

Who Benefits from the Child Tax Credit?*

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Abstract

The Child Tax Credit (CTC) provides a cash transfer of up to \$2,000 per child under age 17 to millions of families in the United States. Using the Current Population Survey, we examine the aggregate effects and distributional implications of the rules governing children's eligibility for the credit. While approximately 90% of all children qualify for at least a partial CTC, we document striking disparities in eligibility by income and race. The vast majority of children living in households in the bottom decile of the national AGI distribution are completely ineligible for the CTC, and the majority of filers in the bottom thirty percent are eligible only for a partial credit. In contrast, virtually all children living in households in the top half of the income distribution qualify for the full credit amount. Approximately three-quarters of white and Asian children are eligible for the full CTC, compared to only about half of Black and Hispanic children. We use our results to estimate the distributional effects of a range of reforms to the CTC eligibility rules. Our results suggest that reforming the credit to include a larger share of children would more evenly distribute the credit's benefits across children of different races and incomes.

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Introduction

Tax benefits for children are a central component of the social safety net in the United States. Among the most important is the Child Tax Credit (CTC), which provides up to \$2,000 per child under the age of 17. Unlike the Earned Income Tax Credit (EITC), which is a tax credit specifically targeted at lower-income households with children, the CTC affects a much broader range of the income distribution, with credits available to households earning as little as \$2,500 and as much as \$400,000. While there is scant research on the effect of the CTC itself on child outcomes, cash transfers of this form (like the EITC) have been shown to improve children's health and educational outcomes (Dahl and Lochner 2012; Hoynes, Miller, and Simon 2015; Hoynes, Schanzenbach and Almond 2016; Bastian and Michelmore 2018; Manoli and Turner 2018). However, many low-income children in the United States do not benefit from the CTC, and among those who do benefit, some face limitations that prevent them from receiving the full credit amount.

In this paper, we investigate which children benefit from the CTC and which children are excluded. In particular, we focus on three elements of the CTC rules. First, we consider the rules setting out a taxpayer's eligibility to claim a particular child; loosely speaking, only children who live with a close family member can be claimed for the CTC. Second, only taxpayers with sufficient earned income can receive a tax refund from the credit, and the maximum amount of their refund depends on how much income they earn. Third, only \$1,400 out of the maximum \$2,000 per-child credit is refundable, which limits the full credit to taxpayers who have sufficient tax liability. We study the distributional effects of these individual rules as well as their interaction with one another.

To understand the operation of these rules, we draw on the Annual Social and Economic Supplement to the Current Population Survey (CPS) to estimate which children benefit from the CTC. Based on this analysis, we classify children into three categories: (1) ineligible children, who cannot be claimed for any CTC; (2) partially eligible children, who can be claimed for some, but not all, of the full credit amount; and (3) fully eligible children, who can be claimed for the full CTC amount. We then compare the characteristics of the children that fall into each of these categories.

We document striking differences in patterns of CTC eligibility based on a child's race. Approximately three-quarters of white and Asian children are eligible for the full CTC, compared to only about half of Black and Hispanic children. Black children are particularly unlikely to be eligible for the CTC, constituting one in four ineligible children, despite representing only 14% of all children.

We next investigate differences in the distribution of the CTC's benefits by income. Because CTC refundability is tied to earnings and tax liability, it is not surprising that we find large differences in eligibility across the income distribution. The vast majority of those in the bottom decile of the national AGI distribution are completely ineligible for the CTC, and the majority of filers in the bottom thirty percent of the distribution are only eligible for a partial credit. By contrast, virtually all children in the top half of the AGI distribution are eligible for the full credit. Finally, we investigate differences in eligibility based on household structure. We find that children under six are less likely to be eligible for the full credit compared to teenage children, and more likely to be eligible for a partial credit, though rates of ineligibility were similar across childhood. We also document large differences in eligibility based on whether the

child's parents are married and in particular whether the child's father is present in the household.

We next investigate the role of various CTC rules in generating these differences in children's CTC eligibility. To do so, we simulate how eligibility for the credit would change under reforms that eliminate a particular rule or combination of rules. We find that the relationship test disproportionately limits benefits for Hispanic children and mainly excludes children who live in low-income households. Removing this constraint would render about 2 million more children eligible for the credit. By comparison, removing the earnings test limit on refundability—essentially creating a child benefit for all families living with related children under age 17 and with AGI below the current law thresholds—would affect many more children (5.9 million children would become eligible), particularly black children and children residing in very low-income households. Removing the \$1,400 refundability cap would also help families with lower-than-average incomes, but ones with somewhat higher incomes than the other reforms. Additionally, removing the refundability cap would not increase benefits among those currently ineligible. Finally, we find that removing the relationship test and refundability limits to make the credit near universal for low- and middle-income children would benefit approximately 23 million children, primarily those growing up in the lowest income households.

Our results provide evidence that can inform ongoing policy debates about child allowances in the United States. The CTC was reformed and expanded by the 2017 Tax Cuts and Jobs Act (TCJA) and there have been a number of recent legislative proposals to further expand the credit, either in size or in the scope of which children it covers (for recent summaries and analyses, see Greenstein et al. 2018; Maag and Airi 2020). Our paper contributes to this discussion by providing new statistics concerning the operation of the current CTC and by shedding light on

how various policy reforms would affect children. Two previous studies – Burman and Wheaton (2005) and Harris (2012) – both investigate the CTC’s distribution; our paper updates this prior work in light of significant policy reforms and demographic shifts during the intervening period. More recently, Ackerman and Cooper (2019) describe the distribution of CTC benefits claimed by taxpayers; our analysis complements theirs by focusing on the distribution of benefits across all children, some of whom may not be claimed on tax returns due to the limitations we study. Outside the specific context of the CTC, our results contribute to a literature investigating differences in the distribution of tax benefits by race, notwithstanding the tax code’s nominal race-neutrality (e.g., Moran and Whitford 1996; Brown 2018).

The remainder of the paper proceeds as follows. Section 1 provides additional detail regarding the CTC and its eligibility rules. Section 2 details the methodology underlying our estimates and describes our data. Section 3 provides our results. Section 4 concludes.

I. Institutional Background on the Child Tax Credit

Like other tax credits, the CTC operates by reducing one’s tax liability by the amount of the credit for which one qualifies. It is partially refundable, meaning that a taxpayer with a CTC in excess of her tax liability may receive a refund from the IRS for some or all of the excess credit amount.¹ The amount by which the taxpayer benefits from the credit is a function of three main factors: (1) the number of qualifying children the taxpayer claims, (2) the taxpayer’s income, and (3) the taxpayer’s tax liability, absent the credit.

¹ The IRS typically refers to the refundable portion of the CTC as the Additional Child Tax Credit (ACTC) and to the non-refundable portion as the Child Tax Credit, or CTC. In contrast, we use the latter term to refer to the sum of the refundable and non-refundable portions.

In general, a taxpayer's CTC is equal to \$2,000 per qualifying child she claims for the credit on her tax return.² The credit is phased out for very high income taxpayers; in 2019, the credit phased out at a rate of 5% for unmarried filers with AGI above \$200,000, and for married filers with AGI above \$400,000 (these phase-out thresholds are indexed for inflation). A taxpayer whose tax liability exceeds her CTC (and whose income is below the phase-out threshold) will benefit by the full amount of the CTC for which she qualifies. When a taxpayer's CTC exceeds her tax liability, however, the taxpayers' ability to benefit from the CTC is limited by the degree to which the excess credit amount is refundable. As a result, rules that limit the refundability of the CTC have the effect of limiting the degree to which taxpayers can benefit from the credit.

There are two important limitations on the CTC's refundability. First, the refundable portion of the credit is capped at \$1,400 per child for the 2019 tax year (and is indexed to inflation for future years). As a result, taxpayers whose CTC exceeds their tax liability by more than that amount cannot benefit from the full credit amount. For example, consider a taxpayer with two children and tax liability of \$1,000, who qualifies for a CTC of \$4,000. Assuming no other limits on refundability applied, this taxpayer would receive a \$1,000 non-refundable credit along with up to a \$2,800 refundable credit, or an average (total) CTC benefit of \$1,900 per child.

The second limitation on CTC refundability is based on the taxpayer's earned income. This earnings test imposes that the refundable portion of the credit is limited to 15% of the amount by which the taxpayer's earned income exceeds \$2,500. To illustrate, a taxpayer with \$7,500 of earned income and one qualifying child could not receive a CTC refund above \$750. Similarly,

² The rules described in this section are set out in section 24 of the Internal Revenue Code. They reflect temporary changes made by the Tax Cuts and Jobs Act of 2017, currently scheduled to expire beginning in tax year 2026. See also IRS publication 972.

the earnings test prevents a taxpayer with \$2,400 of earned income from receiving any CTC refund at all.³

To put these earnings and refundability limits in context, note that an unmarried parent of one child working full-time at the federal minimum wage would earn about \$16,000 per year, just below the federal poverty threshold for a two-person family and below the applicable filing threshold for 2019. If the individual were to file, she would be eligible for the maximum EITC benefit (\$3,526) for a one-child household, but would only qualify for \$1,400 of the CTC due to the cap on refundability. A single filer with one qualifying child would have to earn \$24,350 to receive the full \$2,000 CTC, which represents a household with earnings of about 145% of the federal poverty line.

Thus far we have described the rules for calculating the CTC, taking as given the number of children a taxpayer may claim. A number of additional rules govern this aspect of the credit.⁴ First, the child must be 16 years old or younger during the entire year for which they are claimed.⁵ Second, the child must not have filed a joint return with her spouse for the year in which she is claimed, which, in practice, typically means that the child was not married during the year in question. Third, the child (but not necessarily the taxpayer claiming the child) must have a social security number that is valid for employment. Fourth, the child must not provide more than one-half of her own support. Fifth, the taxpayer claiming the child must be the child's

³ In theory, this earnings test limitation can be less restrictive for taxpayers who claim three or more children for the CTC. For such taxpayers, the refundable portion of the credit must not exceed the maximum of the earnings test limit (as described in this paragraph) and the excess of social security payroll tax liability over the taxpayer's EITC. In practice, we find that this modification to the earnings test ends up affecting refundability for very few families in our sample.

⁴ See Internal Revenue Code sections 24(c) and 152(c).

⁵ Note that individuals aged 17 and 18 who meet the relationship and residency tests, as well as those aged 19-24 who are full-time students, can be claimed for an additional \$500 non-refundable credit per child, as can certain children lacking social security numbers. This \$500 "dependent credit" is calculated as part of the CTC but is outside of our focus here. For more details, see Internal Revenue Code, section 24(h)(4).

parent, grandparent, sibling, aunt or uncle (including step-relatives and certain relatives by marriage). Sixth, the child must be younger than the taxpayer claiming the child. Seventh, the taxpayer must reside with the child for at least half of the year in which the child is claimed.⁶ Finally, if multiple taxpayers meet the requirements to claim a child during the same year, the child may be claimed by either: (1) a parent of the child, or (2) the highest income taxpayer who is eligible to claim the child, whether or not that taxpayer is the child's parent.⁷

II. Data and Methodology

Our data come from the Annual Social and Economic Supplement (ASEC) to the Current Population Survey (CPS), administered during March 2018 to households in the 50 states and the District of Columbia. We limit our analysis to unmarried individuals under the age of 17 at the time of the survey.⁸ This leaves us with a sample of 44,929 children, representing approximately 69 million individuals in the U.S.⁹

To assign children to tax filing units, we first identify the set of taxpayers who are potentially eligible to claim each child. In particular, for each child, we identify the individuals living in the same household as the child who are the child's parent, grandparent, sibling, aunt, uncle, great aunt, or great uncle.¹⁰ Following the qualifying child rules, we further restrict this set of

⁶ In certain cases, a custodial parent may grant a non-custodial parent the right to claim a child for purposes of the CTC even if the non-custodial parent lives with the child for less than half of the year. See Internal Revenue Code section 152(e).

⁷ If both a parent and non-parent do in fact both claim the same child for the same year, the child is treated as the qualifying child of the parent. If multiple parents claim the same child for the same year, the child is treated as the qualifying child of the parent with whom the child lived during the longer portion of the year, or, if the parents lived with the child for the same amount of time during the year, the child is treated as the qualifying child of the parent with the higher income.

⁸ As described in the prior section, the CTC is not available to children who file a joint return with their spouse. In our data, married individuals constitute only 0.11% of all individuals under the age of 17.

⁹ All statistics we report incorporate person-level weights to reflect the survey sampling design.

¹⁰ For 1% of children, the relationship data collected in the CPS does not allow us to determine whether one or more individuals living in the child's household satisfy the relationship test with respect to the child. In such cases, we assume the individual does not satisfy the relationship test unless the individual is the child's parent.

potentially eligible taxpayers to individuals who are at least as old as the child under consideration.

A limitation of our data is that we observe household residency at a single point in time rather than continuously over the course of a year. Hence, we cannot directly observe whether an individual has lived with a child for more than half of a year, as is required to claim the child for the CTC. For purposes of our analysis, we assume that all individuals living with a child at the time of the survey satisfy the residency test with respect to the child for the year as a whole. We similarly assume that the residency test is not satisfied by any taxpayer who lives in a different household than the child at the time of the survey. In terms of assigning children to taxpayers, these assumptions may be violated in two directions: some individuals living with a child on the survey date may fail the residency test (incorrectly broadening the set of potential claimants), whereas others may satisfy the residency test despite not living with the child on the date of the survey (incorrectly limiting the set of potential claimants). In addition, because all children we observe are part of a household at the date of survey, our estimates will understate the share of children excluded from the CTC because of the residency test.¹¹

Having identified the set of taxpayers potentially eligible to claim each child, we next narrow this set based on the qualifying child rules that apply when multiple taxpayers are eligible to claim a single child for the same year. As described above, these rules require that in such cases, the child may be claimed by either the child's parent or the highest income taxpayer who is eligible to claim the child. As such, we limit the set of potentially eligible taxpayers for each

¹¹ We also do not observe information that allows us to assess whether two other CTC requirements are met: whether a child has a social security number that allows him or her to work, or whether a child provides half of his or her own support. By abstracting from these requirements, our analysis will overstate the share of children who benefit from the credit. Proxying for the support test using the earnings of the individuals in the household, less than 0.1% of individuals under the age of 17 earn more than half of total household income. We treat these individuals as ineligible for the CTC. Results were nearly identical when restricting the sample to individuals who self-report U.S. citizenship (a proxy for having a social security number) in the ASEC.

child to the child's parent(s), if present, as well as the non-parent relative with the highest income in the household. Among the remaining set of potentially eligible taxpayers, we initially assign the child to a parent if at least one of the potentially eligible taxpayers is a parent.¹² However, when the parent's earned income is below the \$2,500 threshold required to satisfy the CTC's earned income requirement, we instead assign the child to the (higher income) non-parent, to increase the chances that the child will qualify for the CTC.¹³ If none of the taxpayers potentially eligible to claim the child is a parent of the child, we assign the child to the highest-income non-parent relative in the household.

After constructing tax filing units, we use NBER's TAXSIM to estimate eligibility for the CTC based on the 2019 tax laws. Since the 2018 ASEC contains information on 2017 income, we inflate all income measures to 2019 dollars using the Consumer Price Index (CPI). We classify children as ineligible for the CTC if their tax filing unit receives no reduction in tax liability or refund from the credit. We classify children as partially eligible if their tax filing unit receives some tax reduction or refund from the credit, but not the full \$2,000 credit per child in the household.¹⁴ We classify children as fully eligible if their tax filing unit receives the full \$2,000 credit per child under the age of 17 in the household.

¹² When two or more unmarried taxpayers are parents (or step-parents) of a child, we assume the child is claimed by the parent with the higher income, who, in most cases, is more likely to be able to claim the child for a positive CTC amount.

¹³ A different approach would be to assign children to tax filing units to maximize the total tax refund of all taxpayers in a household. For discussion of such issues, see Jones and O'Hara (2014).

¹⁴ Throughout, we use "child" to refer to an unmarried individual under the age of 17. Note according to this definition, a taxpayer's claiming of a partially-eligible child for the CTC may not increase the amount of the credit that the taxpayer can claim. For example, when the earnings test limitation is binding, claiming a fourth child would not increase a taxpayer's CTC refund, but we would classify that fourth child as partially eligible. An alternative method for calculating eligibility would be to assign full eligibility for some children in the household, and partial or no eligibility for the remaining children in the household.

III. Results

A. Current Law

This subsection investigates patterns of CTC eligibility among children in the overall population and across various population subgroups.

Table 1 presents summary statistics for the children in our sample according to their CTC eligibility. Initially, we restrict our focus to children living in households below the income phase-out range (Columns 1-3). We estimate that approximately 10% of children – corresponding to almost 6.7 million individuals in the U.S. – are completely ineligible for the CTC (Column 1) – i.e., their tax filing unit receives no benefit from the CTC and has income below the CTC phase-out range. Ineligible children have substantially lower family income than the overall population; 74 percent of this group resides in households with income below the poverty line and the average income of the ineligible children’s tax unit is only \$1,359.

We also observe striking differences in CTC eligibility by race, ethnicity, and family structure. Relative to the overall population, ineligible children are more likely to be black (25 percent compared to 14 percent among all children) or Hispanic (30 percent compared to 26 percent among all children), and less likely to be white, non-Hispanic (36 percent compared to 50 percent among all children). Ineligible children are also more likely to have both parents absent from the household (22 percent compared to 4 percent overall) and are particularly unlikely to have a father present (71 percent do not have a present father, compared to 26 percent in the sample of all children). All of these differences are statistically significant at conventional thresholds.

Apart from entirely ineligible children, we find that another 25% of children – corresponding to approximately 17 million individuals – are partially eligible for the CTC (Column 2 of Table

1) – i.e., their tax filing unit has income below the CTC phase-out and receives a positive CTC benefit that is less than \$2,000 per child. Such children are part of tax filing units with incomes above the \$2,500 earnings threshold but receive less than the full credit because of one or more of the limits on refundability. The children in this group also reside in lower-income households, with an average household income of \$23,460, and a 25% poverty rate. The average CTC benefit per child in this group is about \$1,200 – about 60% of the full per-child credit amount. Like ineligible children, the children who receive a partial credit are more likely than the overall population to be black (19 percent compared to 14 percent) or Hispanic (39 percent compared to 24 percent), and less likely to be white (32 percent compared to 50 percent). Partially eligible children also tend to be younger than the overall child population, and are more likely to be under age six (38 percent, compared to 35 percent overall). Finally, partially eligible children are less likely to have a father present (45 percent do not live with their father, compared to 26 percent of all children), though they are equally likely as the overall population to live in a household without any parent (4 percent).

Column 3 of Table 1 shows that more than 44 million children in the U.S. are eligible for the full CTC, and these children are more affluent than the population overall, with an average household income of approximately \$112,000. While 13 percent of children live in poverty in the U.S., none of the children who are eligible for the full credit are poor. Compared to the overall population, fully eligible children are more likely to be white (59 percent compared to 50 percent of all children) and less likely to be black (10 percent compared to 14 percent of all children) or Hispanic (20 percent compared to 26 percent of all children). These children are also more likely to live in a married-parent household (82 percent compared to 67 percent overall) rather than a single-parent household.

Columns 4 and 5 of Table 1 present characteristics of children that receive either a partial benefit (1% of children) or no benefit (1% of children) from the CTC because of the income phase-out. By definition, such children live in very well-off households, with average household incomes of approximately \$409,000 and \$746,000, respectively.¹⁵ Compared to the overall population, such children are much less likely to be Black or Hispanic, slightly more likely to be Asian, and much more likely to be white.

Table 2 explores the reasons why some children do not receive any benefit from the CTC (i.e., the children described in Columns 1 and 5 of Table 1). Among children who do not receive any CTC benefit, the vast majority (79%) are ineligible solely because their tax filing unit fails the earnings test – they do not have income above the minimum \$2,500 required to receive any CTC benefit. The next largest group (11%) receive no CTC benefit because their income exceeds the top of the phase-out range. The remaining children who receive no CTC benefit are ineligible solely because of the relationship test (1%)– i.e., they do not reside with an eligible relative such as a parent or grandparent – or as a result of the earnings and relationship tests in conjunction with one another (9%).¹⁶ A child in the latter category, for example, would gain eligibility for the CTC if either the relationship or earnings test were relaxed. Finally, a small minority (0.1%) are ineligible because they earn more than half of total household earnings, which we treat as failing the support test.

¹⁵ The 2018 CPS uses a “rank proximity swapping” method for dealing with values above the top-coded thresholds. This procedure involves swapping values across proximally close observations in order to preserve the distribution of values while also protecting anonymity. This technique applies to several of the income source variables included in calculating AGI, including wages and salary, interest income, and rental income. See the technical documentation for more information: <https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar18.pdf>

¹⁶As an example of the latter possibility, consider a child living with his mother and her unmarried partner. If the mother does not work but the partner does work, the child would be ineligible for the CTC because of the refundability phase-in (otherwise his mother could claim the credit for him) and because of the relationship test (otherwise the cohabitating partner could claim the credit for him).

Figure 1 further explores differences in CTC eligibility by income (panel A), race (panel B), and child's age (panel C). Because the CTC is tied to earnings, it is not surprising that the Figure reveals stark patterns across the income distribution. The vast majority of those in the bottom decile of the national AGI distribution are completely ineligible for the CTC (87 percent), and the majority of filers in the bottom thirty percent of the distribution are only eligible for a partial credit. By contrast, in the top half of the AGI distribution, virtually all children are eligible for the full credit. Even in the highest income decile, only about 20% of children qualify for a reduced CTC because of the income phase-out, consistent with the extremely high income thresholds at which the phase-out begins to occur.

We next investigate racial disparities in CTC eligibility (panel B of Figure 1). While approximately three-quarters of white and Asian children are eligible for the full CTC benefit, this applies to only about half of Black and Hispanic children. There are some differences in eligibility between black and Hispanic children—Black children are more likely to be completely ineligible for the CTC (18 percent compared to 12 percent among Hispanic children), whereas Hispanic children are more likely to be eligible for a partial credit (38 percent compared to 34 percent among Black children). These patterns can be explained by both income and family structure differences between Black and Hispanic children—Black children are more likely to live in households with AGI below \$2,500, and are much more likely to reside with a single parent, compared to Hispanic children.

Finally, we document smaller differences in patterns of eligibility by child age (panel C of Figure 1). While rates of ineligibility are similar among younger children and teenagers (approximately 11 percent), children under age six are less likely to be eligible for the full

benefit (62 percent compared to 67 percent among children aged 13 to 16), and more likely to be eligible for a partial credit (28 percent compared to 22 percent among children aged 13 to 16).

B. Role of Specific CTC Rules

In this subsection we consider the effects of several potential changes to the CTC eligibility rules to assess the contribution of these rules to the patterns of eligibility we documented in the previous subsection. We assess the effects of these rules on overall eligibility rates as well as on the characteristics of which children become eligible. We focus on eliminating several of the current rules that limit taxpayers' ability to benefit from the CTC: the relationship test, the earnings test, and the dollar cap on refundability. In addition to considering these reforms in isolation, we also consider the effects of relaxing these requirements in conjunction with one another.

Table 3 summarizes the results of these analyses. Column 1 summarizes eligibility rates under current law (previously described in Table 1). Column 2 shows the effect of eliminating the relationship test. For example, without the relationship test in place, children of non-working or low-earning parents can be claimed by cohabiting and higher-earning unmarried partners or relatives other than the ones allowed to claim the child under current law. Under this reform, the share of fully ineligible children would decline by 2.9 percentage points, corresponding to about 2 million additional children receiving at least some CTC benefit.¹⁷ In addition, the reform would increase the share of children receiving the full CTC by 1.6 percentage points,

¹⁷ Although eliminating the relationship test would, on net, increase the share of children who qualify for the CTC, in principle this reform could also have the effect of reducing CTC for some children if it forces a higher-earning non-parent to claim the child under the tie-breaker test, and that non-parent is subject to the CTC phase-out. In practice, we observe only a few children in our data who would lose CTC eligibility by eliminating the relationship test.

corresponding to approximately 1.1 million children. This reform would be quite progressive, extending eligibility to children growing up in households with average AGI of just \$536. Hispanic children would particularly benefit from this reform; 38% of the newly eligible children are Hispanic, compared to 26% of the overall U.S. population.

Column 3 of Table 3 considers the effects of eliminating the earnings test – i.e., the phase-in of refundability based on the earned income of the taxpayer claiming the child. This reform would dramatically reduce the share of fully ineligible children, from 10.8% under current law to just 2.3% following this change. In contrast, it would not substantially increase the share of children eligible to receive the full CTC benefit, since the \$1400 limit on refundability would still be in place. Because it would extend the CTC to children living in very low income households, this change would be quite progressive. The average AGI of the children who gain CTC eligibility from this reform is just \$873. Twenty-six percent of the newly eligible children are Black, compared to 14% of all children.

Column 4 of Table 3 shows the effects of eliminating the \$1400 cap on refundability. Not surprisingly, this reform would not benefit children who were currently ineligible for the credit, but would benefit those partially eligible under current law. Correspondingly, the children who benefit from this reform have higher income than the other reforms discussed so far, with an average household income of \$31,282. Hispanic children are disproportionately likely to be harmed by the refundability cap, constituting 42% of the children who benefit from its elimination compared to 26% of all children.

Finally, Columns 5 and 6 of Table 3 evaluate combinations of the reforms discussed so far. In particular, Column 5 considers the effect of removing both limits on CTC refundability, combining the reforms in Columns 3 and 4. Under this reform, any child living with a relative

would be eligible for the full credit amount, except for those living in households with incomes subject to the phase-out. This reform would dramatically reduce the share of low- and middle-income children who do not receive the full CTC, leaving only children living in high-income households subject to the phase-out as well as children who do not meet the relationship test with respect to any household member.

Column 6 targets the latter group of children by considering a reform that would eliminate the relationship test in addition to the limits on refundability, thus making the credit near universal for low and middle income families.¹⁸ As expected from our earlier discussion, the results show that such a reform would most benefit the groups that are disproportionately harmed by the current CTC rules, such as Black and Hispanic children, children living in poverty, and children with single-parent headed households.

IV. Conclusion

Drawing on a representative sample of children in the United States, we have explored which children benefit from the Child Tax Credit, as well as the rules that give rise to these patterns. Our findings suggest striking disparities by income and race: the lowest income children are entirely excluded from the benefits of the credit, and many children growing up in working class households are not eligible for the full credit. At the same time, Black and Hispanic children are much less likely than their white counterparts to receive the full credit amount. These gaps in

¹⁸ Even under this reform, the CTC would not reach children who are married, provide more than half of their own support, or lack a social security number that authorizes them for work. Using citizenship as a proxy for the last of these, we estimate that fewer than 3% of individuals under the age of 17 fall into one of these three categories. In addition, even without the relationship and earnings tests, children who do not live with an (older) taxpayer for at least half of the year would not qualify for the CTC. As discussed above, our data do not permit us to estimate the share of children who fall into this category.

coverage are significant; a large body of research suggests that excluding children from cash transfers in this way harms children in both the short- and long-terms.

Several caveats are important to keep in mind when interpreting our results. First, although the CPS contains the required information on household composition, relationship, and income for determining CTC eligibility, it lacks information about certain expenditures that could affect one's CTC benefit through tax deductions or other benefits. For example, because taxpayers with childcare may face lower tax bills because of the Child and Dependent Care Credit, the limits on CTC refundability may affect more taxpayers than we estimate. A second caveat is that our focus has been on describing which taxpayers qualify for the CTC, rather than on which taxpayers actually claim it on their returns. In practice, take-up of the CTC is incomplete; some taxpayers who qualify for the credit will fail to claim it (Dickert-Conlin et al. 2005; Jones 2014). At the same time, like other tax credits, some of those claiming the CTC will not actually qualify under its rules. Finally, our investigation into the role played by the various CTC rules result from static analyses that do not consider behavioral responses on the part of taxpayers. Eliminating these restrictions could affect other outcomes such as labor supply via changes in the marginal tax rate or affect eligibility through second-order effects such as changes in individuals' decisions about where to live.

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Table 1. Child Characteristics by Child Tax Credit Eligibility

	Income below phase-out threshold			Income above phase-out threshold		All Children
	No credit	Partial credit	Full credit	Partial credit	No credit	
	(1)	(2)	(3)	(4)	(5)	(6)
Share of All Children	0.10	0.25	0.64	0.01	0.01	1.00
Number of Children	6,675,624	17,062,123	44,055,227	620,618	829,696	69,243,288
Income	1,359	23,460	112,545	408,732	746,538	90,126
Income < Federal Poverty Line	0.74	0.25	0.00	0.00	0.00	0.13
Race/Ethnicity						
Black	0.25	0.19	0.10	0.07	0.03	0.14
Hispanic	0.30	0.39	0.20	0.07	0.09	0.26
Asian	0.03	0.03	0.06	0.06	0.08	0.05
White	0.36	0.32	0.59	0.74	0.73	0.50
Other	0.06	0.07	0.05	0.05	0.07	0.05
Age	8.18	7.59	8.23	8.48	9.00	8.08
Aged 0-5	0.34	0.38	0.34	0.30	0.27	0.35
Aged 6-12	0.42	0.42	0.42	0.46	0.46	0.42
Aged 13-16	0.25	0.20	0.25	0.25	0.28	0.24
Family structure						
Married Filer	0.16	0.46	0.82	0.82	0.88	0.67
No Mother Present	0.27	0.08	0.06	0.08	0.03	0.08
No Father Present	0.71	0.45	0.13	0.07	0.08	0.26
No Parent Present	0.22	0.04	0.02	0.00	0.01	0.04
CTC Per Child						
Non-Refundable Portion	0	1,193	2,000	1,245	0	1,578
Refundable Portion	0	1,027	1,792	1,245	0	1,192
	0	166	212	0	0	388
Number of Observations	4,179	10,679	29,149	409	543	44,959

Notes: Current Population Survey ASEC 2018. The table shows the share of children by CTC benefit category. All Columns are limited to unmarried individuals under the age of 17 at the time of the survey. Columns 1-3 are limited to children assigned to tax filing units below the beginning of the CTC phase-out (\$200,000 if single, \$400,000 if married); Columns 4-5 are limited to children assigned to tax-filing units above this threshold. Columns 1 and 5 include children whose tax-filing unit qualifies for no CTC. Column 3 includes children whose tax-filing unit qualifies for \$2,000 per CTC-qualifying child. Columns 2 and 4 include children whose tax-filing unit qualifies for a non-zero CTC amount that is less than \$2,000 per CTC-qualifying child. Population estimates calculated using CPS March supplement weights. Income refers to the adjusted gross income (AGI) of the tax-filing unit to which the child is assigned. Married refers to the marital status of the tax-filing unit. CTC per child refers to the total (i.e., refundable and non-refundable portions) CTC benefit for which a household qualifies, averaged over the CTC-qualifying children present in the household. All income dollars inflated to 2019 real terms using the Consumer Price Index (CPI).

Table 2. Why Don't Children Qualify for the Child Tax Credit?

Earnings Test	78.5%
Relationship Test	1.1%
Relationship and Earnings Tests	9.2%
Income Phase-Out	11.1%
Support test	0.1%
Total	100.0%

Number of Observations 4,722

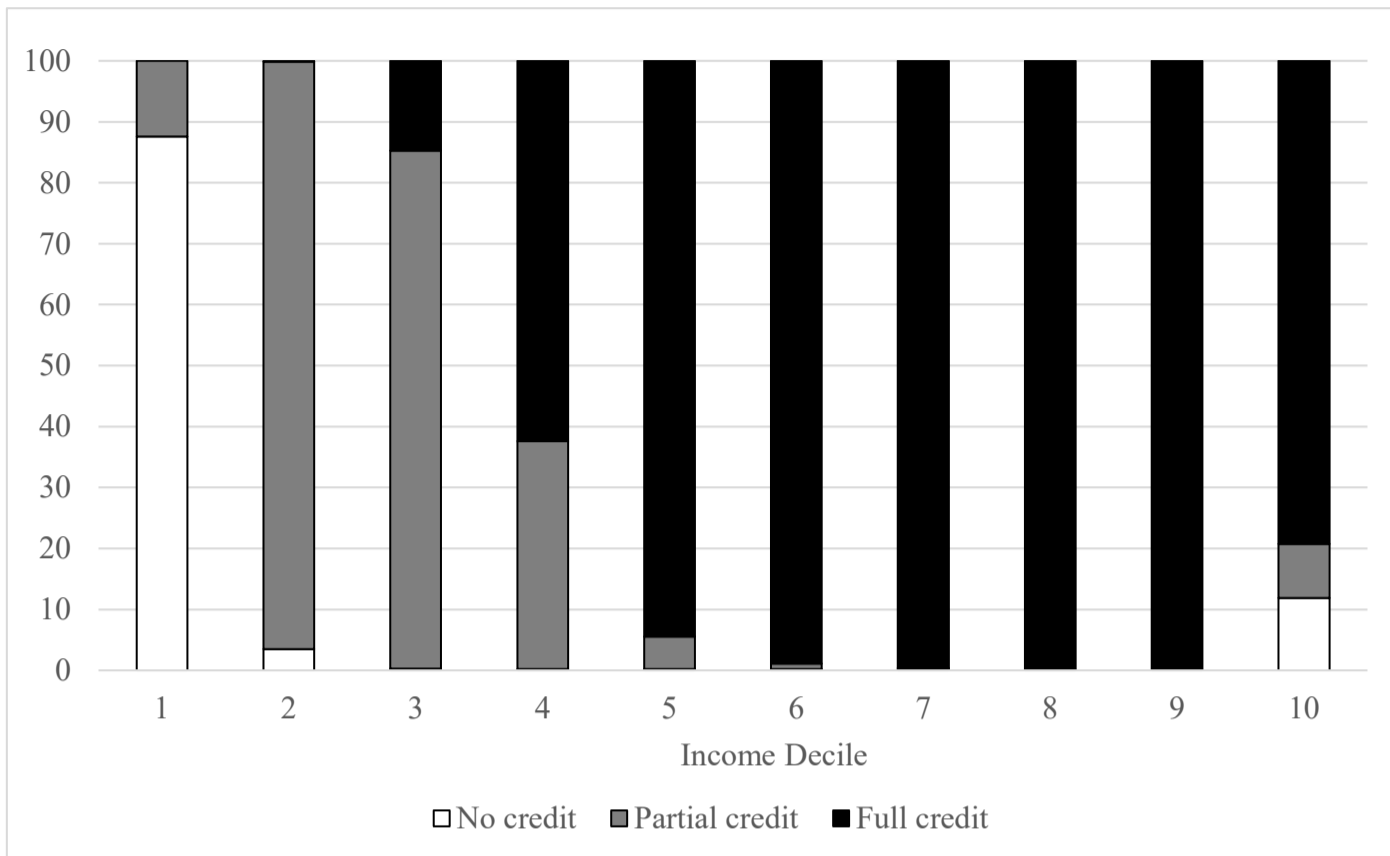
Notes: Current Population Survey ASEC 2018. The table presents information on the rules that prevent children from qualifying for the CTC. The analysis is limited to children who are fully ineligible for the CTC (columns 1 and 5 in Table 1). Each row presents the share of this population that is ineligible for the credit because of the specified rule. The reason for a child's ineligibility is determined by comparing the child's CTC eligibility under current law to eligibility under a counterfactual policy in which the specified rule was eliminated. Children classified under the relationship and earnings tests row would be eligible if either the earnings test or the relationship test were eliminated. Any child with household income above the top of the phase-out threshold is considered ineligible due to the income phase-out. All estimates calculated using CPS March supplement weights.

Table 3. Simulations of Child Tax Credit Policy Reforms

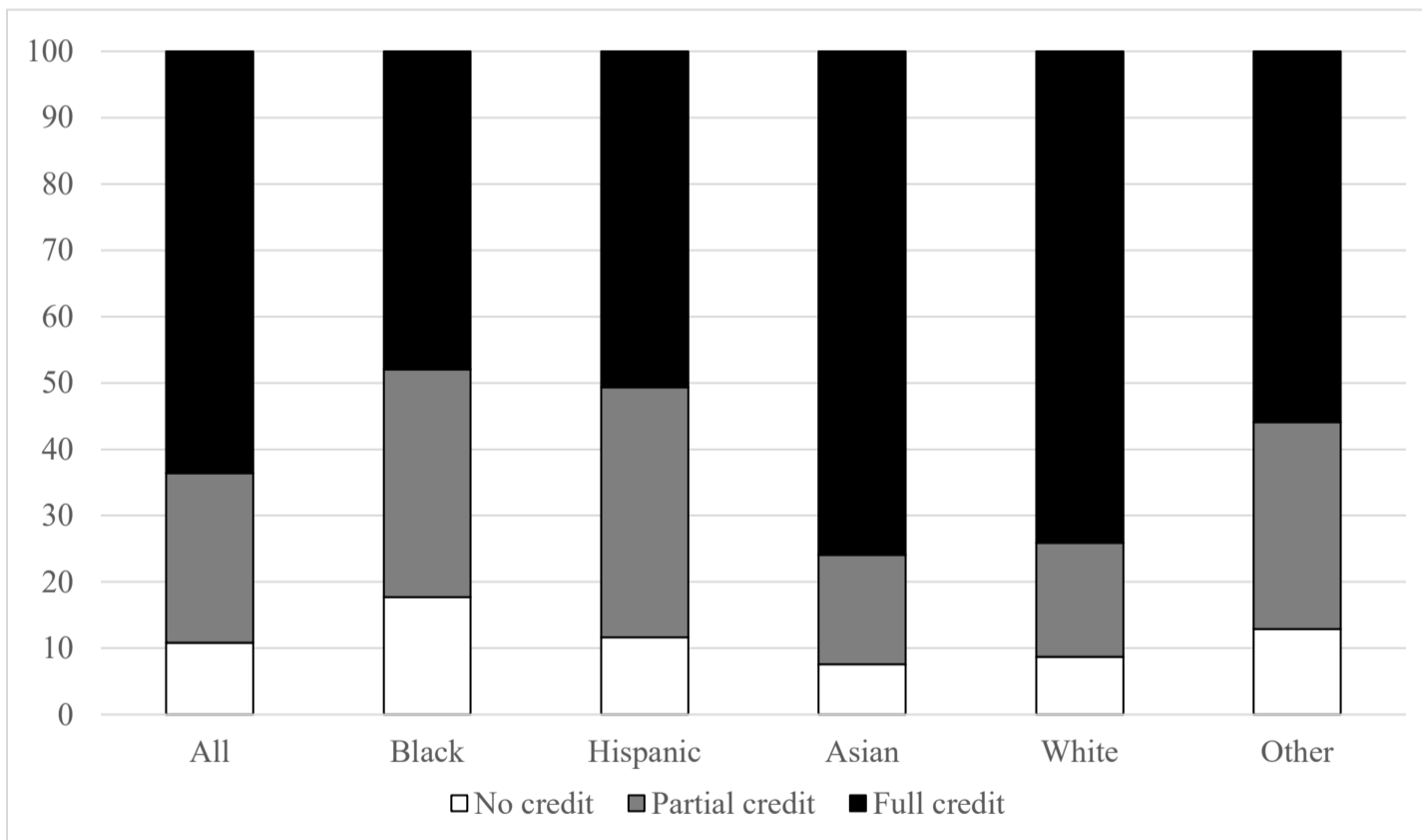
	Current Law	Eliminate Relationship Test	Eliminate Earnings Test	Eliminate Refundability Cap	Fully Refundable	Fully Refundable and Eliminate Relationship Test
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Child Eligibility						
Percent receiving no credit	10.8	7.9	2.3	10.8	2.3	1.7
Percent receiving partial credit	25.5	26.9	33.6	19.1	0.9	1.3
Percent of children receiving full credit	63.6	65.2	64.1	70.1	96.8	97.0
Estimated number of children in U.S. population receiving full credit	44,055,227	45,161,665	44,356,213	48,508,863	67,017,009	67,131,126
Panel B. Newly Eligible Children						
Number of Children		2,029,949	5,904,042	0	5,901,316	6,303,553
Share of All Children		0.03	0.09	0.00	0.09	0.09
Income		536	873	.	854	894
Race/ethnicity						
Black		0.14	0.26	.	0.26	0.25
Hispanic		0.38	0.29	.	0.29	0.30
Asian		0.03	0.03	.	0.03	0.03
White		0.39	0.35	.	0.35	0.36
Other		0.06	0.06	.	0.06	0.06
Family Structure						
No mother present		0.32	0.19	.	0.19	0.23
No father present		0.66	0.68	.	0.68	0.70
No parent present		0.29	0.13	.	0.13	0.17
Panel C. Newly Eligible for Full Credit						
Number of Children		1,106,438	300,986	4,453,637	22,961,782	23,075,899
Share of All Children		0.02	0.004	0.06	0.33	0.333
Income		2,709	35,128	31,282	17,650	17,577
Race/ethnicity						
Black		0.13	0.23	0.16	0.21	0.21
Hispanic		0.38	0.22	0.42	0.36	0.36
Asian		0.05	0.09	0.04	0.03	0.03
White		0.39	0.39	0.33	0.33	0.33
Other		0.05	0.08	0.05	0.06	0.06
Family Structure						
No mother present		0.36	0.19	0.08	0.11	0.11
No father present		0.65	0.46	0.39	0.51	0.51
No parent present		0.32	0.18	0.03	0.06	0.06

Notes: Current Population Survey ASEC 2018. The table shows the effect of alternative policy reforms to the Child Tax Credit rules. Panel A shows the effect on child eligibility; Panel B shows the characteristics of those children who receive a non-zero credit amount because of the reform; Panel C shows the characteristics of those children who receive a full credit because of the reform. Column 1 shows eligibility under current law. Column 2 shows the effect of eliminating the relationship test. Column 3 shows the effect of eliminating the earnings test (including the payroll tax limit applicable to taxpayers with three or more children). Column 4 shows the effect of eliminating the refundability cap of \$1400. Column 5 shows the effect of eliminating all of the limits on CTC refundability (i.e., the earnings test and the refundability cap). Column 6 shows the effect of eliminating the relationship test and all of the limits on CTC refundability. Income refers to the adjusted gross income (AGI) of the tax-filing unit to which the child is assigned under current law. All estimates calculated using CPS March supplement weights. All income dollars inflated to 2019 real terms using the Consumer Price Index (CPI).

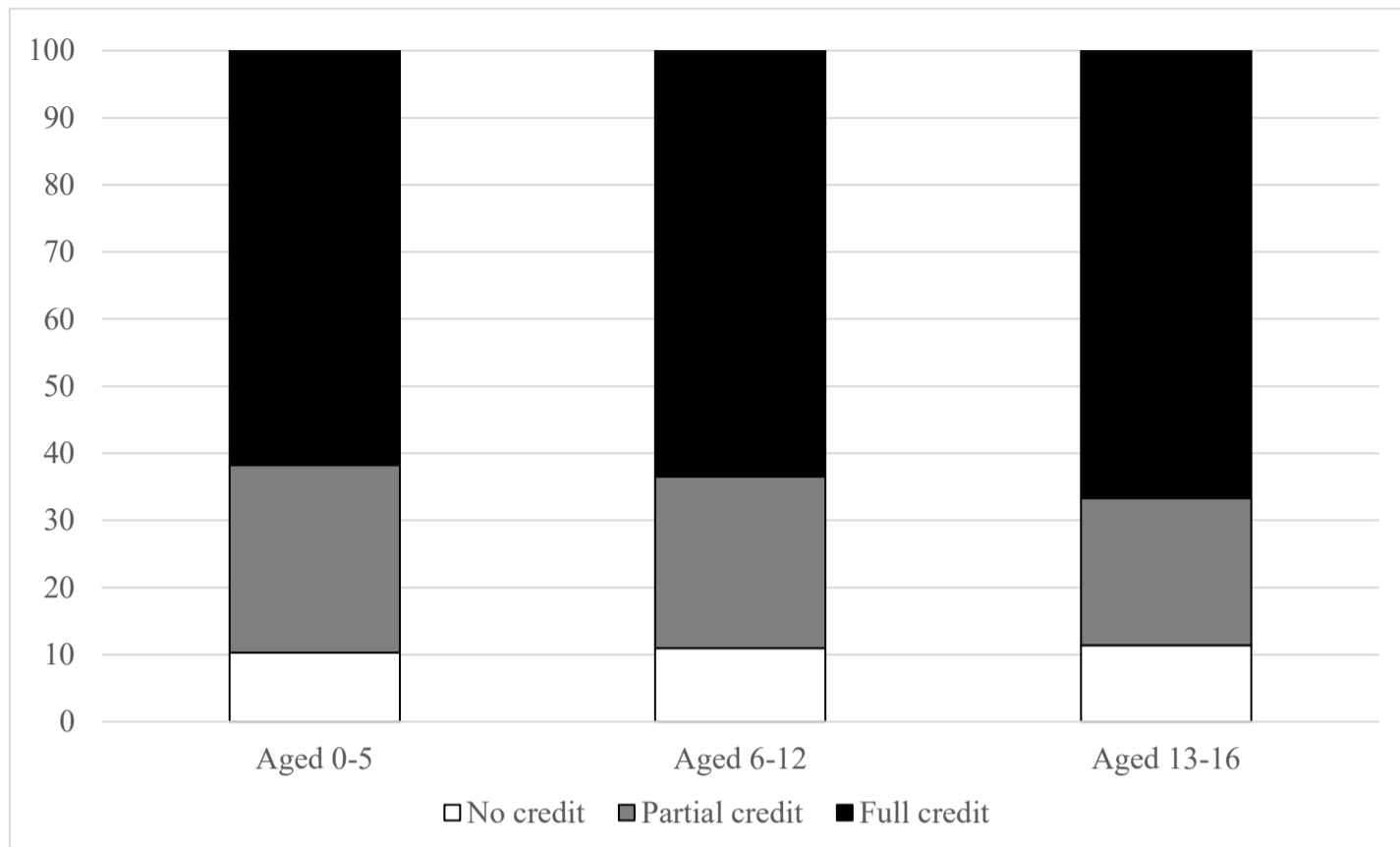
Figure 1. Distribution of CTC Eligibility by Child Characteristic
 Panel A: Eligibility by Income



Panel B: Eligibility by Race



Panel C: Eligibility by Child Age



Notes: Current Population Survey ASEC 2018. The figure shows the distribution of CTC eligibility categories across a range of demographic characteristics. The fully shaded portion of each bar corresponds to the share of children in the specified subgroup that are eligible for the full CTC credit amount (\$2000 per child). The partially shaded portion corresponds to the share of children that are partially eligible for the credit (i.e., the tax filing unit that claims them qualifies for a non-zero CTC amount of less than \$2000 per child). The unshaded portion corresponds to the share of children that are entirely ineligible for the CTC. Panels A, B, and C show the share of children in each eligibility category separately by the income of the child's tax filing unit, the child's race, and the child's age. All estimates calculated using CPS March supplement weights.