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The Expanded Child Tax Credit and Educational Attainment in Rural, Majority-Minority Communities

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ABSTRACT

Despite the status of the United States as one of the world's economic superpowers, the country is plagued by child poverty. The issue of child poverty is most prominent in rural, majority-minority communities, where years of limited opportunity, often created by systematic oppression, have created a vicious cycle of economic despair. There are a number of policies that have been explored which could limit the effects of child poverty, most notably the Expanded Child Tax Credit (ECTC), which was introduced as part of the American Rescue Plan Act (ARPA) of 2021. This paper uses a combination of qualitative and quantitative methods to thoroughly examine this policy (ECTC) and its potential to both cut child poverty in the short term and increase educational attainment and economic mobility in the long term for recipients. The ECTC program ended in 2022 and only lasted in a short period. By examining the impacts of a similar and long-standing but less accessible and generous program, the Earned Income Tax Credit (EITC), on educational attainment in specific communities we can theorize and determine the significance the Expanded CTC would have. We use EITC program as a proxy of ECTC and reach inference of the long-term impact of ECTC program on children's education attainment. The result of this research indicates a number of benefits of the Expanded Child Tax Credit, including its potential to cut child poverty and increase educational attainment, its impact on future economic prosperity in rural, majority-minority communities, and the policy's ability to decrease economic disparities between non-metro and metropolitan areas.

KEYWORDS

Expanded child tax credit; educational attainment; rural; majority-minority communities

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1. Introduction

1.1. Background

On July 15th, 2021, the Internal Revenue Service (IRS) began sending out monthly cheques of up to $300 per child below the age of six and $250 per child between ages six to seventeen to some 39 million American households as part of the Biden Administration's Expanded Child Tax Credit (CTC) (Boak, 2021). This program fundamentally restructured the former U.S. child tax credit policy, which had limited outcomes, by increasing the payment amount, expanding eligibility to include more low-income families, and making the payment periodic. These payments are financed by the $1.9 trillion American Rescue Plan Act, which was signed by President Joe Biden in March 2021. In his comments the day these funds were disbursed, President Biden stated that the Expanded Child Tax Credit has "the potential to reduce child poverty in the same way Social Security reduced poverty for the elderly" (Kolinovsky et al., 2021). Economists and thought leaders supported his statement with some estimations that the American Rescue Plan could cut child poverty by as much as 40%, with the largest reductions coming from African American, Hispanic, and Indigenous communities (Pulliam & Reeves, 2021).

The United States' federal government is tasked with providing some economic support for those who need it, specifically groups like the elderly, through the implementation of programs such as Social Security and Medicare. This role of the national government has been the norm since the New Deal in the 1930s and Great Society in the 1960s, times when Americans became more comfortable with the federal government playing an active role in their lives. However, one group notably excluded from these direct government assistance programs is children, who experienced a poverty rate of 16.1% in 2020 (Smith, 2022). This poverty is especially pronounced in rural, majority-minority communities, where areas like the Mississippi Delta see child poverty rates ranging from 30-60% (Thiede, 2020). Much of this poverty stems from a history of oppression and barriers that limited access to economic opportunities. This lack of opportunity has led to a cycle of continuous poverty as these communities are unable to access the resources that are essential to economic and social mobility including quality health care and education. Akin to the 1930s and 1960s, the federal government has realized this scourge can continue no longer and began to formulate and implement a program that would reduce child poverty across the United States, the Expanded CTC.

1.2. Problem Statement

Nearly one-fifth of American children experiences childhood poverty. This poverty is even more intense and widespread in rural communities, specifically rural, majority-minority communities. Poverty severely hinders a child's ability to perform academically and makes them far less likely to complete high school or attend a post-secondary institution (Ferguson et al., 2007). This contributes to a cycle of intergenerational poverty as it is highly likely that this lack of education and opportunity for economic mobility in adults that experienced childhood poverty will lead to their children being impoverished and subsequently less likely to attain the education required to break the cycle of poverty. The federal government must enact policies to decrease child poverty and increase the likelihood of educational attainment and economic mobility, especially in historically disadvantaged places. One policy that could solve or dramatically alleviate this problem is the Expanded Child Tax Credit.

1.3. Significance of Study

There are several positive outcomes resulting from reductions in child poverty, with one of the biggest benefits being increased educational attainment amongst recipients. Studies show that falling into poverty as a child, even for a brief period, can have a detrimental effect on the ability of students to learn in the classroom. Children from low-income families start school developmentally behind their more affluent peers due to a lack of access to

facilities, programs, and necessities prior to attending school (Ferguson et al., 2007). According to a child health study in the Canadian province of Ontario, there is a "noteworthy association" between children from low-income families and children with health problems, psychiatric disorders, and poor academic functioning (Engle & Black, 2008). When examining the long-term impacts of poverty, low socioeconomic status is the single strongest predictor of a child leaving school before graduating and suggests a high chance of academic failure before the age of six (Ferguson et al., 2007). The previously mentioned Ontario study also found that over 50% of the province's students who leave high school early come from homes where annual incomes were lower then $30,000 which is under the Canadian poverty line (Engle & Black, 2008). This high likelihood of dropout can lead to negative intergenerational impacts such as unemployment and low-wage work, creating a vicious cycle of economic despair (Ferguson et al., 2007).

This progression of poverty, subpar educational attainment, and intergenerational economic hardship exists across the United States but is more prevalent in some areas of the country then others. For example, much of rural America is economically less prosperous than non-rural parts of the country (O'Dell, 2021) and while some select rural communities do enjoy elevated levels of economic well-being, rural places as a whole lag behind their non-rural counterparts on nearly every measure of economic prosperity from poverty rates to labor force participation (O'Dell, 2021). Many of these struggling rural communities have still not recovered from the Great Recession of 2008, with post-recession per capita personal income growth in rural areas trailing urban areas by 5.2%. They also experience deep, persistent poverty with barriers to economic opportunities and a lack of access to crucial services (O'Dell, 2021). Children in rural areas are not spared from these dire economic conditions, with childhood poverty rates 5% higher than the national average across rural America (Thiede, 2020). In addition, very few of the rural communities that do enjoy economic prosperity are majority-minority or composed of a majority non-white population. Rural, majority-minority communities are overwhelmingly in the lowest quintile of economic well-being (O'Dell, 2021). While it is true that people of color are at an economic disadvantage across the country, this inequity is even greater in rural areas (Thiede, 2020). For example, despite child poverty rates being 5% higher in rural areas compared to the rest of the United States, these rates are 10-40% higher in rural, majority African American areas (Thiede, 2020). These economic disparities in rural America have undeniable effects on the people, specifically children, living in these areas and their ability to break the chain of continuous poverty in their communities.

One of the keys to improving economic outcomes in these communities is investing in the long-term success of children, an achievable outcome given the implementation of the Expanded Child Tax Credit (ECTC). By providing families with more fiscal breathing room, low-income families can decrease their economic anxiety and afford to do things like enroll their children in after school programs or sports, gain access to facilities, and purchase essential items. These benefits will lead to improved outcomes in health, education, and future earnings of children while decreasing government spending on expenditures such as criminal justice and child protection systems (Pulliam & Reeves, 2021). Economists support these previous claims by emphasizing that the Expanded CTC boosts test scores and increases college attendance rates, leading to better career paths and higher earnings. In addition, the policy positively influences rural areas, with hopeful outcomes including lifting roughly 50% of non-metro children out of poverty within a year. It will also increase consumer spending, revenues from state and local sales taxes, and job growth in these areas. These benefits will result in rural communities seeing major fiscal improvements in the form of a substantial injection of relative purchasing power via this people-based policy (Hammond & Orr, 2021). This research examines these issues and attempt to fill the gaps in research about the Expanded CTC's impact on child educational attainment, its influence on future economic prosperity in rural, majority-minority communities, and the policy's ability to decrease economic disparities between non-metro and metropolitan areas.

2. Literature Review

This literature review seeks to examine the policy of the Expanded CTC and its potential impact on educational attainment among rural, majority-minority communities. The review analyzes literature examining how child poverty impacts educational attainment, how rural, majority-minority communities experience child poverty, how federal programs such as the Expanded CTC have economically benefitted rural areas, and how the Expanded CTC and other similar programs have impacted child poverty. The review concludes with an understanding that child poverty has a detrimental effect on educational attainment, that rural majority-minority communities are more likely to experience child poverty, and that the Expanded CTC is an effective tool for improving economic conditions for families and children in rural areas.

2.1. The Impact of Childhood Poverty on Educational Attainment

In her research into the effects of poverty on children, Dr. Jeanne Brooks-Gunn of Teachers College, Columbia University comes to a key conclusion; family income has a substantial effect on child and adolescent well-being (Brooks-Gunn & Duncan, 1997). Children who live in extreme poverty or who live below the poverty line for multiple years appear to suffer the worst outcomes. In addition, children who experience poverty during their preschool and early school years have significantly lower rates of school completion than other groups (Brooks-Gunn & Duncan, 1997). This is because children from low-income families often start school already behind their peers who come from wealthier families, as shown in measures of school readiness (Ferguson et al., 2007).

Although children from all socioeconomic backgrounds leave school early without obtaining a high school diploma, many studies show that a family's low socioeconomic status is the strongest predictor of early high school leaving (Levin, 1995). Research reveals that as many as 50% of high school dropouts come from households where annual incomes were lower then $30,000 (Ferguson et al., 2007). According to Cecilia S. Lyche of the Organisation for Economic Co-operation and Development (OECD), youth whose parents have dropped out of school are more likely to drop out of school themselves, creating intergenerational effects such as unemployment or jobs defined by low salaries with little to no benefits (Lyche, 2010). Vicious cycles of poverty and economic despair severely limit the potential for future generations to achieve social and economic mobility through educational attainment.

2.2. Regional and Racial Economic Inequity and its Impact on the Effects of Childhood Poverty

According to research completed by Kennedy O'Dell of the Economic Innovation Group (EIG), rural America is economically less prosperous than non-rural parts of the country (O'Dell, 2021). On average, rural areas lag behind non-rural areas on nearly every measure of economic prosperity from poverty rates, which are roughly 3% higher than non-rural areas, to labor force participation, where rural 43.3% of rural counties experiences negative job growth compared to 16.6% of non-rural counties between 2014-2018 and 91% of rural counties lost "prime-age employment" between 2010-2019 (O'Dell, 2021). These economic problems are deeply ingrained in rural communities as a result of slow growth and recovery from economic shocks such as the Great Recession (Cusick et al., 2019).

While some rural communities do enjoy elevated levels of economic well-bring, very few of these prosperous communities are majority-minority, which are overwhelmingly in the lowest quintile of economic performance (O'Dell, 2021). Many of these rural, majority-minority communities are also geographically concentrated, with 70% of non-metro African-Americans living in the Deep South due to a legacy of systematic oppression, 73% of non-metro Hispanics living in the Southwest, and 57% of non-metro Indigenous communities living in five states (AZ, NM, OK, SD, MT) (Samuels et al., 2002). These communities face significant obstacles toward creating prosperity, including economic barriers, limited access to quality health care, and significant rates of premature death

(Henning-Smith et al., 2019). Policymakers often neglect the experience of "non-white" rural Americans (Cusick et al., 2019), even though economic inequities across racial lines are even more pronounced in rural areas (Thiede, 2020). This is seen by the vast difference between the poverty rate for African Americans and the poverty rate for whites, with roughly 34% of non-metro African Americans living in poverty compared to 13% of non-metro whites (Samuels et al., 2002). This difference can also be applied to children, as child poverty rates among rural children in general are roughly 5% higher when compared to national levels and children in rural, majority-minority areas can see poverty rates anywhere from 10-40% above the national average (Thiede, 2020).

2.3. The Impact of Child Tax Credits and Other Government Direct Payments on Economic Inequities and Disadvantages in Rural Areas

To solve the economic inequities experienced in rural, majority-minority communities and set residents on a path to future prosperity, the economic disadvantages of rural areas in general must be addressed. In post-Great Depression America, the role of bridging the gap between rural and urban or suburban places has fallen on the federal government. Whether it was electrifying rural America when private utilities would not (Pacyniak, 2020) or addressing poverty in rural areas through new government programs (Torstensson, 2013) the federal government has long played a role in the economic well-being of rural America. In fact, author Michael Lewis wrote in his book The Fifth Risk, "the more rural the American, the more dependent [they are] for [their] way of life on the U.S. government" (Lewis, 2019). In a document published by the White House in April of 2021, the Biden administration echoed this sentiment by saying "rural and tribal communities are essential to the economic growth of our country. Rural communities require targeted investments that meet the needs of their children and families, along with workforce development." (The White House, 2021)

The Expanded CTC is a targeted investment that could reduce poverty in rural areas and begin to close the economic gap between rural and non-rural areas. In the previously mentioned 2021 White House document, the administration's projections show the permanent extension of the Expanded CTC could lift roughly 620,000 children in non-metro areas out of poverty within a year and cut rural child poverty in half by giving families more financial flexibility in their budgets and allowing them to spend more on basic necessities like food, shelter, clothing, and utilities. Researchers echo these projections after examining data from 2021 that shows rural children and families were more likely to benefit from the Expanded CTC and would be hit hardest economically if the credit was not extended beyond 2021 (Marema, 2021), preventing nearly 3 million rural children from being eligible for the credit (Marema, 2021). This is mainly due to the fact the Expanded CTC does not increase as one's earnings increase, as previous iterations of the pre-expansion CTC have, allowing rural areas, which experience lower incomes when compared to their metro or suburban counterparts, to compete on a level playing field (Eaton, 2022). In addition to the direct impacts on child poverty, the Expanded CTC will also provide a boost to local economic performance. According to researchers at the Niskanen Center, the Expanded CTC will boost consumer spending by $27 billion, generate $1.9 billion in revenues from state and local sales taxes, and support over 500,000 thousand full time jobs at the median wage. These benefits will result in rural communities, especially majority-minority communities that are economically distressed, seeing major benefits in the form of a substantial injection of relative purchasing power equivalent to 1.35% of non-metro GDP (Hammond & Orr, 2021). The literature supports the idea that the Expanded CTC is a winning federal investment that will provide major economic benefits to distressed rural communities, especially majority-minority communities.

2.4. The Impact of Child Tax Credits and Other Government Direct Payments on Educational Attainment and Economic Mobility

Researchers from the Brookings Institution concluded in a 2013 study that educational attainment has allowed many low-income Americans to transform their economic circumstances and that enabling more low-income students to access a college education is one of the most important goals that policymakers can pursue (Greenstone et al., 2013). The Expanded CTC has already shown enormous potential as policy that will expand college and higher education access for low-income students and as a result, increase economic mobility. These results can be seen through the number of low-income families that have used their initial Expanded CTC payments to start a college fund for their children, with roughly 40% of these families committing to this method of saving their payment (Jabbari et al., 2021). The Expanded CTC also limits some of the effects of poverty that have a negative impact on student academic achievement such as food insufficiency, which the initial payments decreased by roughly 25% in 2021 (Parolin et al., 2021). This reduction in food insufficiency is not the only potential health benefit for families with young Americans receiving the Expanded CTC. Models created by the Urban Institute suggest that stress that arises from low economic status, which can lead to serious health problems both in the present and later in life, could be remediated by decreasing income inequality amongst impoverished populations (Kronstadt, 2008). By improving health outcomes amongst families who are economically vulnerable, there is an increased likelihood of generational economic mobility and progress.

Researchers can also look at programs that function as a direct payment allowance, similar to the Expanded CTC, and examine the impact they have on educational attainment. First, in a series of studies on the distribution of casino profits to adult members of the Eastern Cherokee reservation in western North Carolina, researchers from the American Economic Review find that unconditional, per-capita payments increase children's educational attainment in young adulthood (Akee et al., 2010). Secondly, in a study examining the Mothers' Pension program in the early 20th-century, the original precursor to Temporary Assistance for Needy Families (TANF), researchers found that children of mothers who received benefits had more years of education and earned higher incomes in young adulthood (Aizer et al., 2016). Finally, several studies, including one completed by the Journal of Labor Economics, examined the long-term effects of the earned income tax credit (EITC) on children's adult outcomes. Teenagers with higher EITC exposure are more likely to graduate high school and college, be employed as young adults, and have higher earnings (Bastian & Michelmore, 2018). This research and subsequent literature outlining the success of previous and notably less generous programs show that the easily accessible, more substantial, and unconditional direct payments of the Expanded CTC has the potential to significantly increase educational attainment amongst low-income children and increase economic mobility.

Through an examination of the current literature, multiple trends begin to reveal themselves. The first is the consensus that falling into childhood poverty, even for a brief period, can have a detrimental effect on a child's future educational attainment and earning potential. The second is that children who live in rural communities are more likely to experience childhood poverty. This fact is especially true for children who live in rural, majority-minority communities. The third is that the Expanded CTC, as has been the case with past economic assistance programs, would be an effective program in decreasing regional economic inequity. The fourth and final is the effectiveness of direct payment and child allowance programs, such as the Expanded CTC, at decreasing childhood poverty and promoting increased educational attainment and economic mobility. Some gaps that currently exist in the literature that this paper aims to fill include whether childhood poverty has a more acute effect on children in majority-minority communities, the long-term economic impacts that government assistance programs have on rural communities, and whether the Expanded CTC needs adjustments (such as means testing) to be most effective. These gaps will be examined along with further examination of the research questions we have formulated, and will conclude with a list of policy recommendations based on the sum of the findings.

3. Research Design and Methods

3.1. Research Questions

1) What is the connection between childhood poverty rates and decreased levels of educational attainment
   a) Do communities with high child poverty rates see lower rates of educational attainment?
   b) What are the potential economic impacts of this?
   c) How does childhood poverty limit a child's prospects for social mobility?
2) How are the effects of childhood poverty exasperated by the economic inequity experienced by rural, majority-minority communities?
   a) Are rural communities more likely to have high rates of childhood poverty?
   b) What is the impact of this on rural educational attainment levels?
   c) Are rural, majority-minority communities more likely to experience high levels of childhood poverty when compared with rural, majority-white communities?
3) How do direct payments, such as the Expanded Child Tax Credit, decrease child poverty and limit its effects?
   a) Where have similar programs been enacted?
   b) Have they been effective?
   c) How have these programs impacted child poverty rates?
   d) Have the effects of this been noticeable?
4) Are direct payments, such as the Expanded Child Tax Credit, more effective in areas that experience high rates of child poverty such as rural, majority-minority communities?
   a) How have these programs impacted economically disadvantaged communities in the past?
   b) Have they been effective?
   c) How have these communities changed as a result of these programs?

Hypothesis: The Expanded Child Tax Credit, and similar direct payment programs, will decrease child poverty and as a result, increase student educational attainment.

3.2. Research Method

It is difficult to empirically prove the hypothesis of this paper using the data that is currently available on the Expanded Child Tax Credit. This is because the fact that the program is very new and long-term impacts cannot yet be measured despite the fact that the ECTC was expanded in March of 2022 by the American Rescue Plan, would be continued through 2022, according to a framework of the now $1.75 trillion proposal (Reinicke, 2021). ECTC expired at the end of 2022. In 2023, the program reverted to its original form at $2,000 per dependent under age 17 (Gailey, 2023). However, by examining the impacts of a similar and long-standing but less accessible and generous program, the Earned Income Tax Credit (EITC), on educational attainment in specific communities we can theorize and determine the significance the Expanded CTC would have. The EITC is a federal tax credit available to low-income households that saw major expansions between 1990 and 2000 for the purpose of decreasing poverty, especially child poverty. Therefore, we are using EITC as a proxy of ECTC.

4. Data Collection And Analysis

In order to complete this project, we analyzed the potential impacts of the Expanded CTC by examining the impacts of a similar and long-standing but less accessible and generous program, the EITC, on educational attainment in specific communities. Comparisons between the two programs are made quite frequently as both as used as a tool to boost the effective income of those experiencing poverty and provide families with some financial breathing room. In addition to this, researchers have previously looked at the impact of similar cash-transfer programs on the educational and employment outcomes of children who receive them (Bastian & Michelmore,

2018). The following charts show some of the similarities and differences between the two programs and how the two programs impacted people's effective incomes in 2021…

Earned Income Tax Credit	*Expanded Child Tax Credit*
Federal tax credit available to low-income households	Federal tax credit designed to help families with children
Must file tax return to receive	Must file tax return to receive
Reduces ones total tax liability on a dollar-to-dollar basis	Reduces ones total tax liability on a dollar-to-dollar basis
Unemployed households do not qualify	Gives a tax credit on a per-child basis.
Minimum income requirement	Offers up to $2,000 per child and phases out at relatively high levels of income

Figure 1. EITC and ECTC Policy Comparison.

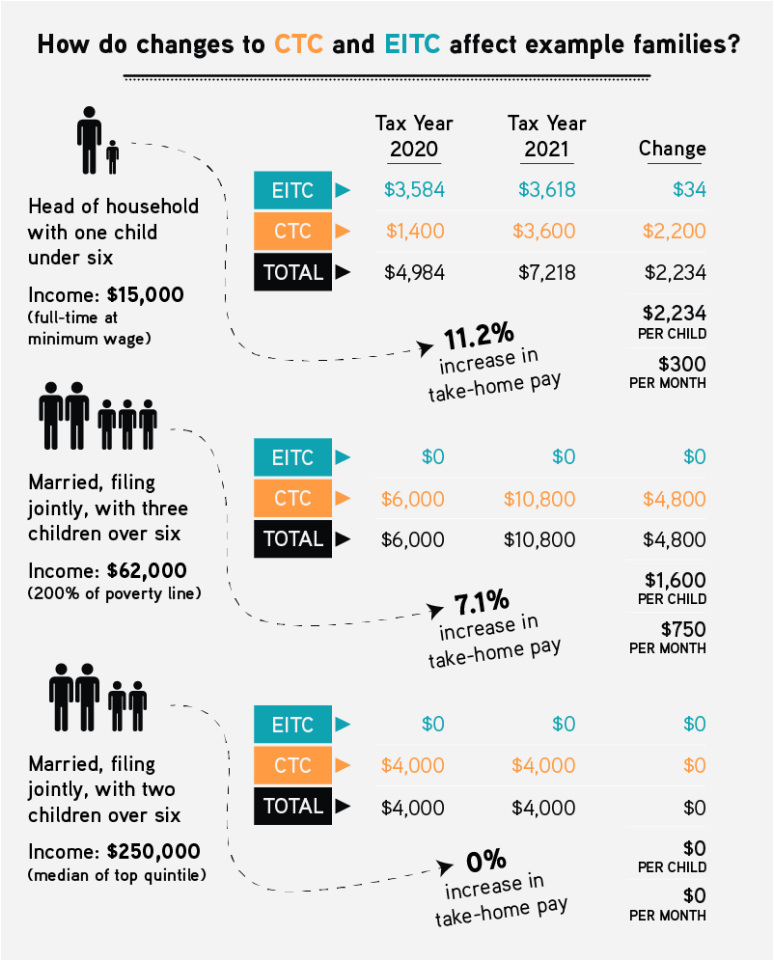

Figure 2. EITC and ECTC Effective Income Improvements.

Note: The above chart comes from the Rockefeller Institute of Government (Wedenoja, 2021).

Hypothesis: The Expanded Child Tax Credit, and similar direct payment programs, will decrease child poverty and, as a result, increase student educational attainment.

Data: For this research experiment, we collected data from various sources. First, we collected information on what counties see the highest number of EITC recipients using data from the IRS website, with residents of rural, majority-minority counties often being the most likely to collect the EITC. In addition, we examined poverty and child poverty rates in targeted counties (rural, majority-minority counties) during the selected period (1989-2000) using the U.S. Census Bureau's Small Area Income and Poverty Estimates (SAIPE) tool. Finally, we found data on

changes in educational attainment (divided into high school completion, some college, and college) across the targeted counties during the selected period (1990-2000) using the U.S. Department of Agriculture's Economic Research Service. This data allowed us to build a database of rural, majority-minority communities and examine EITC prevalence, the changes in poverty rates and educational attainment between 1990-2000.

Sample: The sample for this experiment are children and young adults (followed through their educational experience) from rural, majority-minority counties between the years of 1990 and 2000. The sample allows for the examination of the impact of the EITC on child poverty rates and educational attainment in these communities.

Variables: The two variables examined in this experiment are Child Poverty (the independent variable) and Educational Attainment (the dependent variable). There are other factors that could be examined but the main experiment examined the correlation between these two variables and determine if decreasing child poverty (through measures such as the Expanded Child Tax Credit and EITC) will lead to higher rates of educational attainment.

Research Design: After completing our database consisting of county level poverty and educational attainment data for the rural, majority-minority counties in the United States, we completed a series of statistical tests to analyze the findings and make conclusions. To begin, we examined the average changes in child poverty and educational attainment and used a hypothesis test to find the P-value and determine if the changes in these variables between 1989 and 1990, respectively, and 2000 were statistically significant. In addition, I looked at the average change in child poverty and the average change in educational attainment and performed a correlation test to determine if there is a statistically significant correlation between the two variables. We examined each individual county in the database and perform a correlation test to determine how many counties saw an increase in educational attainment as a result of the decrease in child poverty rates, this number will then be shown as a percentage of all the counties in the database. These various statistical experiments helped to determine all necessary findings for this experiment.

Reliability and Validity: Reliability shows how trustworthy a test is. If the data shows the same results after being tested using various methods and samples, the information is determined to be reliable. If the method has reliability, the results can be considered valid. Validity shows how suitable a test is for a particular situation and focusses on the accuracy of the measurement.

We display reliability and validity in our study using various statistical methods, including hypothesis tests to find P-values and correlation tests, to repeatedly reinforce the findings of this study in different manners (is the overall impact statistically significant? Is there any consensus?). This reinforcement shows the reliability of our work and begins the march towards validity.

4.1. Research Data

Table 1. Child Poverty and Educational Attainment in Rural Majority-Minority Counties, 1989-2000.

State	County	1989 -Child Poverty Rate	1990 - Educational Attainment (Completing College)	1990 - Educational Attainment (Some College)	1990 - Educational Attainment (Completed High School)	2000 -Child Poverty Rate	2000 - Educational Attainment (Completed College)	2000 - Educational Attainment (Some College)	2000 - Educational Attainment (Completed High School)
Alabama	Bullock	41.40%	10.00%	14.20%	24.80%	31.50%	7.70%	17.50%	35.20%
Alabama	Dallas	44.90%	12.20%	19.20%	28.20%	32.10%	13.90%	22.90%	33.60%
Alabama	Macon	42.10%	18.00%	20.70%	23.20%	32.40%	18.80%	26.30%	25.00%
Alabama	Marengo	39.60%	11.50%	15.50%	34.40%	28.10%	12.10%	22.50%	37.40%
Alabama	Sumter	52.20%	11.10%	15.10%	26.20%	36.00%	12.40%	21.20%	31.10%
Alabama	Wilcox	62.40%	10.30%	14.20%	26.50%	37.60%	10.10%	19.20%	30.30%
Arizona	Apache	48.80%	8.50%	20.60%	25.50%	35.80%	11.30%	27.40%	24.90%
Arizona	Santa Cruz	31.30%	10.80%	20.90%	25.50%	32.90%	15.20%	22.70%	22.80%
Arkansas	Chicot	56.90%	8.30%	11.40%	31.50%	36.70%	11.70%	17.30%	35.30%
Arkansas	Phillips	66.20%	9.20%	19.90%	22.40%	38.50%	12.40%	23.40%	26.50%
Arkansas	St. Francis	49.90%	8.50%	17.70%	28.90%	33.00%	9.60%	22.80%	32.80%
California	Colusa	19.00%	11.10%	26.70%	25.10%	23.80%	10.60%	29.20%	24.10%
Florida	Hendry	24.40%	10.00%	15.40%	31.20%	28.10%	8.20%	16.80%	29.10%
Georgia	Early	51.30%	9.40%	15.50%	29.20%	34.20%	12.60%	22.40%	33.50%

Georgia	Jefferson	34.50%	6.20%	13.30%	30.10%	28.60%	9.10%	15.50%	34.00%
Georgia	Macon	46.60%	10.10%	12.70%	30.90%	32.50%	10.00%	18.00%	35.20%
Georgia	Sumter	33.10%	15.90%	18.20%	28.80%	27.50%	19.30%	20.40%	30.20%
Georgia	Washington	30.30%	9.80%	11.80%	36.50%	26.90%	10.50%	18.90%	38.80%
Kansas	Finney	16.00%	14.40%	29.60%	26.90%	16.40%	14.30%	28.30%	24.90%
Kansas	Ford	16.90%	18.10%	30.30%	28.20%	16.00%	16.40%	30.30%	23.10%
Kansas	Seward	20.30%	11.60%	29.00%	31.60%	31.60%	13.60%	23.30%	26.90%
Louisiana	Claiborne	38.40%	10.10%	16.60%	34.20%	32.50%	12.40%	18.10%	35.20%
Louisiana	East Carroll	88.90%	10.30%	14.00%	24.70%	48.40%	12.30%	14.30%	31.20%
Louisiana	Madison	69.00%	9.20%	14.40%	29.60%	44.20%	11.00%	18.70%	33.70%
Mississippi	Adams	38.80%	14.80%	22.40%	30.00%	32.00%	17.50%	24.20%	31.70%
Mississippi	Bolivar	58.30%	15.20%	19.30%	20.40%	35.00%	18.80%	22.10%	24.30%
Mississippi	Clay	30.90%	12.90%	16.40%	31.10%	26.90%	14.60%	22.30%	31.70%
Mississippi	Coahoma	62.80%	14.70%	21.00%	18.20%	36.40%	16.20%	24.50%	21.50%
Mississippi	Jasper	37.30%	9.80%	18.20%	32.00%	27.10%	9.80%	22.40%	34.50%
Mississippi	Jefferson	47.90%	10.30%	17.30%	25.30%	34.80%	10.60%	20.90%	28.10%
Mississippi	Kemper	42.20%	7.90%	17.90%	30.50%	30.50%	10.30%	21.90%	28.30%
Mississippi	Lefore	47.90%	15.70%	17.80%	21.80%	37.40%	15.90%	20.40%	25.70%
Mississippi	Noxubee	55.20%	7.90%	13.00%	28.70%	37.70%	10.90%	16.90%	30.60%
Mississippi	Pike	45.10%	12.80%	19.70%	28.10%	32.20%	12.50%	25.70%	32.00%
Mississippi	Sunflower	54.60%	12.40%	17.00%	19.90%	36.20%	12.00%	21.70%	25.60%
Mississippi	Tallahatchie	48.10%	7.90%	15.40%	24.80%	37.70%	10.90%	19.20%	24.20%
Mississippi	Washington	45.10%	14.30%	19.10%	25.40%	34.90%	16.40%	21.40%	28.70%
Montana	Big Horn	48.40%	12.80%	29.00%	27.40%	32.10%	14.80%	31.90%	30.20%
Montana	Glacier	48.90%	14.50%	26.50%	31.00%	32.80%	16.50%	34.90%	27.30%
Montana	Roosevelt	32.50%	11.30%	28.20%	30.60%	36.10%	15.60%	32.60%	32.40%
New Mexico	Chaves	31.20%	14.30%	25.70%	27.30%	30.80%	16.20%	29.90%	26.40%
New Mexico	Grant	25.00%	16.40%	26.00%	28.10%	26.70%	20.50%	29.80%	29.10%
New Mexico	Lea	26.90%	11.50%	24.80%	27.40%	26.40%	11.60%	27.50%	27.90%
New Mexico	Luna	37.90%	11.10%	16.70%	31.00%	45.90%	10.40%	19.50%	29.90%
New Mexico	McKinley	34%	11.10%	17.70%	29.70%	41.60%	12.00%	25.40%	27.80%
New Mexico	San Miguel	45.90%	16.20%	23.20%	29.00%	30.40%	21.20%	27.70%	25.60%
New Mexico	Taos	37.40%	18.50%	23.70%	29.70%	30.50%	25.90%	26.60%	26.60%
North Carolina	Bertie	36.20%	8.00%	13.80%	33.00%	28.80%	8.80%	18.30%	36.70%
North Carolina	Halifax	37.40%	8.60%	16.90%	28.50%	27.40%	11.10%	21.20%	33.10%
North Carolina	Hertford	32.30%	10.70%	17.80%	29.60%	25.90%	11.10%	23.50%	30.90%
North Carolina	Northhampton	35.40%	8.80%	14.90%	29.10%	28.40%	10.80%	20.20%	31.40%
North Carolina	Vance	23.10%	9.50%	17.50%	30.10%	25.20%	10.70%	23.10%	34.20%
North Carolina	Warren	48.90%	7.10%	15.00%	31.60%	24.50%	11.60%	23.90%	31.90%
North Dakota	Rollette	66.90%	13.00%	35.30%	27.60%	31.40%	15.20%	40.60%	27.40%
South Carolina	Bamberg	38.60%	11.20%	19.50%	28.40%	27.60%	15.40%	21.00%	28.30%
South Carolina	Hampton	29.70%	8.80%	15.00%	35.10%	26.30%	10.10%	19.10%	37.80%
South Carolina	Lee	46.10%	7.50%	12.60%	33.40%	27.00%	9.20%	17.10%	35.10%
South Carolina	Marion	35.40%	9.10%	13.50%	32.70%	30.10%	10.20%	19.30%	38.50%
South Carolina	Marlboro	30.70%	7.90%	13.00%	30.10%	26.50%	8.30%	17.50%	35.00%
South Carolina	Orangeburg	34.50%	13.70%	19.10%	29.60%	25.70%	16.30%	23.70%	31.50%
South Carolina	Williamsburg	38.40%	9.90%	13.70%	31.90%	32.40%	11.50%	18.90%	35.10%
South Dakota	Todd	88.90%	11.80%	25.40%	30.00%	45.40%	12.10%	30.70%	31.30%
Tennessee	Haywood	41.00%	8.70%	14.20%	30.10%	23.10%	11.10%	17.10%	37.50%
Texas	Andrews	18.10%	9.80%	23.60%	27.80%	19.60%	12.40%	23.00%	32.60%
Texas	Bee	42.50%	12.70%	29.70%	22.60%	31.80%	12.20%	26.70%	34.80%
Texas	Dawson	41.50%	9.00%	15.50%	29.40%	32.50%	10.50%	19.90%	34.90%
Texas	Deaf Smith	34.70%	11.00%	21.00%	25.50%	28.40%	11.80%	22.60%	26.50%
Texas	Dimmitt	59.10%	7.80%	13.70%	18.30%	43.10%	10.10%	17.90%	26.30%
Texas	Duval	51.70%	6.40%	14.00%	27.50%	34.50%	8.90%	21.00%	29.70%
Texas	Frio	56.70%	7.50%	13.80%	28.80%	38.20%	8.40%	20.80%	28.40%
Texas	Gonzales	43.20%	8.50%	15.50%	31.50%	29.60%	10.70%	17.50%	33.70%
Texas	Hale	36.40%	12.70%	20.90%	27.50%	25.90%	14.40%	22.80%	28.70%
Texas	Jim Wells	41.50%	9.40%	19.20%	26.80%	30.50%	10.90%	21.50%	32.40%
Texas	Karnes	41.60%	8.90%	17.00%	25.40%	28.50%	9.40%	17.40%	32.30%
Texas	Kleburg	37.30%	18.90%	23.50%	20.90%	31.60%	20.40%	24.80%	23.10%
Texas	Lamb	40.60%	11.10%	18.70%	26.90%	28.50%	11.10%	24.20%	28.40%
Texas	Maverick	50.40%	7.30%	12.50%	15.80%	43.80%	9.10%	14.20%	18.80%
Texas	Moore	15.70%	10.80%	21.20%	30.00%	19.10%	11.00%	22.60%	28.50%
Texas	Pecos	34.40%	12.10%	19.40%	26.60%	29.00%	12.90%	20.20%	29.40%
Texas	Reeves	45.20%	6.90%	15.30%	23.20%	35.90%	8.00%	13.80%	24.90%
Texas	Starr	67.50%	6.70%	8.10%	16.80%	54.00%	6.90%	10.90%	16.90%
Texas	Terry	41.00%	9.70%	21.00%	29.00%	31.90%	9.50%	21.20%	31.90%
Texas	Uvalde	48.20%	13.50%	21.40%	21.20%	35.50%	13.80%	23.40%	22.40%
Texas	Val Verde	48.50%	13.00%	21.50%	21.60%	33.70%	14.10%	19.80%	24.80%
Texas	Ward	22.40%	10.40%	21.10%	31.70%	24.70%	12.40%	23.20%	34.50%
Texas	Willacy	58.90%	8.80%	12.30%	21.80%	44.40%	7.50%	16.90%	24.40%
Texas	Zapata	52.20%	6.90%	18.40%	24.80%	41.80%	8.70%	16.70%	27.70%
Texas	Zavala	57.60%	6.90%	13.30%	18.40%	50.60%	7.60%	15.50%	20.30%
Utah	San Juan	67.80%	13.10%	24.30%	22.30%	26.70%	13.90%	32.10%	23.60%
Virginia	Brunswick	26.00%	7.00%	16.20%	27.30%	20.20%	10.80%	21.30%	31.00%
Washington	Adams	21.90%	12.30%	24.50%	29.60%	23.40%	12.20%	24.90%	26.20%
Averages		42.56%	10.90%	18.75%	27.49%	31.83%	12.41%	22.18%	29.65%

Note: This chart contains all the data from the "database" I created using the U.S. Census Bureau's Small Area Income and Poverty Estimates (SAIPE) tool (https://www.census.gov/programs-surveys/saipe.html) and the U.S. Department of Agriculture's Economic Research Service (https://data.ers.usda.gov/reports.aspx?ID=17829).

5. Results

Child Poverty and Educational Attainment Significance Test: After completing the significance tests for the

changes in child poverty and educational attainment, we determined that the changes in child poverty rates, and the changes at all three levels of educational attainment (completed college, some college, and completed high school) were statistically significant at the 0.05 level.

Child Poverty and Educational Attainment Correlation Test: After completing the correlation test between the changes in average child poverty rates and the changes in average educational attainment (as determined by adding all three levels (competed college + some college + completed high school) together), we determined that there was a strong correlation between the decrease in child poverty rates (-10.72%) and the increase in overall educational attainment (+7.1%).

County Level Child Poverty and Educational Attainment Correlation Test: After completing the correlation tests for every county in the "database," we determined that 76 of the 91 counties accounted for saw a strong correlation between the decrease in child poverty rates and the increase in educational attainment or about 84%. The counties that saw the biggest improvements and the strongest correlation were in the Southeast in states such as Georgia, Mississippi, and Alabama, while the smallest improvements and weakest correlations were in the Southwest in states such as Texas and New Mexico.

Extrapolate from EITC and Expanded Child Tax Credit: Using the data from 1990 and 2000, we estimate that for every 1% decrease in the child poverty rate, the data shows an expected 0.662% increase in overall educational attainment. We used this data to understand the potential impact that the more generous and accessible Expanded Child Tax Credit could have on overall educational attainment. Although the maximum credit available between the two programs is similar for families with one child, the maximum Expanded Child Tax Credit (for children under the age of 6) is roughly 22% more generous then the EITC for families with two children and roughly 62% more generous then the EITC for families with three children. This means that the implementation of the Expanded Child Tax Credit has the potential to be even more transformational and impactful then the EITC was between 1990 and 2000.

5.1. Graphs and Visuals

These graphs contain data from 1990 and 2000 to compare the changes in child poverty with the changes in each level of educational attainment. The trend lines show how the decreases in child poverty that occurred between 1990 and 2000 led to improved educational attainment.

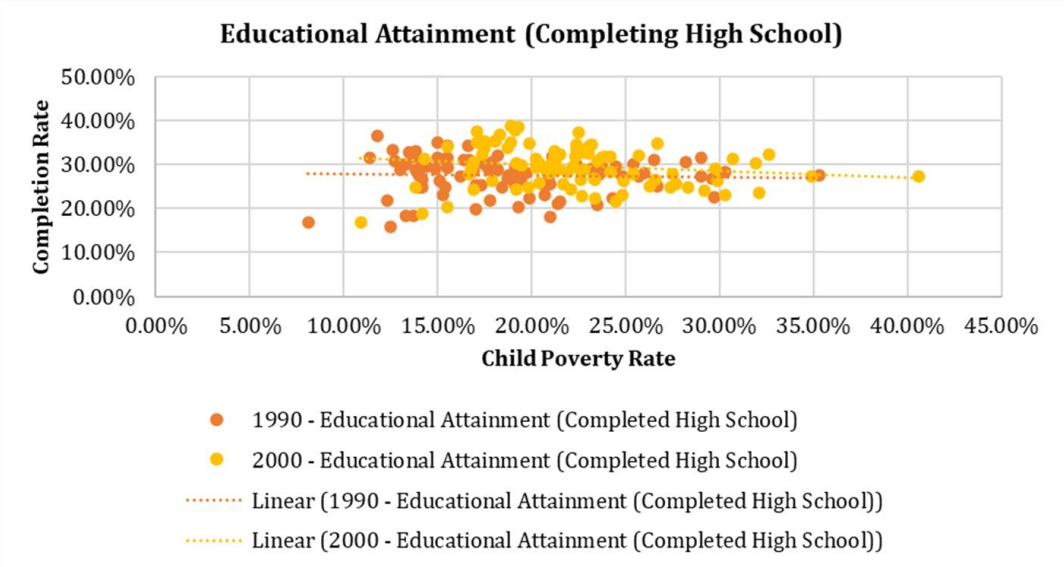

Figure 3. High School Completion Rate and Child Poverty, 1990-2000.

Note: These graphs show the county level data for the number of people who completed high school in both 1990 and 2000. This data is contrasted with the changes in the child poverty rate over that time. The trend lines were added with the use of Microsoft Excel to show evidence that a decreasing child poverty rate leads to more young people graduating high school. We created this graph using the U.S. Census Bureau's Small Area Income and Poverty Estimates (SAIPE) tool (https://www.census.gov/programs-surveys/saipe.html) and the U.S. Department of Agriculture's Economic Research Service (https://data.ers.usda.gov/reports.aspx?ID=17829).

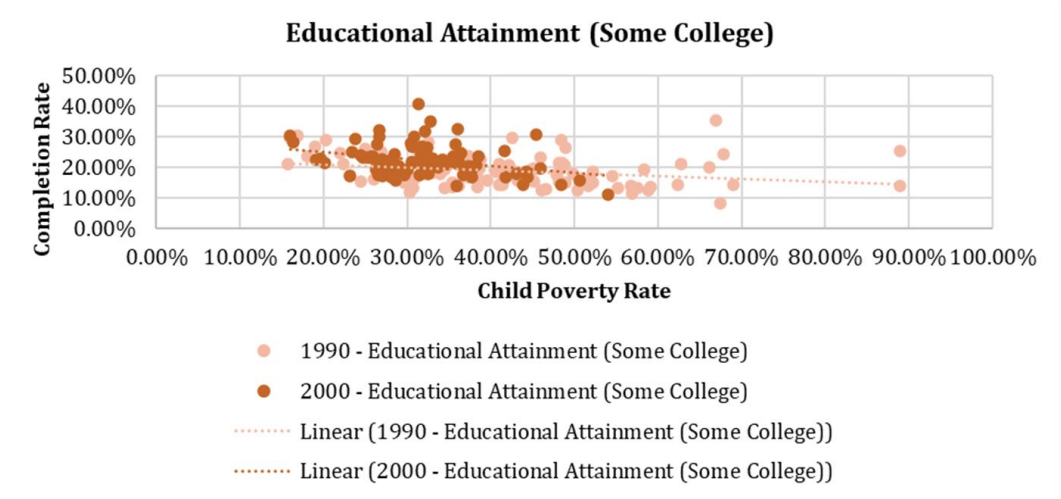

Figure 4. Some College Completion Rate and Child Poverty, 1990-2000.

Note: This graph shows the county level data for the number of people who attended college or completed an associate degree in both 1990 and 2000. This data is contrasted with the changes in the child poverty rate over that time. The trend lines were added with the use of Microsoft Excel to show evidence that a decreasing child poverty rate leads to more young people attending college or completing an associate degree. We created this graph using the U.S. Census Bureau's Small Area Income and Poverty Estimates (SAIPE) tool (https://www.census.gov/programs-surveys/saipe.html) and the U.S. Department of Agriculture's Economic Research Service (https://data.ers.usda.gov/reports.aspx?ID=17829).

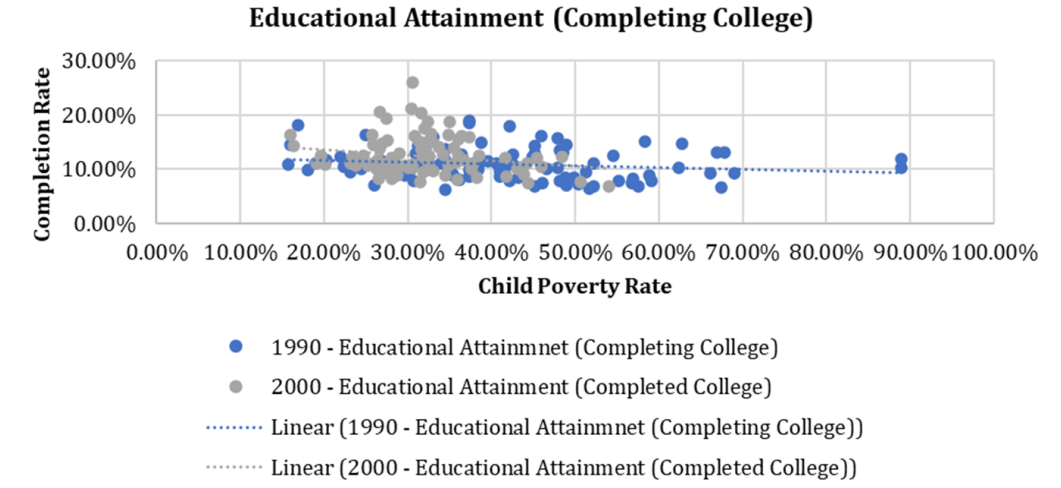

Figure 5. College Completion Rate and Child Poverty, 1990-2000.

Note: This graph shows the county level data for the number of people who competed college in both 1990 and 2000. This data is contrasted with the changes in the child poverty rate over that time. The trend lines were added with the use of Microsoft Excel to show evidence that a decreasing child poverty rate leads to more young people completing college. We created this graph using the U.S. Census Bureau's Small Area Income and Poverty Estimates (SAIPE) tool (https://www.census.gov/programs-surveys/saipe.html) and the U.S. Department of Agriculture's Economic Research Service (https://data.ers.usda.gov/reports.aspx?ID=17829).

6. Policy Recommendations

6.1. Policy Recommendation1: Make the Expanded Child Tax Credit Permanent

Unfortunately, the Expanded CTC was only re-authorized until the end of 2022, as the funding provided by the American Rescue Plan was not reauthorized in the form of a larger, more transformational bill. The first step in ensuring the reductions in child poverty observed in the last year are sustained is to ensure that the Expanded Child Tax Credit is made permanent with the following policy points:

- For children over the age of 6, increase the maximum credit amount per child to $2,200, make the first $1,200 fully available regardless of earnings.
- For children under age 6, increase the maximum credit amount per child to $2,800 and make the first $1,800 fully available regardless of earnings
- Raise the age of eligible children to 17.
- Pay the fully available portion of the CTC periodically throughout the year. This no-strings attached flow of income can act as an essential part of a family's monthly budget (Akabas et al., 2021).

6.2. Policy Recommendation 2: Fix Implementation Process By Ensuring Eligible Americans Receive Their Tax Credits

Unfortunately, one of the issues in the implementation of the program is that many people who are eligible for the Expanded CTC, as well as a number of other programs such as the EITC, are unaware that they are eligible or struggle to understand the process of claiming the credit and as a result do not receive the proper credit (Akabas et al., 2021). This issue stems from the complexity of the filing process, the information gap about the program that may exist between high and low income families, and limited data that exists about the "non-filer" population. The following tax related policy proposals must be implemented to reduce these types of occurrences:

- Authorize the IRS to regulate unenrolled tax preparers.
- Adequately fund the IRS and improve the audit process.
- Expand support for Volunteer Income Tax Assistance (VITA) sites.

6.3. Policy Recommendation 3: Increase Revenue to Pay for Changes

As with any large, transformative change to social policy, making the Expanded Child Tax Credit permanent would be extremely expensive, with some estimates putting the cost at $1.6 trillion over a 10-year budget window. This policy would need to be paid for to limit its impact on the fiscal balance of the federal budget. The following is a list of funding mechanisms to pay for the program:

- Reversal of the cuts made in the 2017 Tax Cuts and Jobs Act on high income earners and corporations.
- Adequately fund and equip the IRS with the resources they need to go after tax cheats and collect lost revenue. It is estimated that every $1 invested in the IRS results in a gain of $5-9 in revenue (Swagel, 2021).

Note: These proposals would generate enough revenue (between $1.4 trillion and $2.5 trillion over ten years depending on estimates) to either fully or almost fully fund the Expanded Child Tax Credit (Akabas et al., 2021).

7. Conclusion

In a campaign visit to Erie during the Democratic Primary for the 2021 United States Senate race in Pennsylvania, Representative Conor Lamb touted the Expanded Child Tax Credit as "the best anti-poverty policy the federal government can get behind". However, as Richard Reeves, a Senior Fellow at the Brookings Institution, and

the director of the organization's Future of the Middle-Class Initiative wrote in a 2021 piece, the policy is not only anti-poverty but also pro-mobility (Pulliam & Reeves, 2022). The disposable income that the Expanded Child Tax Credit can provide to families with children could allow them to afford necessities, provide their children with resources that increase their chances of success such as books or educational tools, or investing in their child's future by taking important steps such as establishing a college fund. This disposable income is especially valuable for families in rural, majority-minority communities, who are historically affected by poverty and unable to achieve intergenerational economic mobility. This research attempted to answer questions surrounding the Expanded Child Tax Credit, including its potential to cut child poverty and increase educational attainment, its impact on future economic prosperity in rural, majority-minority communities, and the policy's ability to decrease economic disparities between non-metro and metropolitan areas.

Potential Limitations of the Study: The potential limitations of this study are many. More specifically, there are a number of definite limitations around analyzing the policy's effectiveness as a result of individual choice and circumstances. For example, families will spend the money of different things, and from an academic perspective, students will undoubtably have different academic skill levels.

In addition to the limitations when examining the policy, there are also limitations based on the economic conditions of the United States. Although the Expanded Child Tax Credit would be transformational and provide families with some much-needed economic assistance, it does not solve the societal problems of mass economic despair, a decrease in overall educational attainment, and huge inequities between urban and rural areas. There must be continued thought, research, and most importantly, investment, into solving these problems.

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Conflict of Interest

All the authors claim that the manuscript is entirely original, and they declare no conflicts of interest

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