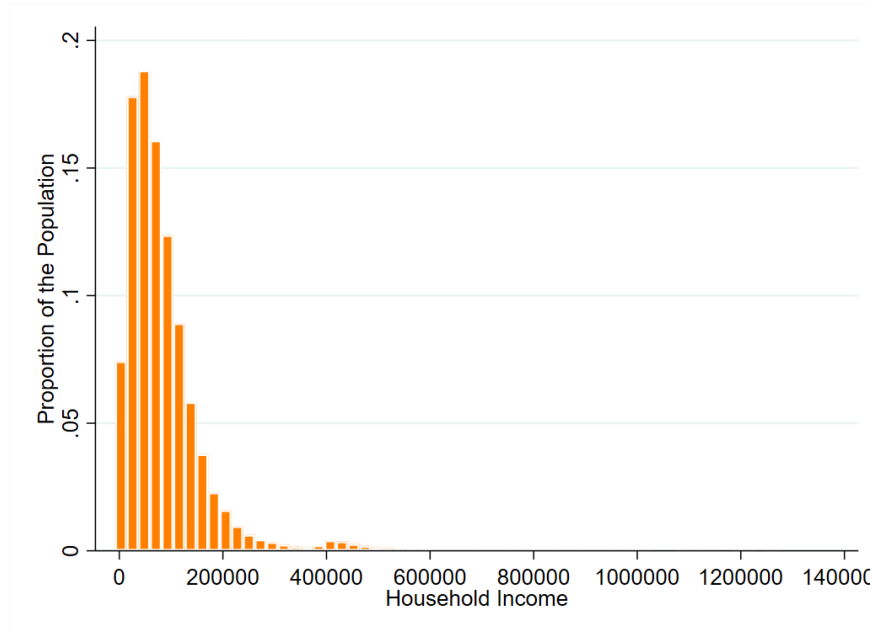
In 2018, the average pre-tax household income was roughly \$87,000 and the median is \$67,000. Figure 6 demonstrates the right-skewed nature of Ohio’s household income distribution while also showing that a significant majority of households are not earning above \$200,000. Furthermore, at the household pre-tax income level, we calculate a Gini coefficient of 0.45. This measure is comparable to the Gini coefficient of countries like Ghana, Dominican Republic, and the Philippines.¹⁵ For further comparison, the Gini Index for the United States is 0.48.¹⁶

¹⁵ Source: World Bank. <https://data.worldbank.org/indicator/SI.POV.GINI>

¹⁶ See:

<https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2021-poverty-guidelines>

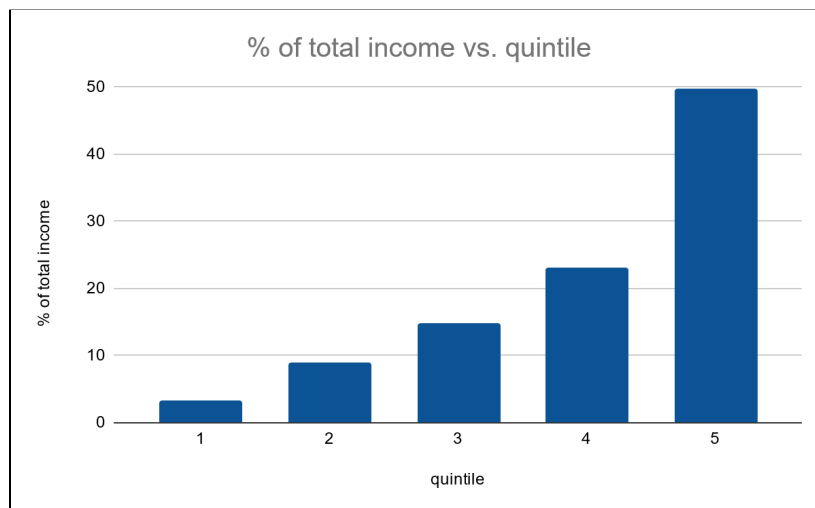
Figure 6: 2018 Pre-Tax Household Income Distribution in Ohio



Source: Author's calculations using the 2018 American Community Survey

The pre-tax income distribution at the household level is more equally distributed compared to individual income level. Among the household income distribution for Ohio, the bottom 25% of the households held 5.6% of the total household income, the bottom half of the households accounted for 20.39% of the total household income. In contrast, the top 10% and top 1% accounted for 31.03% and 6.26% of total household income, respectively.

Figure 7: Share of Total Pre-Tax Household Income by Income Percentile

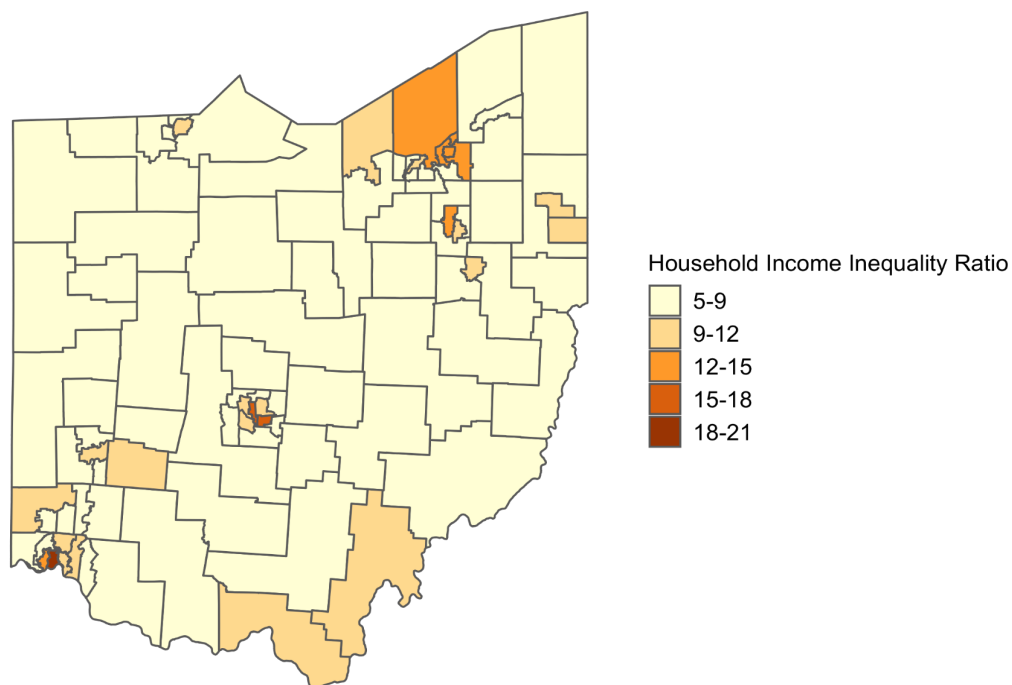


Source: Author's calculations using the 2018 American Community Survey

To further understand how income inequality varies across Ohio, we analyze pre-tax household income distributions within each PUMA. Figure 8 is a map of the varying levels of income inequality across the state using the 'income inequality ratio,' as previously described. This particular application takes the household income distribution for each PUMA and divides the household income earned by the household at the 90th percentile and the 10th percentile.

Most of Ohio is experiencing some level of income inequality. The average income inequality ratio for the state by PUMA is 8.62, which indicates that across Ohio, the household at the 90th percentile of the distribution is earning 8.62 times more on average than the household at the 10th percentile of the income distribution for a particular PUMA. For comparison, a PUMA that isn't experiencing any income inequality would have a Household Income Inequality Ratio of 1.

Figure 8: Pre-Tax Household Income Inequality by PUMA



Source: Author's calculations using the 2018 American Community Survey

Factors Associated with Income Inequality in Ohio

While this section will not establish causal drivers of income inequality, this section will note important factors that are highly associated with income inequality. These are a useful guide for construction of policy alternatives to address inequality in the state.

Education Disparities

While the literature documenting the relationship between income inequality and education disparities is mixed due to reverse causality concerns, available evidence points to higher levels of education having a causal effect on an individual's annual earnings/income.¹⁷ With this in mind, recall Figure 5 which assessed income inequality by education level. Using the aforementioned data, we find that about 76% of Ohio residents in 2018 have not earned a bachelor's degree and 31% of Ohio residents do not have a high school diploma. In alignment with empirical evidence, our analysis shows that Ohio residents with a high school diploma earn \$11,858 more than those without a high school diploma and college graduates earn about \$27,293 more than those with only a high school diploma on average. These low levels of education attainment among Ohio residents could be a strong factor that is associated with individual-level income inequality in Ohio.

State-Wide Labor Market Changes

Labor force participation in Ohio has been decreasing since 2008. This trend is driven partly by declining employment opportunities following the 2008 recession and partly by retirement of the elderly.¹⁸ The trend varies by demographic factors such as gender, race and education. Labor force participation is high for the highly educated, while it is lowest for those with high school diplomas. This could be a result of growing demand for high skilled workers and a reduction in demand for low-skilled workers as a result of technological change and globalization. Notably, the earnings premium for education has risen across a large number of advanced countries in recent decades, and this rise contributes substantially to the net growth of earnings inequality. Workers with less education have fared particularly poorly: real median income for high school graduates declined by 15 percent for men and 5 percent for women between 2000 and 2016. Among workers with some college experience but no degree, real median incomes declined by 13 percent for men and 12 percent for women over this period. These patterns are part of a longer-term trend: median incomes for workers with less than a four-year college degree have stagnated since the 1980s.¹⁹ This is particularly concerning given that 76% of Ohio residents have not earned a bachelor degree as of 2018.

Low Minimum Wages and Union Representation

The minimum wage in Ohio is another factor associated with the income inequality we documented, especially among low-educated workers who are more likely to have minimum wage jobs. In 2018, the nominal minimum wage was \$8.30 and the tipped-minimum wage was

¹⁷ Card, David. 1999. "The Causal Effect of Education on Earnings." In *Handbook of Labor Economics*, 3:1801–63. Elsevier. [https://doi.org/10.1016/S1573-4463\(99\)03011-4](https://doi.org/10.1016/S1573-4463(99)03011-4).

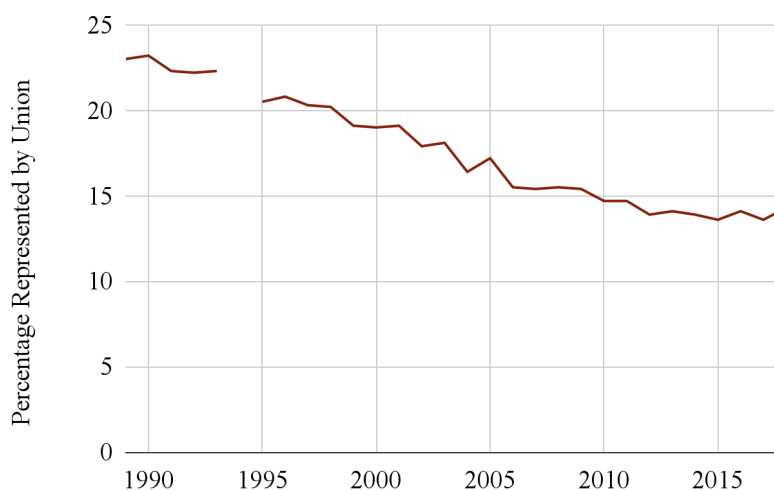
¹⁸ Ohio Department of Job and Family Welfare 2016. "[Employment Projections Report](#)"

¹⁹ Ibid

\$4.15, both of which were slightly above the federal minimum wage. Accounting for inflation, Ohio’s minimum wage in 2018 is less than what it was in 1970.

Coupled with the stagnation of minimum wages is a decline in worker power—specifically the decline in the share of workers who are represented by labor unions. Figure 9 demonstrates the percentage of total employed individuals in Ohio that are represented by a labor union.²⁰ Employed individuals in Ohio saw a 10 percentage point decrease in union representation from 1990 to 2018 which is likely a result of the large loss of manufacturing jobs in Ohio.

Figure 9: Percentage of Total Employed Individuals Represented by a Labor Union from 1989 - 2018²¹



Source: U.S. Bureau of Labor Statistics. *Union Membership Historical Table for Ohio*

Policy Alternatives to Reduce Income Inequality

Status Quo

On a national scale, there exist two tax credit programs which provide substantial assistance to low and middle income families: the Child Tax Credit (CTC) and Earned Income Tax Credit (EITC). Many states offer state-level EITC and CTC programs to complement the federal credit programs. Ohio currently does not provide CTC and has a non-refundable EITC.

In 2019, Ohio expanded its state EITC from a 10% match to a 30% match of the Federal credit. However, this does not benefit many low income families, since Ohio’s EITC is currently nonrefundable. A refundable EITC gives families the full value of their credit, even if it is more than they owe in income tax. For example, if a family owes \$500 in income tax and qualifies for

²⁰ US Bureau of Labor Statistics. 2021. “Union Membership Historical Table for Ohio : Midwest Information.” US BLS. 2021. https://www.bls.gov/regions/midwest/data/unionmembershiphistorical_ohio_table.htm.

²¹ The gap in Figure 9 is due to missing data

a \$1,000 EITC, the credit covers the \$500, and the remaining \$500 is refunded to the family as a cash payment. With Ohio's nonrefundable EITC, that family would not get a refund, no matter how great the value of their credit. It is estimated that this increase in EITC value raises the average credit value by just \$6 for the lowest income quintile.²²

Ohio's minimum wage as of 2018 was \$8.30 per hour for full-time work. It increased to \$9.30 per hour in 2022, which is lower than the \$12 minimum wage in 1968 (in 2018 dollars). Full-time work at the minimum wage translates to \$19,000 in annual earnings, which is below the 2021 federal poverty level for a family of three.²³

Fully Refundable Earned Income Tax Credit (EITC)

The EITC is an effective tool for redistribution and poverty alleviation. We analyze the proposal for Ohio to make its current EITC (30% of Federal credit) fully refundable. In Ohio, the EITC is nonrefundable, which has a disproportionately negative impact on low income families. Making the EITC fully refundable could therefore have a substantial impact on reducing income inequality without raising the cost of the program too much.

Ohio's current EITC reaches only about 8 percent of families making under \$21,000 and 11 percent of middle income workers.²⁴ Estimates show that a 20 percent, refundable, non-capped, EITC would extend the credit's reach to more than a third of the state's poorest (38 percent) and increase the amount available to all eligible claimants.²⁵ These changes would mean far fewer working Ohioans would be taxed into poverty. The largest tax cut, an average savings of \$620, would go to workers on the cusp of poverty, earning between \$21,000 and \$39,000 a year.²⁶

As of December 2021, 25 million workers and families received about \$60 billion in EITC. The average amount of EITC received nationwide was about \$2,411.²⁷ From 2011 to 2018, the percentage of eligible residents in Ohio who claimed the EITC was about 80%²⁸, and from the

²² Women's Fund of the Greater Cincinnati Foundation. 2020. "The Cliff Effect and Other Disincentives in Our Public Benefit System."

<https://www.gcfdn.org/wp-content/uploads/2020/07/00.-2020-The-Cliff-Effect-and-Other-Disincentives-in-our-Public-Benefit-System.pdf>.

²³ For poverty threshold see:

<https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2021-poverty-guidelines>

²⁴ Halbert, Hannah. 2017. "Ohio EITC Too Weak to Work." Policy Matters Ohio. January 27, 2017.

<https://www.policymattersohio.org/research-policy/quality-ohio/revenue-budget/tax-policy/ohio-eitc-too-weak-to-work>.

²⁵ Ibid

²⁶ Ibid

²⁷ U.S Internal Revenue Service. 2022. "Statistics for Tax Returns with the Earned Income Tax Credit (EITC) | Earned Income Tax Credits." IRS. March 2022.

²⁸ Stein, Ben. 2019. "Refundability Now." Policy Matters Ohio. June 2019

tax returns of 2020, the IRS measures 877,000 EITC claims from Ohio which yields \$2.1 billion dollars with an average amount of \$2,410 received.²⁹

Nevertheless, starting April of 2019, Ohio's credit accounts for 30% of the federal credit when Governor Mike DeWine raised it twenty percentages points. This change in legislation also eliminated an income cap that was unique to Ohio, and now all taxpayers who qualify for the federal credit are also automatically eligible.³⁰ A key difference that still holds from the federal example is refundability. Ohio's EITC is non-refundable. According to [Policy Matters Ohio](#), the expansion of Ohio's EITC will only provide 1% more income to the lowest-earning quintiles in Ohio.³¹

Raise the Minimum Wage

We examine a minimum wage increase from the current \$9.30 to \$15. This would benefit 42% of Ohioans currently working in jobs that pay less than \$15 per hour. Discrimination in the labor market disproportionately keeps black workers, regardless of educational attainment, in lower-wage jobs.³² Raising Ohio's minimum wage would benefit everyone who works in minimum wage jobs while reducing income inequality.³³

On average, Ohio's economy is expected to have over 650,000 job openings annually. Of these, the Bureau of Labor Statistics projects most job openings will be in sectors where the median wage is less than \$15 (see fig.10 below). Particularly, the food preparation and serving related industry is projected to grow, which has one of the highest share of employment³⁴ and is projected to add the most job openings in the near future.³⁵ Therefore, employment opportunities will not automatically lift people out of poverty or reduce wage, income or wealth inequality, unless the minimum wage is increased.

²⁹ Ibid

³⁰ Tax Credits for Workers and Families. n.d. "Ohio Earned Income Tax Credit." Tax Credits for Workers and Families. Accessed May 6, 2022.

³¹ Ibidem

³² Wilson, Valerie. 2016. "African Americans Are Paid Less than Whites at Every Education Level." Economic Policy Institute (blog). October 2016.

<https://www.epi.org/publication/african-americans-are-paid-less-than-whites-at-every-education-level/>.

³³ Deroncourt E, Montialoux C. "Minimum Wages and Racial Inequality". Working Paper, May 2018.

³⁴ Employment per 1000 jobs in FSPR is 82.56 and is 5th highest employer. Source: [U.S Bureau of Labor Statistics](#)

³⁵ Ohio Department of Job and Family Services, [Job Outlook Report 2016-2026](#)

Figure 10: Occupations in Ohio with the Most Projected Annual Openings, 2016-2026

Occupational Title	Total	Median Wage ⁹ May 2017
Comb. Food Prep. & Serv. Work, inc. Fast Food (SOC 35-3021)	31,702	\$9.21
Retail Salespersons (SOC 41-2031)	22,607	\$10.67
Cashiers (SOC 41-2011)	21,723	\$9.31
Waiters and Waitresses (SOC 35-3031)	18,007	\$9.25
Laborers/Freight/Stock/Material Movers, Hand (SOC 53-7062)	16,347	\$12.92
Janitors & Cleaners, ex. Maids/Housekeeping Cleaners (SOC 37-2011)	12,606	\$11.50
Home Health Aides (SOC 31-1011)	12,020	\$10.33
Customer Service Representatives (SOC 43-4051)	11,757	\$15.50
Stock Clerks and Order Fillers (SOC 43-5081)	11,107	\$11.56
Office Clerks, General (SOC 43-9061)	10,498	\$14.88

Source: Ohio Bureau of Labor Market Information

Ohio Negative Income Tax (ONIT)

A Negative Income Tax (NIT) would partially reverse the current state tax system; individuals earning below some income threshold would receive refundable tax credits (i.e., cash) from the government and individuals earning above the threshold would pay taxes to the government. This policy alternative is similar to a means-tested guaranteed basic income program which is a guaranteed cash transfer from the government for individuals earning below a certain income threshold.

The Ohio NIT we examine would maintain a negative income tax percentage of 30% and set the poverty unit income threshold to 150% of the Ohio poverty line as determined by the Ohio Poverty Measure.³⁶ In practice, poverty units with a combined income below the threshold would receive a refundable tax credit amounting to 30% of the difference between their income and the threshold.³⁷ Poverty units with a combined income above the threshold would pay taxes amounting to 30% of the difference between their income and the threshold. The negative income tax percentage is in accordance with the lowest negative income tax percentage implemented in the various negative income tax experiments conducted in the United States in the 1970s.

³⁶ Gaw, Madeleine, Mansi Kathuria, and Sky Mihaylo. 2021. "Alleviating Poverty in Ohio: Policy Analysis of Targeted Cash Transfer Policies." Scioto Analytics. https://static1.squarespace.com/static/5bdb6f642714e55b84e507/t/61b74ddec813e64995f20d0e/1639402978739/Alleviating+Poverty+in+Ohio_+Policy+Analysis+of+Targeted+Cash+Transfer+Policies.pdf.

³⁷ Consider this numerical example where the income threshold is \$50,000 and the NIT rate is 50%. If an individual earns \$30,000, they would receive a $0.5 \times (50,000 - 30,000)$ or a \$10,000 refundable tax credit from the government.

Analysis Criteria

We analyze and rate the status quo and these three policy alternatives using the following criteria:

1. **Effectiveness:** To what extent does the policy alternative meet the policy objective of reducing income inequality in Ohio? Policy alternatives will be ranked on their effectiveness depending on its estimated ability to reduce the aggregate gini coefficient for Ohio.
2. **Equity:** To what extent does the policy alternative reduce geographic concentrations of income inequality? Policy alternatives will be ranked on their estimated ability to reduce the Gini coefficient by Public Use Microdata Area in Ohio.

Policy Alternative Analysis and Microsimulations

This section will estimate the impacts of the aforementioned policy alternatives on income inequality in Ohio, assuming *ceteris paribus*.

Fully Refundable EITC

The average credit for a family in Ohio is \$2,500, none of which is refundable. The benefits of a 30% refundable EITC depends on initial household income, since engagement with the tax system, and the possible nonrefundable credit is dependent on income. Following Hannah's Halbert analysis regarding the EITC in 2017 through Policy Matters Ohio,³⁸ for the lowest quintile (people earning up to \$30,700), the average value of their credit would increase by \$744. For those earning between \$30,700 and \$54,000 (the lower-middle 20%) it would raise it to about \$711. Finally, for the middle 20% (people earning from \$54,000 to \$81,500) this policy change will yield \$1,056 on average for this population. Due to the limitations of the research regarding taxation estimation in the higher spheres of the income distribution, we will suppose that the benefits of a refundable EITC will not significantly alter the disposable income above the 60th income percentile. We will now proceed to simulate what would happen to our inequality indicators if such a policy took place by including these levels of disposable income to the households that are eligible for the EITC in our dataset.

From an initial 0.45, this alternative lowers the state Gini coefficient to 0.429, which is a 4.4% overall change in the coefficient. To have a sense of comparison, income inequality in the U.S. is found to have increased by about 20% from 1980 to 2016. Geographically, this reduction would have larger impacts in the parts of the state with highest 10/90 income ratios since it is a policy that strictly benefits the lowest parts of the income distribution.

³⁸ Halbert, Hannah. 2017. "Ohio EITC Too Weak to Work." Policy Matters Ohio. January 27, 2017. <https://www.policymattersohio.org/research-policy/quality-ohio/revenue-budget/tax-policy/ohio-eitc-too-weak-to-work>.

Increasing Minimum Wage

In the 2018 American Community Survey dataset used in this analysis, 41% of Ohioans were working at or below \$15. This subpopulation was disproportionately represented by non-white individuals.³⁹ We simulated the income inequality metrics using \$15 minimum wage at the individual level and at the poverty unit level. The microsimulation indicates that raising the minimum wage to \$15 would reduce the Gini coefficient from 0.486 to 0.434 (11% reduction) for individual wage income. This translates to a reduction in Gini coefficient of 11% (from 0.478 to 0.427) for total individual income (which includes wages and other earnings). As expected, at the poverty unit level, the projected decrease in pre-tax Gini coefficient is lower, at 4.4% (from 0.45 to 0.43). Part of this is attributable to wage differentials among members of the poverty unit. However, we note that some of the inequality is likely driven by other sources of earnings originating from wealth such as earnings from investment, rather than from wage inequality. Further analysis and research is required to understand how much of the variation in income inequality is attributable to wage inequality.

Raising the minimum wage to \$15 is projected to increase the median pre-tax wage income for working black individuals by 10% (from \$33,516 to \$33,672) and the median pre-tax total income for working black individuals by 9% (from \$37,048 to \$40,223). We were unable to simulate the projected reduction in poverty unit level inequality between racial subgroups using the current dataset. However, literature shows that raising minimum wage was causally associated with reducing racial income inequality, particularly for communities of color, “unskilled” labor, and individuals who are under or close to the poverty line of the State.⁴⁰

We acknowledge that the effect of raising the minimum wage on employment is much debated in literature. However, there is an emerging consensus that in monopsony markets, raising the minimum wage has not resulted in unemployment. In our simulations, we do not account for the impact of raising wages on employment.

Further raising the minimum wage does not require budget adjustments from the State, making it an attractive policy intervention. Nevertheless, this might hinder political feasibility since the most affected through these policies is the private sector receiving a hit to profits.

Ohio Negative Income Tax (ONIT)

Microsimulations are conducted at the poverty unit level to estimate the projected effects of the Ohio Negative Income Tax on income inequality in Ohio. For each poverty unit in Ohio, the average ‘resources’ (i.e., pre-tax and post-transfer income) are compared to 150% of the poverty level that is designated to each poverty unit by the Ohio Poverty Measure.⁴¹ An ‘ONIT amount’

³⁹ 52% of the black population and 39% of the white population were making less than or equal to minimum wage

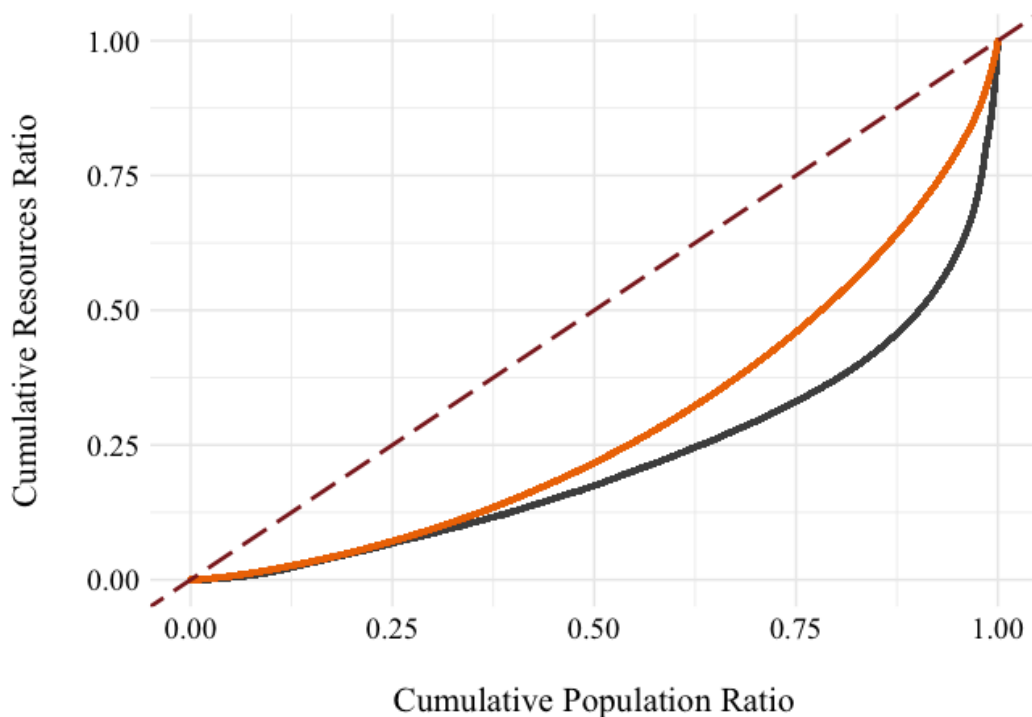
⁴⁰ Deroncourt E, Montialoux C. Minimum Wages and Racial Inequality. Working Paper 2018.

⁴¹ Gaw, Madeleine, Mansi Kathuria, and Sky Mihaylo. 2021. “Alleviating Poverty in Ohio: Policy Analysis of Targeted Cash Transfer Policies.” Scioto Analytics.

is then calculated to determine the amount of money the poverty unit receives in the form of a refundable tax credit or the amount of money the poverty unit owes in taxes. This ‘ONIT amount’ is then added (or subtracted) to the poverty unit’s ‘resources’ to retrieve their new resource level given the implementation of the ONIT.

As measured by the Gini coefficient, the implementation of an ONIT is projected to decrease the aggregate Gini coefficient for Ohio at the poverty level unit of analysis from 0.45 to 0.40—a 12% reduction in the Gini coefficient. The graph below summarizes the results of the ONIT microsimulation using a Lorenz Curve. The gray and orange curves represent the distribution of income among poverty units in Ohio before and after the ONIT, respectively. The red dashed line is included as a reference line to compare the simulated results to what perfect income equality would look like. As depicted by the graph, most of the reduction in the Gini coefficient can be attributed to the additional taxes the ONIT would require poverty units with higher average incomes to pay.

Figure 11: Lorenz Curve for Ohio Before and After ONIT Microsimulation



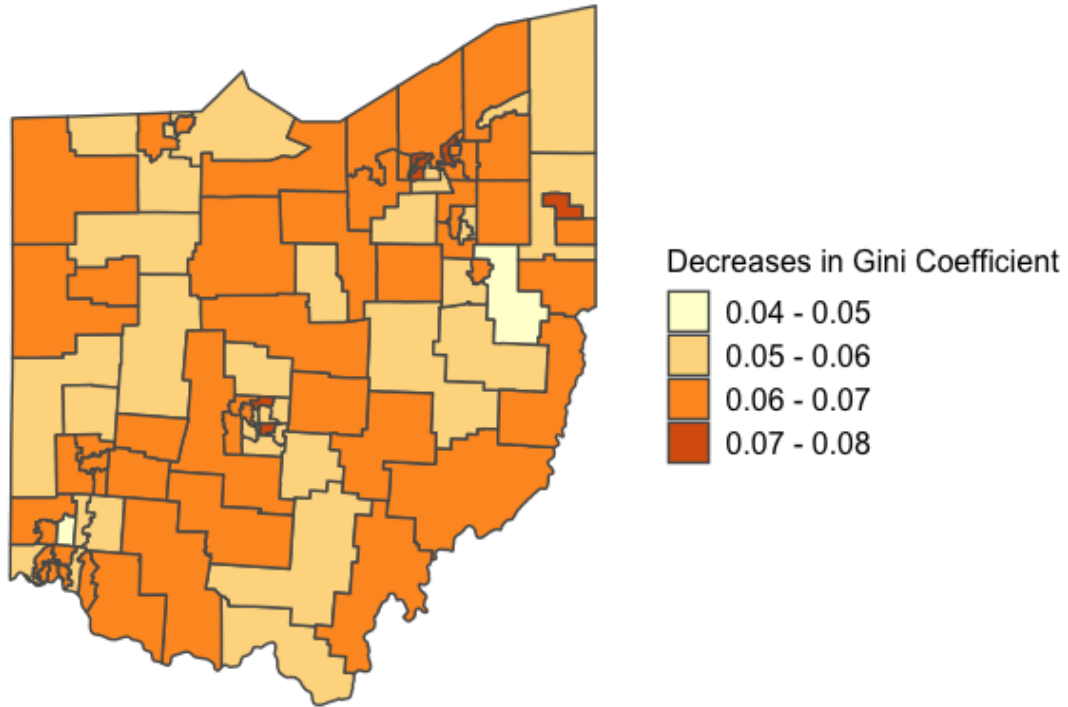
Source: Author’s calculations using the 2018 American Community Survey

As measured by the Gini coefficient, the implementation of an ONIT is projected to decrease the PUMA level Gini coefficient by at least 0.06 to 0.07 for about 62% of Ohio PUMA. This 0.06 -

https://static1.squarespace.com/static/5bdb6f642714e55b84ebe507/t/61b74ddec813e64995f20d0e/1639402978739/Alleviating+Poverty+in+Ohio_+Policy+Analysis+of+Targeted+Cash+Transfer+Policies.pdf

0.07 equates to about a 14% reduction in the PUMA level Gini coefficient. The figure below depicts the decrease in Gini coefficient by PUMA.

Figure 12: Gini Coefficient Change After ONIT Microsimulation



Source: Author's calculations using the 2018 American Community Survey

Discussion and conclusion

Alternative	Baseline Gini Before Intervention	Gini After Intervention	Percentage Decrease in Gini Coefficient
Fully Refundable Ohio EITC	0.45	0.43	4.4%
Minimum Wage Increase	0.45	0.43	4.4%
Ohio Negative Income Tax	0.45	0.40	12.5%

Our analysis and microsimulations show that making the EITC fully refundable would reduce the state level the Gini coefficient for household income by 4.4%; Increasing the minimum wage

to \$15 from the current \$9.30 will reduce the state level Gini coefficient for household income by the same percentage; and a negative income tax will reduce the state level Gini coefficient for household income by 13%.

References

Alvaredo, Facundo, Lucas Chancel, Thomas Piketty, Emmanuel Saez, and Gabriel

Zucman. 2018. “World Inequality Report.” World Inequality Lab.

<https://wir2018.wid.world/files/download/wir2018-full-report-english.pdf>

Autor, David H. 2014. “Skills, Education, and the Rise of Earnings Inequality among the ‘Other 99 Percent.’” *Science* 344 (6186): 843–51. <https://doi.org/10.1126/science.1251868>.

Bivens. 2017. “Inequality Is Slowing U.S. Economic Growth: Faster Wage Growth for Low- and Middle-Wage Workers Is the Solution.” <https://www.epi.org/publication/secular-stagnation/>

Card, David. 1999. “The Causal Effect of Education on Earnings.” In *Handbook of Labor Economics*, 3:1801–63. Elsevier. [https://doi.org/10.1016/S1573-4463\(99\)03011-4](https://doi.org/10.1016/S1573-4463(99)03011-4).

Chetty, Raj, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. 2014. “Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States.” w19843. National Bureau of Economic Research. <https://doi.org/10.3386/w19843>.

Derenoncourt E, Montialoux C. Working Paper, 2018. [Minimum Wages and Racial Inequality](#).

Fajnzylber, Pablo, Daniel Lederman, and Norman Loayza. 2002. “Inequality and Violent Crime.” *The Journal of Law and Economics* 45 (1): 1–39. <https://doi.org/10.1086/338347>.

Feenberg, Daniel Richard, and Elizabeth Coutts, An Introduction to the TAXSIM Model, *Journal of Policy Analysis and Management* vol 12 no 1, Winter 1993, pages 189-194.

Gaw, Madeleine, Mansi Kathuria, and Sky Mihaylo. 2021. “Alleviating Poverty in Ohio: Policy Analysis of Targeted Cash Transfer Policies.” Scioto Analytics. https://static1.squarespace.com/static/5bdb6f642714e55b84ebe507/t/61b74ddec813e64995f20d0e/1639402978739/Alleviating+Poverty+in+Ohio_+Policy+Analysis+of+Targeted+Cash+Transfer+Policies.pdf.

Halbert, Hannah. 2017. “Ohio EITC Too Weak to Work.” *Policy Matters Ohio*. January 27, 2017. <https://www.policymattersohio.org/research-policy/quality-ohio/revenue-budget/tax-policy/ohio-eitc-too-weak-to-work>.

Holzer, Harry J. 2014. “Improving Employment Outcomes for Disadvantaged Students | The Hamilton Project.” *The Hamilton Project*. June 2014. https://www.hamiltonproject.org/papers/improving_employment_outcomes_for_disadvantaged_students?_ga=2.102397249.119146662.1649719240-82649108.1649719240.

Hoynes, Hilary, Jesse Rothstein, and Krista Ruffini. 2017. “Making Work Pay Better Through an Expanded Earned Income Tax Credit.” The Hamilton Project, October, 23.

Stein, Ben. 2018. “Unfair Share: Ohio’s Wealthiest Pull Further Away from the Rest of Us.” Policy Matters Ohio, Work & Wages, , July, 4.

<https://www.policymattersohio.org/research-policy/fair-economy/work-wages/unfair-share>

Pickett, Kate E., and Richard G. Wilkinson. 2015. “Income Inequality and Health: A Causal Review.” Social Science & Medicine 128 (March): 316–26.

<https://doi.org/10.1016/j.socscimed.2014.12.031>

Stein, Ben. 2019. “Refundability Now.” Policy Matters Ohio. June 2019.

<https://www.policymattersohio.org/research-policy/quality-ohio/revenue-budget/tax-policy/refundability-now>.

Sommeiller, Estelle, and Mark Price. 2018. “The New Gilded Age: Income Inequality in the U.S. by State, Metropolitan Area, and County.” Economic Policy Institute (blog). Accessed January 29, 2022.

<https://www.epi.org/publication/the-new-gilded-age-income-inequality-in-the-u-s-by-state-metropolitan-area-and-county/>.

Stone, Chad, Danilo Trisi, Arloc Sherman, and Jennifer Beltrán. “A Guide to Statistics on Historical Trends in Income Inequality.” Center on Budget and Policy Priorities, January 13, 2020. https://www.cbpp.org/sites/default/files/atoms/files/11-28-11pov_0.pdf.

Tax Credits for Workers and Families. n.d. “Ohio Earned Income Tax Credit.” Tax Credits for Workers and Families. Accessed May 6, 2022.

<https://www.taxcreditsforworkersandfamilies.org/state/ohio/>.

US Bureau of Labor Statistics. 2021. “Union Membership Historical Table for Ohio : Midwest Information.” US BLS. 2021.

https://www.bls.gov/regions/midwest/data/unionmembershiptable_ohio_table.htm.

U.S. Internal Revenue Service. “EITC Participation Rate by States | Earned Income Tax Credit.” 2021. IRS. Accessed May 6, 2022.

<https://www.eitc.irs.gov/eitc-central/participation-rate/eitc-participation-rate-by-states>.

U.S. Internal Revenue Service. 2022. “Statistics for Tax Returns with the Earned Income Tax Credit (EITC) | Earned Income Tax Credit.” IRS. March 2022.

<https://www.eitc.irs.gov/eitc-central/statistics-for-tax-returns-with-eitc/statistics-for-tax-returns-with-the-earned-income>.

Wilson, Valerie. 2016. “African Americans Are Paid Less than Whites at Every Education Level.” Economic Policy Institute (blog). October 2016.
<https://www.epi.org/publication/african-americans-are-paid-less-than-whites-at-every-education-level/>.

Women’s Fund of the Greater Cincinnati Foundation. 2020. “The Cliff Effect and Other Disincentives in Our Public Benefit System.”
<https://www.gcdfn.org/wp-content/uploads/2020/07/00.-2020-The-Cliff-Effect-and-Other-Disincentives-in-our-Public-Benefit-System.pdf>.