Institute for Economic Studies, Keio University

Keio-IES Discussion Paper Series

アメリカ合衆国における児童虐待の社会経済的要因について

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2023 年 2 月 12 日
DP2023-003
https://ies.keio.ac.jp/publications/22351/

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12 February, 2023

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IES Keio DP2023-003
2023 年 2 月 12 日
JEL Classification: I32; J13; K42
キーワード: 児童虐待; 虐待; ネグレクト; リスク要因; 社会経済的要因

【要旨】

児童虐待防止を目的としたエビデンスに基づく政策立案（EBPM：Evidence-Based Policy-Making）への取り組みに貢献、並びに米国における児童虐待率の減少に寄与することを本研究の意義とする。米国内外において特定の社会経済的要因が児童虐待の件数にいかなる影響を与えるのかについては、近年幾多の実証研究で明らかになってきた。しかし、これらの研究では、母集団として用いるデータの最新性や地域的な網羅性が不十分であるケースが殆どである。 本研究では、米国全州の最新データに対して多重線形回帰分析を実施し、米国の児童虐待率に影響を及ぼす可能性のある幅広い社会経済的要因を推定した。 分析の結果、貧困率と里子を含む血縁関係のない子供の存在が米国の児童虐待率を増加させることが判明した。一方で、失業率、ひとり親家庭であるか否か、高等教育を受けているか否かと児童虐待率の間には統計学的有意差は認められなかった。

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謝辞：慶應義塾大学経済学部嘉治佐保子教授、同学部木村福也教授、並びに同学部講師タギザーデヘサーリファルハード先生には本研究の遂行にあたり、適切なご助言を賜りましたことに深く感謝いたします。また、熱心なご指導と投稿のご推薦を同学部大垣昌夫教授より賜りました。ここに感謝の意を表します。なお、本稿のありうべき誤りはすべて筆者個人に属します。

Identifying Socioeconomic Determinants of Child Maltreatment in the United States

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Abstract: Recent empirical studies have investigated the effects of specific socioeconomic determinants on child maltreatment outcomes both inside and outside the United States, but these studies fail to consider either circumstances on a greater scale or current data that is applicable to the existing state of affairs. The present study introduces a multiple linear regression model based on recent state-level data which estimates a wide range of socioeconomic predictors that may significantly influence child maltreatment outcomes in the United States. Some of the findings include that overall poverty rate and the presence of a foster child or other unrelated child aggravates child maltreatment rates at the national level. Meanwhile, unemployment rate, higher education attainment, and children in single-parent households are found to be unrelated with child maltreatment outcomes. Results from the present study offer knowledge that is pertinent to evidence-based recommendations for existing welfare and intervention programs, for the purpose of reducing child maltreatment incidence rates nationwide.

JEL classification codes: I32; J13; K42

Keywords: child maltreatment; abuse; neglect; risk-factors; socioeconomic determinants

Acknowledgement: The author thanks Professors Sahoko Kaji, Fukunari Kimura, and adjunct instructor Farhad Taghizadeh-Hesary from Keio University for their valuable comments. The author is especially grateful to Professor Masao Ogaki for his guidance and making the present study's inclusion in the Keio-IES Discussion Paper Series possible. The author is responsible for any remaining errors or omissions.

1. Introduction

Child abuse and neglect is a public health, social, and most crucially, human rights issue with dire repercussions (Hillis et al., 2016), hence why both state and federal governments are taking measures to combat child abuse in the United States of America. Yet, according to the Children's Defense Fund's 2020 landmark report, a child is abused or neglected every 47 seconds within the country (2020). With regard to the role of academia in overcoming this growing epidemic of child abuse and neglect, the history in the field of child maltreatment in the United States is considered to be quite short. In fact, it was only after the 1962 publication of an article titled, 'The Battered-Child Syndrome' in the *Journal of the American Medical Association* that Kempe was able to raise awareness of the reality of child abuse and neglect within the nation (Kempe et al., 1962). As of today, American pediatrician Kempe is known as "the first to explicitly detail and examine child battering at length in medical press" (Crane, 2018), and one whose discovery effectively addressed the establishment of protocols involving law enforcement, medical professionals, and social workers. Following this, the first federal legislation addressing child abuse and neglect known as the Child Abuse Prevention and Treatment Act (CAPTA) was enacted in 1974, which not only properly defined child maltreatment but also notification obligations and regulations on investigation procedures related to the issue (Yamaguchi, 2016).

Primary prevention, defined as "any intervention that prevents child abuse before it occurs" (Bethea, 1999, p. 1577), is pivotal in the attempt to reduce child abuse and neglect as well as to promote child and family well-being. If evidence-based practices and prevention strategies for child abuse and neglect are not appropriately implemented and abuse against children occurs as a result, not only would it bring about detrimental effects such as inimical health and mental outcomes in both children and family members which could last a lifetime, but also does it eventually lead to the absence of economic prosperity in the long run (United

States Department of Health & Human Services, n.d.-d). Therefore, although much attention is paid to the negative aftermaths of child abuse and neglect in current research, further investigations should continue to be carried out in identifying the various risk factors and predictors that are involved in child abuse and neglect so that such consequences do not have to be experienced in the first place.

In fact, with reference to the notion that the instigation of child maltreatment cannot be narrowed down to a single cause, past studies in this field have been able to identify a diverse range of elements and attributes which raise the likelihood of parents or other caregivers abusing or neglecting a child (Goldman et al., 2003). Contributing factors include lower socioeconomic backgrounds concerning education and family structure, environmental factors such as poverty and unemployment, and characteristics that have relevance to both the child and the caregiver (Goldman et al., 2003; National Center for Injury Prevention and Control, 2022; "Child maltreatment," 2011). Nonetheless, at the time of writing in February 2023, prior research on the predictors of child maltreatment outcomes is concentrated on rather narrow scopes of geographical area for the most part. For example, county-level data is utilized in recent studies by Lindo et al. (2013) for the state of California, Frioux et al. (2014) for the state of Pennsylvania, and Ports et al. (2018) for the state of Georgia, all of which estimate the effects of selected economic conditions on measures of maltreatment. Such a definition of area of study makes it difficult to fit the obtained results to the national level, hence why conclusions presented by these authors are deduced to be limited in terms of applicability. Moreover, to the author's best knowledge, although state-level panel data is used in studies published by Paxson & Waldfogel (1999, 2002, 2003), Bitler & Zavodny (2002, 2004) and Seiglie (2004), their results are outdated considering the fact that their numbers are from prior to the year 2000. In other words, these studies which investigate the effects of selected socioeconomic predictors on child maltreatment at a national level do not reflect the status quo in relation to the American

economy today. Following this train of thought, the present study's research aim is to identify a wide range of socioeconomic determinants of child victimization in the United States and compare how the protection of children is being impacted in recent years, and in order to achieve this research aim, state-level data for multiple socioeconomic determinants will be examined and regressed against state-level data on child maltreatment rates in order to observe how these predictors jointly affect the select outcome variable, gain a more precise and accurate understanding of how it is associated to each individual factor, and apply conclusive results to the grand scheme. As such, the research question that the present study will attempt to answer is as follows; which socioeconomic determinants have a significant effect on child maltreatment rates in the United States?

Regardless of the motivations behind the action, abuse, neglect, or any other form of violence, whether it be physical or psychological, is considered a fundamental violence of rights inherent to children (*Convention on the Rights of the Child*, 1990). Among many other societal issues, child maltreatment is one which most definitely deserves serious attention and fast action, and the author believes that the integration of academia with special attention to the study of economics is one way in which public opinion can be changed and ultimately influence important stakeholders such as government officials as well as legislators to make the necessary political decisions to take administrative measures related to counteracting child abuse and neglect, which political power should be utilized to protect those often vulnerable to oppression. As members of society, the author believes that it is our mandate to save, defend, and empower those who are ill-protected and unable to stand firm against violations of their fundamental human rights on their own.

In to the bargain, according to Heckman, "the highest rate of return in early childhood development comes from investing as early as possible…in disadvantaged families" (Heckman, 2012, as cited in *Invest in early childhood development: Reduce deficits, strengthen the*

economy, 2013, p. 1). This theory is in reference to Heckman's Michigan-based Perry Preschool Project, which is a randomized study conducted between the years 1962 and 1967 with the purpose of unveiling the positive effects that high-quality preschool programs (in other words, early childhood education) have upon the IQ of African-American children from underprivileged families, if any (Perry Preschool Project, n.d.; Sasaki, 2017). Heckman et al.'s research (2006) not only reveals the existence of the so-called Heckman Curve, which "describes the rate of return to public investments in human capital for the disadvantaged as rapidly diminishing with age" (Rea & Burton, 2019, p. 1), which such a conception of human capital revolves around non-cognitive skills, but also does it recognize how intervention methods such as the provision of childcare support, proper mental care, and early education for families that are prone to maltreatment allows for them to nurture non-cognitive abilities among their children, through which one can expect improvements in academic achievements, lifetime income, and overall well-being (Heckman et al., 2006; Kawaguchi, 2006; Lundberg, 2018).

Along with it, research by Felitti et al. (1998) inspects the repercussions of Adverse Childhood Experiences (ACEs), including abuse and neglect, on adult outcomes. They compute a logistic regression model for specific health risk factors such as depressed mood and suicide attempt, as well as disease conditions to estimate relationships between categories of childhood exposures to health risk behavior and disease in adulthood, through which they exhibit that "early adverse experiences correlate with poor adult health, high medical care costs, increased depression and suicide rates, alcoholism, drug use, poor job performance and social function, disability, and impaired performance of subsequent generations" (Heckman, 2013, p. 20). If early childhood interventions can improve gaps in both cognitive and non-cognitive elements of physical, mental, and socio-emotional health which ultimately "cause improvements in children's outcomes" (Heckman, 2013, p. 26), and if ACEs harm adult

outcomes among individuals who have been maltreated as children, then it is readily apparent that these impediments to social mobility should be removed and instead, be replaced by investments in "early resources for developing skills in children that increase productivity and earnings in the adult years" (Promoting Human Capital Development: Discussions at the Brookings Institution and IMF, n.d.) – a societal benefit. That is to say, the present study's attempt at addressing the challenges of socially vulnerable children is valid and meaningful, from both an economic point of view and a perspective of social obligation.

2. Background and Literature Review

In the following section, the general context of the present study is established, followed by a review of nine related academic works from the field of child maltreatment in which the association between relevant socioeconomic factors such as poverty, welfare receipt, and single-parenthood and child maltreatment rates have been extensively documented. The section concludes by presenting an initial selection of independent variables for the present study's quantitative analysis, supported by evidence from the conducted background research.

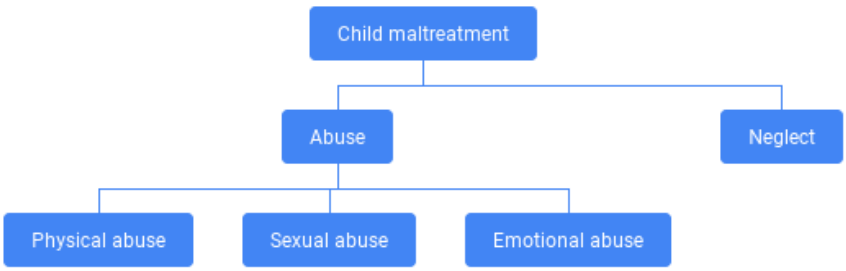
2.1 Background of the Study

In accordance with the World Health Organization, child maltreatment is defined as "the abuse and neglect that occurs to children under 18 years of age" (World Health Organization, 2020) and "it includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power" (World Health Organization, 2020). In terms of legal interpretations, although federal legislation establishes minimum standards for whether a series of acts or behaviors should be recognized as child maltreatment, specific definitions of types of child abuse and neglect vary from state to state with existing differences in notification and reporting procedures as well (United States Department of Health & Human Services, n.d.-

a). Nonetheless, these minimum standards constituted by the Federal CAPTA which have been amended by the CAPTA Reauthorization Act of 2010 are as follows; "the term 'child abuse and neglect' means, at a minimum, any recent act or failure to act on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse or exploitation…, or an act or failure to act which presents an imminent risk of serious harm" (Child Abuse Prevention and Treatment and Adoption Reform, 2010). As can be observed, the terms 'child abuse and neglect' and 'child maltreatment' can be and often are frequently used interchangeably in literature, although they are not synonymous in the law. In fact, there exists a distinction between the terms 'child abuse' and 'child neglect' as well, in that the former generally appertains to "an act of commission" (Gonzalez et al., 2021) while the latter refers to "an act of omission in the care leading to potential or actual harm" (Gonzalez et al., 2021), albeit the two are interrelated in the sense that they pertain to the emotional and physical wellbeing of a child. Nevertheless, given that the present study is not a legal research paper but rather, one which attempts to investigate specific trends and determinants of child maltreatment in the United States, the term 'child abuse and neglect' is to be exchanged for 'child maltreatment' depending on the circumstances of the paper. Figure 1 exemplifies how specific words and phrases concerning child abuse and neglect are related to the umbrella term, 'child maltreatment.'

Figure 1

Organization Chart of Terms



2.2 Related Empirical Work

First and foremost, "child maltreatment in the U.S. has been consistently linked to poverty" (Millet et al., 2011) with not only theoretical but also empirical evidence to support this supposed link relating family poverty to child maltreatment outcomes. For example, Slack et al.'s work published in 2004 provides distinctive conclusions asserting that poverty is predictive of child neglect. Deriving their study sample from both administrative data provided by the Illinois Department of Children and Family Services, as well as a 6-year longitudinal panel study of families receiving welfare such as the Illinois Temporary Assistance for Needy Families (TANF) from the Illinois Families Study, the authors construct a series of correlation analyses to "assess the strength and direction of the bivariate relationships between [their] neglect outcomes and [their] poverty and parenting indicators" (Slack et al., 2004, p. 401). These indicators include perceived material hardship, sporadic employment, low parental warmth, and frequent television viewing by the youngest child, and Slack et al. (2004) unveil that these indicators are, indeed, predictive of child neglect. Specifically in relation to the effect of poverty indicators on neglectful behaviors against children, the authors find that this effect is one which is direct and independent. Another study that measures the relationship between poverty and child maltreatment from a slightly different perspective is Ginther & Johnson-Motoyama's 2017 publication. The authors focus on "the potential of economic and social safety net policies to prevent child neglect" (Ginther & Johnson-Motoyama, 2017, p. 9), and attempt to model the effects of reduced economic supports, namely TANF, which is an economic policy that is, theoretically speaking, designed to minimize poverty rates. According to their series of difference-in-difference estimations using state-level data provided by the National Child Abuse and Neglect Data System (NCANDS), when economic and concrete supports in the form of TANF sanctions are reduced, such that TANF time limits of less than five years are implemented by states, the number of identified child victims increased by 29.6%

and that of child neglect also increased by 33%. Furthermore, in states where TANF denial rates increased more than 20% in two years, the number of identified child victims increased by 19% and cases of foster care entries increased by 16% (Ginther & Johnson-Motoyama, 2017). In other words, the restriction of this economic benefit is in essence related to increases in poverty, and thus increased child maltreatment victims as a result.

Supplementarily, welfare receipt is another indicator related to economic security that has generally been associated to heightened child abuse and neglect rates. To name an example, Mersky et al.'s 2009 publication utilizes the Chicago Longitudinal Study in order to examine the interconnection between poverty and child maltreatment, in which welfare receipt is used as the primary measure of poverty. Data on 1,411 participants "whose maltreatment records were verified from administrative data" (Mersky et al., 2009) are taken from this federally funded investigation, and after assessing three sets of probit regressions that tested existing associations, if any, between specific indicators such as sociodemographic characteristics as well as participation in the Chicago CPC (Child-Parent Center) preschool program, "a school-based early childhood intervention that provides comprehensive child and family support services from ages 3 to 9" (Mersky et al., 2009, p. 76), and the increased likelihood of maltreatment outcomes against children, Mersky et al. (2009) proclaim that receipt of public assistance does, in fact, significantly impact multiple maltreatment outcomes.

In conjunction with the direct relationship Mersky et al. (2009) reveal between receipt of public assistance and maltreatment outcomes, the authors also find that single-parent family status exerts significant influence on the select outcome variable. The relationship between child maltreatment outcomes and such a family structure indicator has also been verified by other publications, such as those published by Paxson & Waldfogel (1999). In their 1999 study, Paxson & Waldfogel employ data on reported and substantiated cases of child maltreatment from the NCANDS to devise state-level panels so that the roles of specific socioeconomic

circumstances such as family structure, family income, and parental employment as potentially significant determinants of child maltreatment could be analyzed. As a result, Paxson & Waldfogel (1999) establish that certain socioeconomic indicators are strongly related to child maltreatment outcomes. Specifically, "states with higher fractions of children with absent fathers, and especially absent fathers and working mothers, have higher rates of child maltreatment" (Paxson & Waldfogel, 1999, p. 239). On the other hand, their results concerning family income are less conclusive, as there are "expected negative effects of median per capita income on the number of reports and number of victims in the models with no state fixed effects [but] these effects do not hold up in the fixed-effects estimates" (Paxson & Waldfogel, 1999, p. 244). Therefore, it should be recognized that certain results obtained by Paxson & Waldfogel (1999), related to income levels in particular, are sensitive to specification. While this study only includes data for the years 1990 to 1996, Paxson & Waldfogel once again construct state-level panels in their 2003 study and further develop their 1999 work by building on to their original data set to incorporate numbers from two more additional years, for 1997 and 1998. Not only does Paxson & Waldfogel's 2003 study confirm their findings from that of 1999 regarding the predictive relationship between family structure, namely single-parenthood, and the heightened risk of substantiated maltreatment, but also does it verify the conclusion accepted in their 2002 work which reports the considerable effects poverty measures have on child maltreatment outcomes (Paxson & Waldfogel, 2002, 2003).

On the subject of income levels being a potential predictor of child maltreatment outcomes, Berger's 2004 study, which uses a total of 17,871 cases of observational data for children aged 0 to 9 years from 1986, 1988, 1992, 1994, 1996, and 1998 provided by the National Longitudinal Survey of Youth (NLSY), finds that family income is significantly and negatively related to overall risk of child maltreatment. In addition to this, probit models constructed by Berger (2004) also reveal that children living in "single-parent families and

families with a biological mother and non-biological father figure" (Berger, 2004, p. 725) are at greater risk of child maltreatment in comparison to those who live in families where both biological parents are present, thus forming a connection between the findings presented by Paxson & Waldfogel (1999, 2003) and Mersky et al. (2009) regarding family structure (Berger, 2004).

Finally, the impacts of macroeconomic factors against child maltreatment outcomes have also been explored in existing research. For example, Millet et al.'s 2011 study composes bivariate correlations and ordinary least squares (OLS) regression to explore state-level relationships between selected indicators of economic conditions such as labor force participation and maltreatment rates for seven U.S. states – Arizona, California, Massachusetts, Missouri, North Carolina, Oregon, and Wisconsin (2011). In their study, Millet et al. (2011) find that "overall rates of maltreatment increased with unemployment…and decreased with labor force participation" (Millet et al., 2011, p. 1284), which sheds light upon how economy-wide phenomena can also affect child abuse and neglect rates. With regard to studies that encapsulate more recent depictions of national economies, Fabbri et al.'s 2021 work measures the impact the COVID-19 pandemic may have on violent discipline against children, for which data is taken from the Multiple Indicator Cluster Surveys conducted in the countries of Nigeria, Mongolia, and Suriname, and results indicate that violent discipline scores increase in both "high restrictions" and "low restrictions" COVID-19 scenarios, which take into consideration business and school closures, as well "effects of the economic crisis triggered by the pandemic" (Fabbri, 2021, p. 11) including increases in poverty, alcohol consumption, and risk of drop-out (Fabbri, 2021).

2.2.1 Initial Selection of Indicators

Given the review of related literature that has been performed in Section 2.2, an initial selection of the following 11 independent variables has been identified: overall poverty rate,

child poverty rate, unemployment rate, presence of foster child or other unrelated child, children in single-parent families, households led by a single mother with children under age 18 living in the household, mean household income, median household income, median family income with own children, children under 18 years living in households with SSI (supplemental security income), cash public assistance income, food stamp/SNAP (Supplemental Nutrition Assistance Program) benefits, and higher education attainment.

In terms of the first two predictor variables that are concerned with poverty, given the notion that relative empirical works measure rates of poverty in different ways, such as perceived material hardship and sporadic employment in Slack et al. (2004) and welfare receipt in Mersky et al. (2009), the present study decided upon conspicuous measures of poverty, namely overall poverty rate and child poverty rate. It should be noted that Paxson & Waldfogel (2002) also implement a direct measure of poverty in their work, in which they examine the relationship between maltreatment risk and the fraction of children who live in extreme poverty, meaning those who live in households earning a family income that is less than 75% of the poverty line. Welfare receipt is also included in the list of indicators in the form of children under 18 years living in households with SSI, cash public assistance income, food stamp/SNAP benefits, supported by Ginther & Johnson-Motoyama (2017) and Mersky et al. (2009), as well as the two variables regarding single-parenthood, children in single-parent families and households led by a single mother with children under age 18 living in the household, supported by Mersky et al. (2009), Paxson & Waldfogel (2002, 2003), and Berger (2004). The series of potential determinants related to family income levels, mean household income, median household income, and median family income with own children, are supported by Paxson & Waldfogel (1999) and Berger (2004). Although the former finds results that are less conclusive due to specification sensitivity, the latter finds a negative relationship between family income and overall risk of child maltreatment that is statistically significant. The macroscopic

economic indicator of unemployment rate is included given the conclusions presented by Millet et al. (2011), which is also influenced by Fabbri et al. (2021) whose work attempted to interpret how child maltreatment outcomes can be affected by macroeconomic activities and phenomena.

Beyond these predictive indicators that draw a connection between related empirical works within this field, the presence of foster child or other unrelated child and higher education attainment have been incorporated as well. In consideration to the former, this choice has partially been derived by the work of Berger (2004), which reveals that families with both biological parents are more likely to offer caregiving environments that meet the needs of their children, while findings also suggest that families in which non-biological father figures are present are at greater risk of both poor caregiving and providing low quality caregiving environments. Along with statements made by Richard Wexler, who is the Executive Director of the National Coalition for Child Protection Reform, who mentioned that "the rate of abuse in foster care is much worse than official statistics suggest" (cited Salman et al., 2020), given how family structure involving unrelated children could significantly affect child maltreatment rates, the present study attempts to add on to previous works in the field by encompassing this perspective of the presence of unrelated children within households.

Moreover, according to a publication by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), "if all adults completed secondary education, 420 million people could be lifted out of poverty, reducing the total number of poor people by more than one-half globally" (2017, as cited in *UNESCO Publications Assess Links between Education, Poverty and Health*, 2017). This alludes to the fact that higher education levels relate to poverty alleviation, which poverty is considered to be a concrete indicator of child maltreatment outcomes as can be seen from the previous literature survey. In fact, Slack et al. (2004) also scrutinize the relationship between parental education attainment and child maltreatment rates, defining parental education attainment as either high school or GED

(General Educational Development) completion status. Although the authors did not find a significant association between the two variables, the present study has committed to including higher education attainment as one of the potential predictors of child maltreatment rates to exhibit a possible relationship between the two, so that new perspectives to provide alternative insights into which socioeconomic determinants affect child maltreatment rates can be presented.

3. Data and Methods

This section begins by discussing this study's statistical model of choice, multiple linear regression, in order to compare state-level differences in child maltreatment rates that can potentially be explained by key indicators of interest, so that statistically significant predictors can be identified. By the same token, the issue of multicollinearity is also addressed, including an explanation of the elimination process of independent variables for the purpose of maintaining effective results. As for data-collection strategies, appropriate data is gathered from open government data made available by relevant executive departments of the United States federal government, which are the United States Department of Commerce and the United States Department of Health & Human Services. Quantitative analysis is performed using the range of statistical functions made available by Microsoft Excel and expected results from this analysis are specified at the end of the section.

3.1 Statistical Model

In multiple linear regression, a single objective variable can be predicted using more than one explanatory variable, thus allowing one to comprehend to what extent relative explanatory variables, if any, influence the objective variable (Yokota, 2019). To name an example, if there are three explanatory variables, the multiple linear regression equation can be written as

$$y = a + b_1 x_1 + b_2 x_2 + b_3 x_3$$

where a is the constant term and b_n or the coefficient applied to each independent variable known as the partial regression coefficient "gives the amount by which the dependent variable (DV) increases when one independent variable (IV) is increased by one unit and all the other independent variables are held constant" (Abdi, 2003, p. 978). Although this form of quantitative analysis differs from a simple linear regression in the sense that there is only one independent variable and thus one regression coefficient, both regressions express the model's goodness of fit through the coefficient of determination, denoted by R^2, and the intercept and partial regression coefficients can be tested by statistical analyses such as the T-test and F-test (Yokota, 2016). For the purpose of evaluating more than one socioeconomic indicator which could affect the response variable in question, state-level child maltreatment rates, a multiple linear regression model is utilized to explore the present study's research question.

3.1.1 Multicollinearity

The presence of multicollinearity in linear regression is indicated by large correlation coefficients between two predictor variables. According to Kennedy, if the absolute value of any correlation coefficient between two variables is greater than 0.7, then there is a high probability that the problem of multicollinearity exists, thus resulting in less reliable outcomes as well as inefficient estimation (2008). As such, based on this general rule of thumb, relative independent variables were removed from the present study's regression model. Moreover, this process of elimination was applied to the initial selection of 11 independent variables confirmed in Section 2.2.1 and it is illustrated in Table 1, in which every correlation coefficient whose absolute value is greater than 0.7 is highlighted with the color yellow, and the predictor variables that have been eliminated are highlighted with the color red.

Table 1

Correlation Matrix for Multicollinearity

	Variables	1	2	3	4	5	6	7	8	9	10	11	12
1	Child maltreatment victimization rate (%)	1											
2	Overall poverty rate (%)	0.3446	1										
3	Child poverty rate (%)	0.2808	0.9355	1									
4	Unemployment rate (%)	0.2734	0.4360	0.5541	1								
5	Presence of foster child or other unrelated child (%)	0.1741	0.0051	-0.0723	-0.2145	1							
6	Children in single-parent families (%)	-0.0411	0.0619	0.1683	0.1810	0.0990	1						
7	Households led by a single mother with children under age 18 living in the household (%)	0.1568	0.6374	0.7433	0.7231	-0.2955	0.2141	1					
8	Mean household income (2019 inflation-adjusted US$)	-0.0108	-0.3046	-0.0139	0.3410	-0.3700	0.1751	0.2210	1				
9	Median household income (2019 inflation-adjusted US$)	-0.2240	-0.7406	-0.5941	0.1190	-0.3291	0.0154	-0.1178	0.6580	1			
10	Median family income for families with own children (2019 inflation-adjusted US$)	-0.2334	-0.8122	-0.7013	-0.0517	-0.2867	0.0634	-0.2218	0.5764	0.9429	1		
11	Children under 18 years living in households with SSI, cash public assistance income, food stamp/SNAP benefits (%)	0.3524	0.7891	0.8246	0.5850	0.0576	0.2503	0.7082	-0.0247	-0.4245	-0.5469	1	
12	Higher education attainment (%)	-0.1168	-0.5259	-0.4331	0.0162	-0.3308	0.1721	0.0993	0.5141	0.7128	0.7953	-0.2819	1

It can be seen that a majority of the predictor variables that were removed from the regression included those which were redundant, such as mean household income, median household income, median family income with own children, and children under 18 years living in households with SSI, cash public assistance income, food stamp/SNAP benefits. These four independent variables are strongly associated with individual earnings, hence why eliminating them allowed for the correction of a specification error (Signori, 2011). Following this train of thought, the issue of redundancy was also observed between overall poverty rate and child poverty rate, with a correlation coefficient of 0.9355. Such a value that is near to unity sheds light upon the presence of multicollinearity and given that the present study's purpose is to amplify the reality of child abuse and neglect from a wider perspective, the variable of child poverty rate was eliminated over overall poverty rate (Joshi, 2012). Finally, the correlation coefficient between unemployment rate and households led by a single mother with children under age 18 living in the household was also greater than 0.7 at a value of 0.7231. Since the regression was going to include the variable of children in single-parent families which is very much similar to the latter, the variable of unemployment rate was kept instead.

Conclusively, the following five predictor variables were to be regressed against the select objective variable: overall poverty rate, unemployment rate, presence of foster child or other unrelated child, children in single-parent families, and higher education attainment.

3.2 Data Collection

With respect to data collection, values for the dependent variable have been made available by the National Child Abuse and Neglect Data System (NCANDS) which is a "federally sponsored effort that encourages states to collect and analyze data pertaining to children who come to the attention of public child protective services agencies as alleged victims of abuse or neglect" (United States Department of Health & Human Services, n.d.-b). Information that is gathered through this voluntary data collection system is published in the annual Child Maltreatment reports, from which the number of child maltreatment victims and the total number of children under 18 years per state and the District of Columbia were taken to calculate child maltreatment rate percentages (United States Department of Health & Human Services, 2021). Given this process of computation which is concerned with state-level sum totals of child maltreatment victims and for the purposes of variable identification specific to the present study's execution of quantitative analysis, the dependent variable shall be labeled, 'child maltreatment victimization rate' from here on out.

As for the five independent variables that have been chosen, values have been made available by the American Community Survey (ACS), which is a demographics survey program that is conducted by the United States Census Bureau on a yearly basis (United States Census Bureau, 2019a, 2019b, 2019c, 2019d, 2019e, 2019f). It provides essential information about the American nation and economy including data for education attainment and occupations, which given the nature of the present study that attempts to identify the socioeconomic indicators of child victimization in the United States, this data source was one

which was considered to be adequate in providing relevant numbers for the independent variables of interest (United States Department of Commerce, 2022).

The present study has decided on utilizing data for dependent and independent variables from the year 2019 rather than later years, because estimates from 2020 and beyond are either unavailable or experimental due to the impact of the COVID-19 pandemic. Furthermore, in terms of the sample, all 50 U.S. states as well as the District of Columbia are included, thus making the sample size 51. Detailed definitions of both dependent and independent variables that remained after the elimination process using a correlation matrix for multicollinearity are provided in Table 2.

Table 2

Definitions of Dependent and Independent Variables

Variable type	Variable name	Variable definitions
Dependent	Child maltreatment victimization rate	Number of children under 18 years for whom the state determined at least one maltreatment was substantiated or indicated, as a pecentage of the total number of children under 18 years per state in 2019.
Independent	Presence of foster child or other unrelated child	Percentage of children under 18 years in U.S. households whose relationship to the householder is defined as either a foster child or other unrelated child in 2019.
	Higher education attainment	Percentage of young adults ages 25 to 34 who had an associate's degree or higher from 2019 in the U.S.
	Children in single-parent families	Percentage of children in the U.S. under age 18 who live with their own single parent either in a family or subfamily in 2019. In this definition, single-parent families may include cohabiting couples and do not include children living with married stepparents. Children who live in group quarters (for example, institutions, dormitories, or group homes) are not included in this calculation.
	Overall poverty rate	Percentage of people in the U.S. who had incomes below the poverty line ($25,926 for a family of four) in 2019.
	Unemployment rate	Percentage of U.S. civilian labor force who are unemployed in 2019.

Note. Definition for dependent variable is quoted from the National Child Abuse and Neglect Data System (NCANDS). Definitions for independent variables are quoted from the American Community Survey (ACS).

3.3 Expected Results

Considering the nature of a multiple linear regression, which utilizes several explanatory variables in order to predict the outcome of a single response variable, it is more than likely that not every independent variable will end up being significantly related to the dependent variable, at least in this particular case of statistical analysis. This is because all of

the partial regression coefficients are jointly estimated, meaning changes made to the regression model such as the inclusion of a new predictor variable could affect the coefficients, T-statistic, and the goodness of fit of the model (Rosenfeld, 2015). In other words, this form of regression is useful in the sense that the interrelationship between more than one associated predictor variable and the objective variable can be observed, as a simple linear regression which only measures a single predictor variable's relationship against a single objective variable is far from being representative of the real world, but one cannot deny the possibility of non-intuitive results. Therefore, the author expects to find a positive relationship that is statistically significant between overall poverty rate and child maltreatment rates in the United States, thus leading to the conclusion that increases in rates of poverty lead to increases in the number of child maltreatment victims. This independent variable has been selected based on the myriad of past studies in the field of child maltreatment which verify an existing relationship between these two variables, regardless of the form of statistical analysis, including those that have been presented in the present study's literature review in Section 2.2. Correspondingly, since education attainment, at least in the context of the present study, has been deemed a strong predictor of poverty, if there were to be another explanatory variable other than poverty that is significantly related to the response variable, the author expects higher education attainment to be one which is negatively correlated to child maltreatment victimization rates in the United States.

4. Results

As can be noted in Table 3, a multiple linear regression was carried out in order to investigate whether the nonstandard coefficients that have been listed could significantly predict child maltreatment victimization rates in the United States for the year 2019. The final predictive model is written out as follows (Turóczy & Marian, 2012):

$$\hat{y} = -0.012 + 0.290x_1 + 0.0131x_2 - 0.013x_3 + 0.072x_4 + 0.224x_5$$

where $x_1 =$ presence of foster child or other unrelated child, $x_2 =$ higher education attainment, $x_3 =$ children in single-parent families, $x_4 =$ overall poverty rate, and $x_5 =$ unemployment rate, all of which are measured by the percentage of the state population.

Table 3

Multiple Regression Results

Explanatory Variable	Unit of Measurement	Unstandardized Coefficient		Standardized Coefficient		t	*P* value
		B	Std. Error	β	Std. Error		
(Constant)		-0.012	0.010	0.0085	0.133	-1.310	0.197
Presence of foster child or other unrelated child	Percentage	0.290	0.142	0.312	0.153	2.045	0.047**
Higher education attainment	Percentage	0.0131	0.0121	0.198	0.182	1.086	0.283
Children in single-parent families	Percentage	-0.013	0.011	-0.177	0.144	-1.224	0.228
Overall poverty rate	Percentage	0.072	0.037	0.363	0.187	1.937	0.059*
Unemployment rate	Percentage	0.224	0.176	0.203	0.159	1.275	0.209
Model Fit Multiple R-squared = 0.47; F-value = 2.48; Sig F = 0.04							

Note. Response Variable – Child maltreatment victimization rate (%). Base sample of all 50 states within United States and the District of Columbia.
*p <0.1. **p <0.05. ***p <0.01.

The coefficient of determination is a measurement whose value indicates the proportion of variation in the dependent variable that is predictable and explained by the linear regression model. In order to gain a better understanding of what a multiple R^2 (R-squared) value of 0.47 implies, it can also be multiplied by 100 to conclude that 47% of the variance in the dependent variable's data can be explained by the independent variables (Harrison, 2018). When simply looking at its value, the statistical measure of multiple R-squared is more than likely to be deemed weak, if not moderate at best, but it should be noted that in the field of social science research, all relevant predictors of an associated dependent variable cannot be included in the regression model, which a low multiple R-squared value also implies that other independent variables may be involved in explaining the dependent variable (Moksony, 1999). In other words, one cannot necessarily conclude that a low multiple R-squared value such like the one in question points to an effect which is small and insignificant, as the circumstances of the research must be acknowledged as well (Itaoka, 2012). What is more, given that the aim of the present study's regression model is not for the purposes of making future predictions but rather, one which is of an explanatory nature, it can be said that the present study's regression model is sufficient and acceptable.

Aside from this conventional criterion for goodness of fit, the validity of the multiple regression model can also be tested using the general linear F-statistic. This form of statistical inference allows one to compare the computed linear regression model and one which contains no independent variables in order to determine which model provides a better fit (Turóczy & Marian, 2012). To conduct the F-test for linear regression, the null and alternative hypotheses are formulated as written below:

$$H_o: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$$

$$H_1: \beta_n \neq 0, \text{ for at least one value of n}$$

From the data displayed in Table 3, it can be established that the calculated F-value is 2.48. Moreover, at the significance level of 0.05 with 5 numerator degrees of freedom and 44 denominator degrees of freedom, the F distribution table indicates that the F-critical value is 2.43 (Hole, 2005). Seeing as the observed F-value is larger than the F-critical value, the null hypothesis which states that each partial regression coefficient β is equal to 0 is rejected with 95% confidence as a result (Brooks, 1998). In other words, it can be extrapolated from this joint hypothesis testing that the present study's findings contradict the null hypothesis and accordingly supports the alternative hypothesis, meaning that there is a significant relationship between the dependent and independent variables.

On the subject of independent variables, the regression model found two which were regarded as statistically significant. While the independent variable of overall poverty rate was significant at the 10% level, presence of foster child or other unrelated child was significant at the 5% level. Conversely, the independent variable of unemployment rate also showed a slight yet apparent trend towards significance with a p-value of 0.209, but did not contribute significantly to the model, alongside the two independent variables of higher education attainment and children in single-parent families. With relevance to the two independent variables that were found to be statistically significant, the relative magnitude of each variable

can be compared by looking at their standardized coefficients β rather than their unstandardized coefficients B. This is due to the fact that the scale of measurement for the latter differs depending on the nature of each independent variable, thus complicating the process of objectively comparing which individual independent variable has a greater effect on the dependent variable. On the other hand, the former is measured in units of standard deviation, hence why given the standardized coefficient value of 0.312 for presence of foster child or other unrelated child and 0.363 for overall poverty rate, it can be concluded that overall poverty rate is the most influential variable out of the two statistically significant independent variables, in relation to predicting the dependent variable of child maltreatment victimization rates in the United States.

Aside from putting forward a means for contrasting more than one variable with distinctive metrics, the standardized partial regression coefficient is also representative of the amount of change in the response variable for a standard deviation change in the explanatory variable. This means that with 1 standard deviation change in the presence of foster child or other unrelated child, one can anticipate a 0.312 standard deviation increase in child maltreatment victimization rates in the United States, holding constant the effects of the other four predictor variables. Incidentally, with 1 standard deviation change in overall poverty rate, one can anticipate a 0.363 standard deviation increase in child maltreatment victimization rates in the United States, holding constant the effects of the other four predictor variables. This means that a 1 standard deviation change in overall poverty rate produces a greater shift in the relative position of the response variable in comparison to a 1 standard deviation change in the presence of foster child or other unrelated child (Griffin, 2010). Finally, since the sign of both correlation coefficients is positive for these two independent variables, it can be deduced that there is a direct relationship between each of these variables and the dependent variable in question.

5. Discussion

Prior to conducting this study, specific determinants that were expected to have an influence on the select objective variable, namely overall poverty rate and higher education attainment, were indicated by the author and are reported under Section 3.3. Following these predictions on the overall outcome of this study, the section hereinafter addresses discrepancies between the expected results and actual results and a final statement of principal findings so that they can be further interpreted and applied to real world situations. By real world situations, the author is referring to how the uptake of the present paper's research findings and relative contributions can be conveyed into policymaking. Finally, this section will end by delivering limitations of the research that may have impacted the results, as well as directions for future research.

5.1 Expected Results – Revisited

Observing the results from the multiple linear regression analysis displayed in Table 3, it is evident that the two independent variables that are significantly related to the dependent variable of child maltreatment victimization rate are overall poverty rate and the presence of foster child or other unrelated child. Despite the fact that initial expectations presumed the former would influence the dependent variable at a statistically significant level, the latter was not specified in stages before conducting the quantitative analysis. Rather, higher education attainment was estimated to be significantly associated with child maltreatment rates, yet actual results from the regression revealed that the relationship between the two variables are not significant in the narrow sense of the word, exerting a p-value of 0.283. Although the execution of a general background research on the topic of poverty exhibited the notion that education attainment is strongly correlated with poverty levels as can be seen in Section 2.2.1, it could simply be the case that the law of transitivity (meaning, if $X = Y$ and $Y = Z$, then $X = Z$) did not carry over to this particular relationship. In any case, related empirical work by Slack et al.

(2004) which also attempted to discover a potential connection between parental education attainment and child maltreatment rates could not determine a statistically significant relationship.

In response to what is mentioned above, results obtained from a multiple linear regression analysis can vary greatly depending on which independent variables are jointly regressed against the dependent variable, so much so that even the mere act of including or excluding a single variable could entirely change the model's goodness of fit, number of statistically significant relationships between relevant variables, and even provide non-intuitive results (Rosenfeld, 2015). In other words, it is possible that higher education attainment, or any other factor related to education attainment in general, could be significantly related to child maltreatment rates in the United States when placed among a different selection of explanatory variables or, for example, if it were individually regressed against the objective variable through a simple linear regression analysis.

What is more, as put forward in Section 3.2, data for all the independent variables in the present research have been made available by the 2019 ACS 1-year estimates, which "like any other sample survey, is subject to error" (United States Census Bureau, 2020). This is because data products contained in the ACS are based on a sampled group of individuals from all counties and county-equivalents within the nation, from which estimates of actual figures which would be measured had the entire population been interviewed are made (United States Census Bureau, 2020). Given the nature of household surveys in general, it is difficult to deny the possibility of non-sampling errors such as "disproportionate nonresponse, interviewer mistakes, respondent confusion, and processing errors" (Lowenthal, 2006, p. 14) as well as sampling error although these do not affect how reliable and accurate census population counts are. All in all, though there was some variation between expected and actual results, one should be mindful of these arguments that have been made above, and that a slight change in research

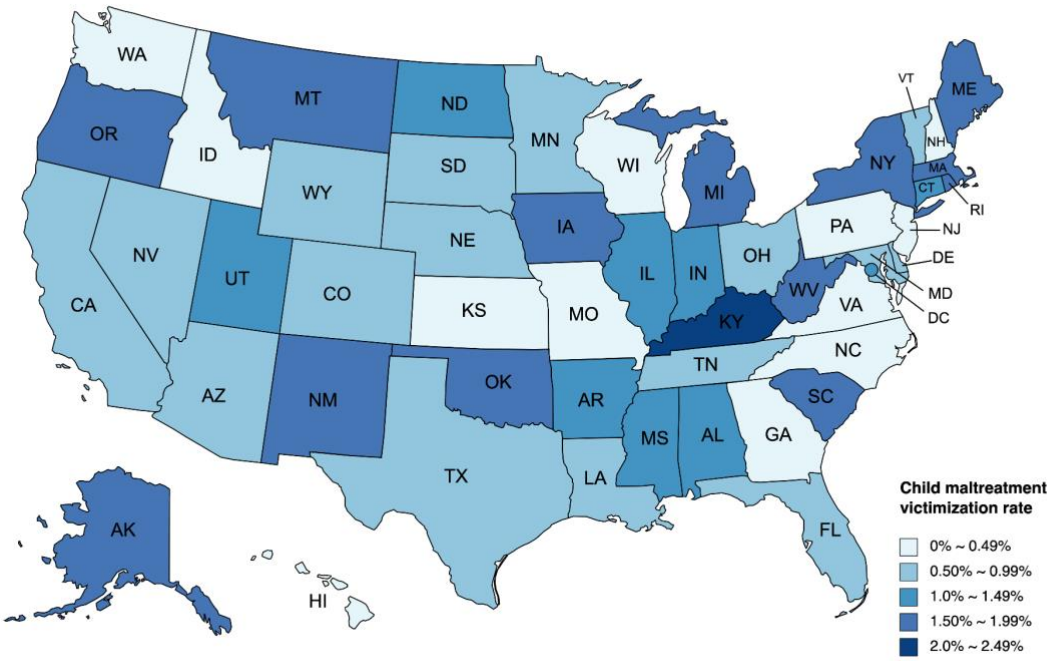
design could perhaps point to, for instance, education attainment levels being significantly related to child maltreatment rates in the United States.

5.2 Conclusion

To restate the present study's principal findings, the independent variables of overall poverty rate and the presence of a foster child or other unrelated child were found to be statistically significant determinants of the dependent variable, or child maltreatment victimization rates in the United States. It comes as no surprise that overall poverty rate is one of the two explanatory variables that significantly affects the objective variable, given that a wide range of past literature related to the present study confirm this finding (Paxson & Waldfogel, 2002; Paxson & Waldfogel, 2003; Slack et al., 2004; Berger, 2004; Ginther & Johnson-Motoyama, 2017; Fabbri, 2021). What is more, a congressionally mandated and government supported long-term research effort called the National Incidence Study has also found poverty to be "the greatest threat to child well-being and the best predictor of abuse and neglect" (Martin & Citrin, 2014, p. 1). Specifically, the Fourth National Incidence Study conducted in 2010 reveals that children who resided in poor and low-income households experienced significantly higher rates of maltreatment in comparison to those who lived in households that were much more economically secure (Sedlak et al., 2010). In Figures 2 and 3, child maltreatment victimization rate and overall poverty rate per state have been represented, respectively.

Figure 2

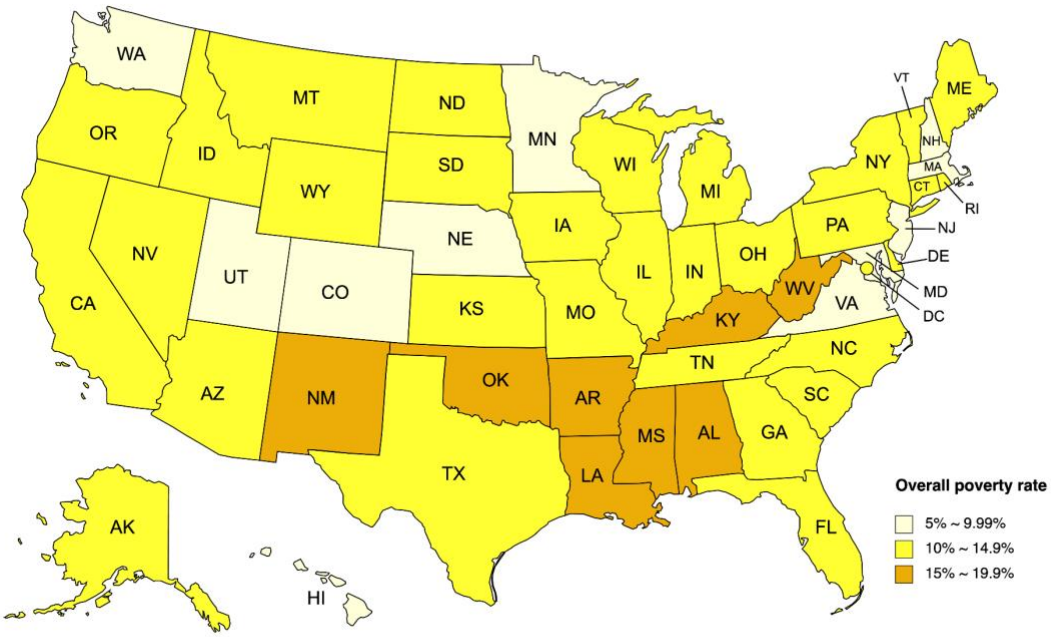
Map on Child Maltreatment Victimization Rates in the United States (2019)



Note. Data for child maltreatment victimization rate (%) as of 2019 are from "Table 3–4 Victims, 2015–2019," by the Children's Bureau., 2021, *Child Maltreatment 2019*, pp. 36–37 (https://www.acf.hhs.gov/sites/default/files/documents/cb/cm2019.pdf). Copyright 2021 by the Children's Bureau.

Figure 3

Map on Overall Poverty Rates in the United States (2019)



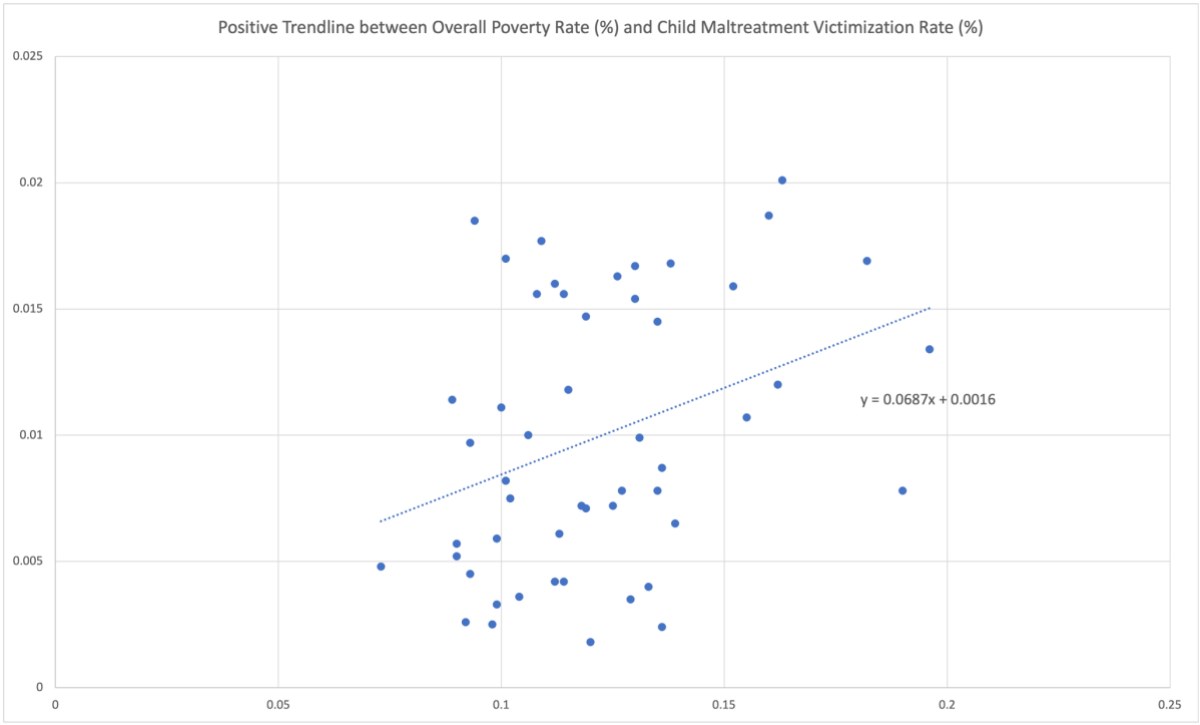
Note. Data for overall poverty rate (%) are from *Poverty Status in the Past 12 Months: 2019 American Community Survey 1-year Estimates*, by the United States Census Bureau, 2019, American Community Survey (https://data.census.gov/cedsci/table?q=POVERTY%20STATUS%20IN%20THE%20PAST%2012%20MONTHS&g=0100000US%240400000&y=2019). Copyright 2019 by the United States Census Bureau.

The map legends display detailed explanations of the colors used on the map, but the general rule of thumb is that the darker the color, the higher the percentage. For instance, Kentucky's child maltreatment victimization rate in 2019 was 2.01%, which was the highest among any other state including the District of Columbia. Meanwhile, the overall poverty rate in the state during the same period was 16.3%, which was the fourth highest rate of overall poverty in the same year. These two percentages recorded by the state of Kentucky is a reflection of the conclusion between child maltreatment and poverty that the present paper suggests, alongside Mississippi with a child maltreatment victimization rate of 1.34% and an overall poverty rate of 19.6%, West Virginia with a recorded rate of 1.87% for child maltreatment victimization rate and that of 16% for overall poverty rate, and New Mexico with a child maltreatment

victimization rate of 1.69% and an overall poverty rate that measured 18.2%. These four states are all filled with darker colors on the maps illustrated in Figures 2 and 3, and this tendency is more or less followed by all states, although there are slight exceptions such as Massachusetts whose recorded rate of child maltreatment victimization was the third highest among other states at 1.85%, despite its overall poverty rate that measured 9.4%, which was the seventh lowest percentage recorded during this year. Notwithstanding, it should be pointed out that common state-level trends are difficult to observe between these Figures, especially given the fact that child maltreatment victimization rates on the map legend are raised by increments of 0.5, which is fairly small. To gain a better understanding of the direct relationship between child maltreatment victimization rate and overall poverty rate, a visual depiction of how the variables are connected in the form of a regression line has been exemplified in Figure 4.

Figure 4

Positive Trendline between Overall Poverty Rate (%) and Child Maltreatment Victimization Rate (%)

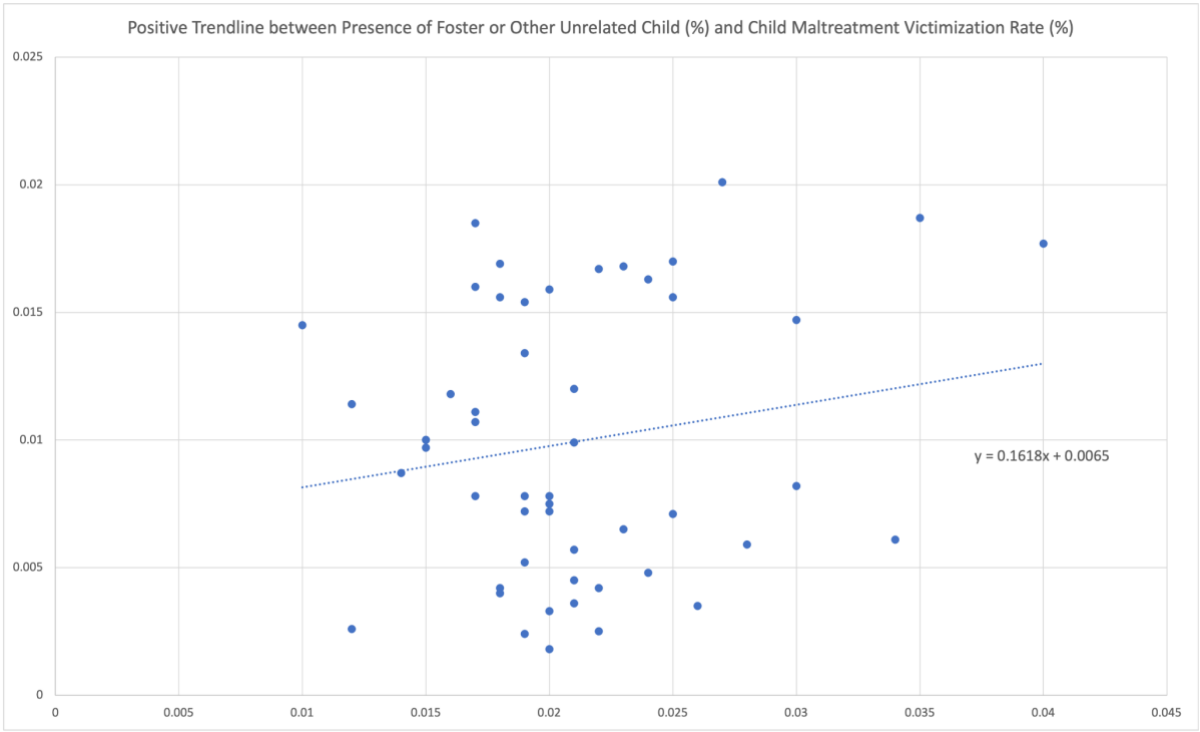


Note. Data for overall poverty rate (%) are from *Poverty Status in the Past 12 Months: 2019 American Community Survey 1-year Estimates*, by the United States Census Bureau, 2019, American Community Survey (https://data.census.gov/cedsci/table?q=POVERTY%20STATUS%20IN%20THE%20PAST%2012%20MONTHS&g=0100000US%240400000&y=2019). Copyright 2019 by the United States Census Bureau. Data for child maltreatment victimization rate (%) as of 2019 are from "Table 3–4 Victims, 2015–2019," by the Children's Bureau., 2021, *Child Maltreatment 2019*, pp. 36–37 (https://www.acf.hhs.gov/sites/default/files/documents/cb/cm2019.pdf). Copyright 2021 by the Children's Bureau.

Following this, how a positive trend line between the dependent variable and the presence of foster child or other unrelated child can be drawn has been demonstrated in Figure 5.

Figure 5

Positive Trendline between Presence of Foster Child or Other Unrelated Child (%) and Child Maltreatment Victimization Rate (%)



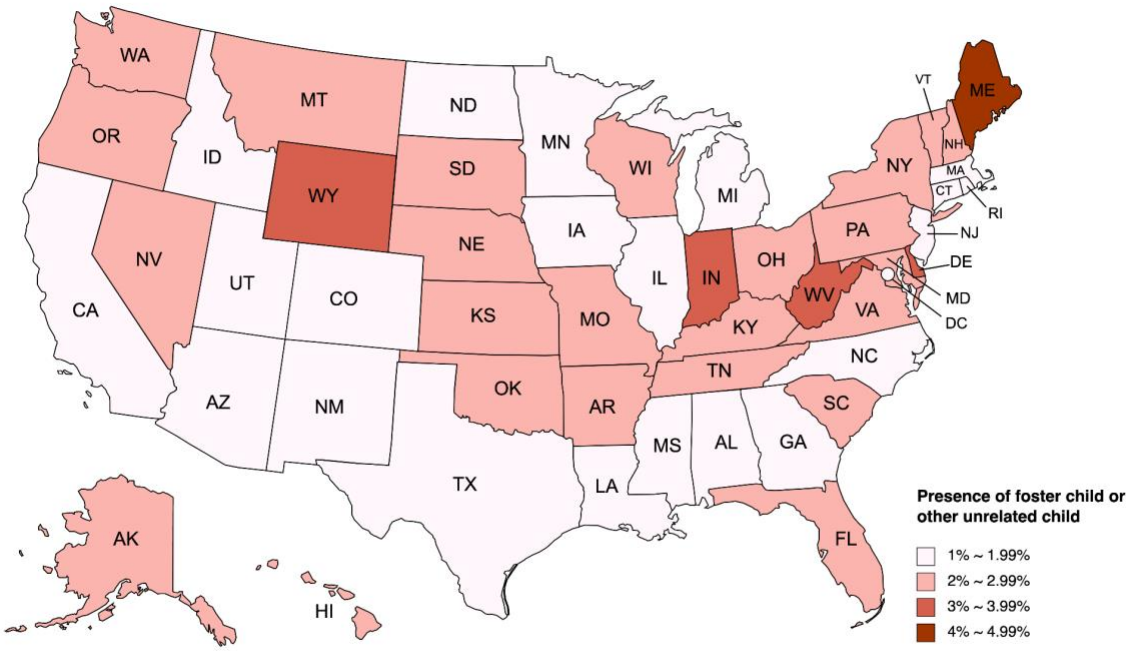
Note. Data for presence of foster child or other unrelated child (%) are from *Children Characteristics: 2019 American Community Survey 1-year Estimates*, by the United States Census Bureau, 2019, American Community Survey (https://data.census.gov/cedsci/table?q=child%20welfare&g=0100000US%240400000&y=2019&tid=ACSST1Y2019.S0901&moe=false). Copyright 2019 by the United States Census Bureau. Data for child maltreatment victimization rate (%) as of 2019 are from "Table 3–4 Victims, 2015–2019," by the Children's Bureau., 2021, *Child Maltreatment 2019*, pp. 36–37 (https://www.acf.hhs.gov/sites/default/files/documents/cb/cm2019.pdf). Copyright 2021 by the Children's Bureau.

One reason as to why adults may abuse foster children or other unrelated children is the lack of training and assistance through education and support programs, which "in order to avoid foster placement failure which would further devastate the children, foster parents need to be involved in...ongoing educational programs and support groups" (Henry et al., 1991, p. 129). According to Lijewski & Brohl (2013), a large number of problems are associated with the lack of foster parent preparation, which include foster parent strain as well as pauperized functioning between a foster child and a foster parent. These outcomes not only have a "detrimental impact on foster youth" (Lijewski & Brohl, 2013, p. 2) but also result in children

who, more often than not, have experienced some form of child abuse or neglect, thus leading to further psychological or social problems for them to endure (Lijewski & Brohl, 2013). In addition to this, Roberts (2014) points to the acute shortage of people prepared to take in foster children, which she associates with selection standards and expectations for foster homes that are not stringent enough, especially with "agencies charged with monitoring and supporting those homes...often [being] understaffed or overly bureaucratic" (Roberts, 2014). As for precise comparisons, the presence of foster child or other unrelated child as percentages per state has been encapsulated in Figure 6.

Figure 6

Map on the Presence of Foster Child or Other Unrelated Child in the United States (2019)



Note. Data for presence of foster child or other unrelated child (%) are from *Children Characteristics: 2019 American Community Survey 1-year Estimates*, by the United States Census Bureau, 2019, American Community Survey (https://data.census.gov/cedsci/table?q=child%20welfare&g=0100000US%240400000&y=2019&tid=ACSST1Y2019.S0901&moe=false). Copyright 2019 by the United States Census Bureau.

The presence of foster child or other unrelated child was the highest in Maine for the year 2019 at a percentage rate of 4%, where a child maltreatment victimization rate of 1.77% was recorded; the fourth highest among all other states including the District of Columbia. Comparing Figures 2 and 6, it is evident that Maine is dark-colored in both maps. Darker colors also filled the states of Delaware, Indiana, West Virginia, and Wyoming in Figure 6, with the presence of foster child or other unrelated child at 3.4% and a child maltreatment victimization rate of 0.61%, a recorded value of the presence of foster child or other unrelated child at 3% and a child maltreatment victimization rate that measured 1.47%, the presence of foster child or other unrelated child of 3.5% and a child maltreatment victimization rate at 1.87%, and a percentage indication of 3% for the presence of foster child or other unrelated child and that of 0.82% for child maltreatment victimization rate, respectively. It seems as though the positive relationship that the present paper concludes with for these two variables exists in the states of Indiana and West Virginia, but not necessarily in Delaware and Wyoming, when only concerned with the hue element between the two maps. Nevertheless, conducting a geographical comparison in relation to the argument of the present paper gives insight into whether actual percentage values are reflective of the anticipated relationship and trendline between relevant dependent and independent variables.

5.3 Political Implications

Given the conclusion presented in Section 5.2 that state-level overall poverty rate impacts state-level child maltreatment victimization rate in a direct manner, further efforts should be expended to implement and improve effective macroeconomic policies and economic security programs in the United States as one way to attempt to reduce child maltreatment rates. It is true that as of now, a wide range of tangible benefits are made available to poor families and individuals, which includes anti-poverty programs such as the Earned Income Tax Credit (EITC), SNAP, Medicaid, and TANF cash assistance. As a brief description

of the TANF cash assistance has been given in Section 2.2, explanations of the former three are as follows.

Firstly, the EITC is a refundable tax credit which aids individual taxpayers who fit the standard of a low- to moderate-income worker by either reducing the taxes they owe or increasing the tax amounts that are refunded to them. The qualifying individuals' amount of credit is subject to change depending on a set of criteria such as whether they have children, dependents, and so on (Internal Revenue Service, 2022). Next, SNAP or previously known as the Food Stamp Program is a federal nutrition assistance program which provides low-income families and individuals with nutrition benefits so that they can purchase healthy food products (United States Department of Agriculture, Food, and Nutrition Service, 2021). Past research has indicated that "SNAP reduces poverty and food security, and that over the long term, these impacts lead to improved health and economic outcomes, especially for those who receive SNAP as children" (Center on Budget and Policy Priorities, 2019, p. 1) which is a finding that is directly related to the purposes of the present study. Furthermore, Lee et al. (2006) find that in the state of Illinois, there was a significant relationship between the participation in the Food Stamp Program and a "lower risk of being reported and substantiated for [child] maltreatment" (Lee et al., 2006, p. 3), which represents the responsibilities of the assistance program in mitigating the effects of child abuse and neglect rates, and of poverty on children (Lee et al., 2006). Thirdly, Medicaid is both a federal and state public health insurance program which "provides health coverage for some low-income people, families and children, pregnant women, the elderly, and people with disabilities" (United States Department of Health & Human Services, 2017) in all states, which in certain states, every low-income adult that earns incomes below a certain level is covered by the Medicaid program (United States Department of Health & Human Services, 2017).

As such, it is evident that the federal government of the United States does give assistance to low-income individuals and families through these programs that have been suggested beforehand and more, but the reality is that those who most require assistance unfortunately may not receive them. For instance, according to Bitler et al. (2018), "income support for children whose parents are unable to work is particularly limited" (Bitler et al., 2018, p. 61) with regard to the EITC, because the EITC is a public work-based income support, meaning individuals must earn an income above a certain amount before receiving benefits (Bitler et al., 2018). Such is an inconsistency of the current tax program, which is designed to protect families and individuals who are socially vulnerable yet is unable to do so. On the whole, there are many more challenges that these support programs face including the sheer length and complexity of the application processes, lack of consideration for those who may encounter language barriers throughout these application processes such as during eligibility interviews, and the absence of a standard application process where, for example, "the TANF/FSP (Food Stamp Program)/Medicaid application process is the simplest in Seattle and the most complicated in New York City" (Holcomb et al., 2003, p. v) thus failing to arrive at impartiality (Holcomb et al., 2003). To reiterate, although it can be said to a certain extent that actions and efforts on a federal level are being carried out to ensure that the needs of low-income families in poverty are properly assessed, what is actually needed beyond this is a more comprehensive child welfare approach, which not only precisely determines the benefits a family is currently receiving, but also what benefits a family may additionally be eligible for, and a support system for low-income families to apply for and receive the range of benefits that are made available to them.

In addition, the issue of poverty must be viewed from a wider horizon, in the sense that temporary funding and assistance is not a fundamental solution. Rather, the federal government must aim to prepare encouragement which is more sustainable, including the provision of self-

sufficiency. According to O'Neill Hayes (2021), anti-poverty programs such as the SNAP have indeed contributed to poverty eradication for millions, but in the form of decreasing material hardship instead of increasing self-sufficiency. This conception is also presented by Gitis & Arndt (2017) whose study analyzes the trends in material deprivation and self-sufficient poverty rates between the years 1980 and 2013. The results of their analysis allude to the fact that federal anti-poverty programs have provided significant support for low-income households by reducing material hardship, but through assistance from the government rather than guiding them to increase their abilities so that they do not have to rely on these programs in the first place. In fact, "16.2 million more people would have been in poverty if they did not receive any government assistance" (Gitis & Arndt, 2017), which raises doubts as to whether poverty reduction in the United States is actually happening in the true sense of the word. Therefore, it is commendable what the federal government has done so far in narrowing disparities in poverty throughout the nation, but as for the next step, a full review of existing welfare policies should take place so that disadvantages that have been specified previously are addressed, and viewpoints concerning the long run are taken into account so that current federal efforts can be strengthened even further.

In the direction of more current achievements regarding this topic, President Biden's American Families Plan from 2021 proposed to extend tax credits such as the Child Tax Credit (CTC) and the EITC and additionally invest in child care and early education (*American Families Plan*, n.d.). According to the 15th annual Children's Budget Analysis, federal spending for children in the United States increased by 55% from 2020 to 2021, thus reversing the trend of higher rates of child abuse, child hunger, and uninsured children during 2016 and 2020 when children's share in federal funding dropped by 25% (Sciamanna, 2021). S, according to Sciamanna who is the Vice President of Public Policy at the Child Welfare League of America, the American Families Plan is only temporary, meaning if it is not expanded

through the Build Back Better agenda, rates of child poverty will once again increase (2021). Referring to the Build Back Better framework, President Biden's plan to support children and the middle class through this agenda has been stalled in the Senate, with republicans in opposition to a proposal which would raise taxes on the wealthiest citizens of the United States, as well as one which comes with immensely high costs, and democrats also raising concerns for total costs (The White House, 2021; Fadel & Liasson, 2021). Although President Biden has attempted to resurrect the Build Back Better bill, not enough action has been made by lawmakers to push the bill ahead, making it nowhere near being enforced by the government (Ahlman, 2022). Therefore, it is also the case that poverty reduction is being attempted by decision makers in the field of politics, but unfortunately, not enough priority or emphasis is being placed on those who are socially disadvantaged.

In terms of the finding regarding the perpetrator's relationship to the maltreated child, pre-emptive approaches to target the caregiver can be newly employed and improved. This includes educational opportunities for caregivers such as modeling behavior and teaching coping mechanisms. In reference to training programs made available to child welfare professionals, the National Adoption Competency Mental Health Training Initiative (NTI) for Child Welfare Professionals provides "web-based trainings to build the capacity of child welfare and mental health professionals in all States, Tribes, and territories to effectively support children, youth, and their foster, adoptive, and guardianship families" (United States Department of Health & Human Service, n.d.-c). Furthermore, the Center for Advanced Studies in Child Welfare (CASCW) offers self-directed e-learning programs for foster parents in a wide range of topics including trauma and siblings in foster care. Similar online training schemes are made available by the National Foster Parent Association (NFPA) Training Institute, which educates caregivers on topics such as adverse childhood experiences, as well as creates positive and constructive relationships in foster care (United States Department of

Health & Human Service, n.d.-c). According to Ahmed et al. (2017) and their study presented during the American Academy of Pediatrics national conference, these strategies that directly or indirectly educate caregivers which target specific caregiving groups can aid in behavior modification and teach coping skills, thus decreasing child maltreatment risk. To reiterate, much like what Slack (2017) argues, the abuse and neglect of foster children or other unrelated children can be prevented through parent-focused interventions including respite care programs, parent support groups, home visiting, and parent-child therapies that specifically target relevant caregiving groups.

Moreover, it is generally the case that foster parents are carefully screened and given training on how to properly care for their foster children, which includes a thorough criminal background as well as child abuse and neglect registry check. In fact, all 50 U.S. states and the District of Columbia have either statutes or regulations requiring such background investigations of not only prospective foster and adoptive parents, but also of any adults residing with the prospective foster and adoptive parents (Child Welfare Information Gateway, 2019). However, there still are defects and oversights within these systems, thus leading to children being placed in inappropriate homes. Some of the many reasons as to why social workers may perform the screening of foster parents in an inadequate manner is their ignorance of the list of criteria that must be used to evaluate potential foster parents, the overburdening of social service systems, and the general shortfall of foster parent support (Booysen, 2006; Mkhize, 2006; Dickerson & Allen, 2007; Louw & Joubert, 2007). For example, literature published in relation to the first topic has raised concerns about social workers' frequent lack of knowledge that is necessary to evaluate foster families, which comes to show that with the possibility of human error, no amount of screening by foster care agencies and social workers can guarantee that abusers won't slip through (Dickerson & Allen, 2007; Louw & Joubert, 2007). Therefore, it is of the essence that both prospective foster parents and social workers

are educated in relevant subject matters that would benefit them in completing the responsibilities and roles that are expected of them.

To name an example, for potential foster parents, this can begin with them taking full advantage of resources such as those which have been mentioned beforehand, that are made available to them both online and in person. Addedly, social workers can avoid foster placement breakdowns by honing their skills and competencies, and one way to accomplish this is to rely on advice and recommendations of published guidebooks, such as Dickerson et al.'s 2011 publication which "serves as a comprehensive guide for social workers to draw on when making decisions for foster care/adoption placement" (Dickerson et al., 2011). Having said that, it should be emphasized that what is of greater importance is a review of released guidelines and current protocols regarding the effective management of foster care in the United States because the core of the system of social services may require improvements and changes, which the same outcomes cannot be expected from makeshift advancements of individual components of the system itself.

In the matter of what happens after report cases of child abuse and neglect by foster parents come to light, it is vital that child protective service (CPS) workers meet with and interview any children whose accommodation have been found in the home of an alleged perpetrator in the past. For example, child welfare agencies in states including Alabama, Michigan, Maine, Nebraska, Maryland and New York City have emphasized the value of these interviews in which CPS workers would interview children who have lived in abusive foster homes in the past. However, most of these states did not have formal procedures in place to interview every child who has been in this situation (Salman, 2020). This means that in addition to the series of actions being taken by the child welfare agencies and the federal government involving children who have been abused or neglected previously by foster families, the author presses for the establishment of a new requirement that investigators personally interview these

children, not only to fully verify the true statistics of abuse in foster care, but also to offer supervision and assistance for those who may have been traumatized but had their existence concealed.

5.4 Limitations of the Research

An example of a limitation that can be identified regarding this study's design is the inability to incorporate supposedly important independent variables that could have contributed intriguing interpretations to the final results of the analysis. Although these variables such as welfare receipt and income levels were not eliminated from the statistical model deliberately but rather due to multicollinearity issues, it would be interesting to see how these explanatory variables could be related to and potentially significantly influence the objective variable among a different selection of predictors.

Another limitation of the present study that has briefly been cited in Section 5.1 is the potential unreliability of data products used in the quantitative analysis, due to the fact that they are 1-year estimates obtained from a sample survey. Although the sample survey of choice, American Community Survey, "relies on scientific sampling principles to produce information that experts consider accurate enough to use for important governmental purposes" (Lowenthal, 2006, p. 14), so long as the presented numbers are estimates, their statistical reliability will always be up for question. On the other side of the coin, different results could have been obtained had the data products used in the multiple linear regression analysis been ACS 5-year estimates rather than ACS 1-year estimates, which have larger sample sizes meaning the numbers may be more comprehensive and well grounded, in that "increased statistical reliability of the data for less populated areas and small population subgroups" can be observed (United States Census Bureau, 2022). Be that as it may, it is worth bearing in mind that there is a tradeoff between reliability and currency, because multiyear estimates offered by the ACS provide information that is based on data from the previous and preceding years before that.

In accordance with the previous point that has been made, the use of data products obtained from ACS 1-year estimates is also related to another limitation of the present study in that its examination of data does not go beyond the restrictive time range of the year 2019. Although it would have been difficult to look into data that is more current than this, given that estimates from 2020 and beyond are virtually inaccessible due to the impact of the COVID-19 pandemic as acknowledged in Section 3.2, results of the quantitative analysis could have been concluded in a different manner if data for a series of preceding years were also taken into account, such as through designing a panel data study, so that a more accurate sense of increasing or decreasing trends of child maltreatment rates in the United States could be acquired.

5.5 Directions for Future Research

As for directions for future research, it would be compelling to ascertain the association between independent variables which have been examined in the present study as well as those that have been eliminated due to multicollinearity issues and the dependent variable of child maltreatment rates in a longitudinal manner, which not only includes data from previous years but also years that follow 2019. For example, according to a current population report on income and poverty in the United States published by the United States Census Bureau, nearly 11.6 million people under the age of 18 lived in poverty in 2020, marking a poverty rate of 16.1%. This number is a 1.1 million increase from 2019, illustrating an increasing trend exacerbated by the Great Recession in the past and the current COVID-19 outbreak. Such a trend was also observed in the official poverty rate, with a 1.0 percentage point increase from the 2019 percentage of 10.5 to that of 11.4 in 2020. This means that 37.2 million American citizens were in poverty in 2020, which is an approximate increment of 3.3 million from the year 2019 (Shrider, 2021). With drastic changes in data values accompanied especially by the COVID-19 pandemic, it is in all likelihood that results of a newly constructed quantitative

analysis will differ from those demonstrated in the present paper, especially with the addition of a measurement of time. With the advantage of more variability and less collinearity between data values, analyzing selected predictors over an extended period of time could potentially result in more accurate outputs, thereby allowing for researchers to identify a wider range of explanatory variables that are significantly related to the objective variable.

Aside from changes that can be made in the future within the area of methodology, prospective studies in the field of child maltreatment could utilize an array of many more data sets and variables by contacting relevant institutions and databases such as the National Data Archive on Child Abuse and Neglect (NDACAN) at Cornell University, Ithaca, New York, from which state administrative data such as the National Youth in Transition Database (NYTD) and the Adoption and Foster Care Analysis and Reporting System (AFCARS), as well as large-scale longitudinal surveys conducted by individual researchers can be found (Bronfenbrenner Center for Translational Research, n.d.). The present study's quantitative analysis heavily depends on data products from the United States Census Bureau's ACS and NCANDS, which provide detailed but simplistic and basic data that is essentially made available to anyone with internet access. If future studies can acquire reports on child maltreatment, child well-being, and foster care that include high-quality datasets that are relevant to the study of determining socioeconomic predictors for the prevention of child maltreatment in the United States, more prominent secondary data analysis can be conducted that has not yet been attempted by past studies including this one, thus bringing forth more valuable and engaging conclusions that readers have yet to see.

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