Forum

WHO BENEFITS FROM THE CHILD TAX CREDIT?

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The Child Tax Credit (CTC) provides cash transfers to millions of families in the United States. We examine the distributional effects of the rules governing the credit, focusing on the rules governing years prior to 2021. We document striking disparities in eligibility by income and race. For instance, three-quarters of white children are eligible for the full CTC, compared with only about half of Black and Hispanic children. We estimate the distributional effects of a range of reforms to the CTC eligibility rules, demonstrating how such reforms could more evenly distribute the credit by race and income.

Keywords: child tax credit, race, tax reform, individual taxation, family taxation

JEL Code: H20

I. 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, in recent years, has provided 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 more than $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 dramatically 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).

In this paper, we investigate which children benefit from the CTC and which children are excluded. Our focus is on the rules that governed the CTC in years prior to

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2021 and that are currently scheduled to retake effect for years starting in 2022, when a one-year expansion of the CTC is set to expire. 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. Next, we study limits on the credit's refundability. 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. In addition, only $1,400 out of the maximum $2,000 credit per child is refundable, which limits the full credit to taxpayers who have sufficient tax liability. We study the distributional effects of these rules in isolation as well as their interaction with one another, highlighting how the current rules, and potential reforms to these rules, shape income and racial disparities in eligibility for the credit.

To understand how these rules shape the distribution of the CTC's benefits, we draw on the Annual Social and Economic Supplement to the Current Population Survey (CPS). Based on this analysis, we classify children into three categories: (1) ineligible children, who cannot be claimed by any taxpayer for a positive CTC amount; (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 who 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 with only about half of Black and Hispanic children.[1] Black children are particularly unlikely to be eligible for the CTC, constituting one in four ineligible children, despite representing only 14 percent of all children. These disparities are primarily due to limits on the credit's refundability; if those limits were removed, 99 percent of Black and Hispanic children would qualify for the full CTC amount.

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 adjusted gross income (AGI) distribution are completely ineligible for the CTC, and the majority of children in the bottom 30 percent of the distribution are eligible only 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 with teenage children, and more likely to be eligible for a partial credit, though rates of complete ineligibility are 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.

[1] We use "white," "Black," and "Asian" to refer to children identified in our data as non-Hispanic white, non-Hispanic Black, and non-Hispanic Asian, respectively.

We next study the role of various CTC rules in generating these differences in 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 at least some CTC benefit. 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 2020 law thresholds — would affect many more children (5.9 million children would become eligible for at least some CTC benefit), particularly Black children and children residing in very low-income households. Removing the $1,400 refundability cap would also help children in families with lower-than-average incomes, but with somewhat higher incomes than the other reforms. Hispanic children in particular benefit from removing the refundability cap, as they tend to live in families with lower income relative to white children, but are more likely than Black children to be claimed by taxpayers who meet the minimum earnings threshold to claim the CTC. In addition, removing the refundability cap would not increase benefits among those children who are entirely ineligible for CTC benefits under the 2020 law. Finally, removing both 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 Black and Hispanic children, and those growing up in the lowest-income households.

Our results provide evidence that can inform ongoing policy discussions about child benefits in the United States. The CTC was temporarily expanded for 2021 by the American Rescue Plan Act (ARPA) (for recent summaries and analyses, see Greenstein et al., 2018; Collyer, Harris, and Wimer, 2019; Maag and Airi, 2020), making the credit fully refundable and increasing the generosity of the credit, particularly for young children. There is an ongoing debate about whether to make these reforms permanent. Our findings can inform this debate by showing the distributional consequences of reverting back to the pre-2021 CTC rules. Similarly, current legislative proposals to reform the CTC for years following 2021 would eliminate the relationship test; our results shed light on the number and characteristics of the children this change would affect.

Our analysis builds on a range of related work. 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.[2] 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. Similarly, Collyer, Harris, and Wimer (2019) also describe how eligibility for the CTC

[2] Similarly, Brown (2005) compares the rules and politics of the CTC and EITC, focusing on race-neutral versus race-based explanations for the differences in design. Many of the important CTC rules relating to eligibility and earnings differ today relative to those upon which Brown focused.

varies across children; our analysis builds on their work by providing additional estimates of which specific rules reduce eligibility and how different reforms would change the distribution of benefits across children. In addition, unlike prior distributional analyses of the credit, our approach accounts for the possibility of nonparent taxpayers claiming a child when a child's parent has insufficient earnings to qualify for the credit — an important feature of the rules for many low-income households.

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, 2021). Our analysis illustrates one example of how policies that are ostensibly "race blind" can, in fact, perpetuate and exacerbate racial inequality through rules that disproportionately affect communities of color.

The remainder of the paper proceeds as follows. Section II provides additional detail regarding the CTC and its eligibility rules. Section III details the methodology underlying our estimates and describes our data. Section IV provides our results. Section V concludes.

II. INSTITUTIONAL BACKGROUND ON THE CTC

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 their tax liability may receive a refund from the Internal Revenue Service (IRS) for some or all of the excess credit amount.[3] 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. In this section and in our analyses, we focus on the rules that governed the CTC in years prior to 2021 and that are currently scheduled to retake effect for years starting in 2022, when a one-year expansion of the CTC is set to expire (as described further below).[4]

In general, a taxpayer's CTC is equal to $2,000 per qualifying child the taxpayer claims for the credit on their tax return. The credit is phased out for very high-income taxpayers; in particular, the credit phased out at a rate of 5 percent for unmarried filers with AGI above $200,000, and for married filers with AGI above $400,000 (these phaseout thresholds are indexed for inflation). A taxpayer whose tax liability exceeds their CTC (and whose income is below the phaseout threshold) will benefit by the full amount of the CTC for which they qualify. When a taxpayer's CTC exceeds her tax liability, however, the taxpayers' ability to benefit from the CTC is

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

[4] Our discussion incorporates the temporary changes to the CTC made by the Tax Cuts and Jobs Act of 2017, currently scheduled to expire beginning in tax year 2026. The rules described in this section are set out in sections 24 and 152 of the Internal Revenue Code. See also IRS Publication 972.

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 2020 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 nonrefundable 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 percent 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, the earnings test prevents a taxpayer with $2,400 of earned income from receiving any CTC refund at all.[5]

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 2020. If the individual were to file, they 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 percent 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.[6] First, the child must be 16 years old or younger during the entire year for which they are claimed.[7] Second, the child must not have filed a joint return with their spouse for the year in which they are 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

[5] 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.

[6] See Internal Revenue Code sections 24(c) and 152(c).

[7] 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 nonrefundable 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).

number that is valid for employment. Fourth, the child must not provide more than one-half of their own support. Fifth, the taxpayer claiming the child must be the child's parent, grandparent, sibling, aunt, or uncle (including steprelatives 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.[8] 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.[9]

In March 2021, Congress enacted a one-year expansion of the CTC for the 2021 tax year as part of the ARPA. As part of that expansion, the credit was made fully refundable (i.e., the earnings requirement and refundability cap were eliminated) and the maximum credit amount was increased to $3,000 per child aged 6–17, and $3,600 per child under the age of six. Along with the increased maximum credit amount, the legislation added a second phaseout to the credit, under which the increase in credit amount was phased out at a 5 percent rate beginning at $150,000 for married couples and $112,500 for most unmarried parents. In addition to these changes, ARPA directed the IRS to issue advance monthly payments of the CTC during the second half of 2021 and expanded eligibility for the CTC to children who turn 17 during a tax year. As of this writing (December 2021), Congress is considering extending these one-year changes to the CTC enacted under ARPA for future years. In addition to eliminating the limits on refundability, the proposed legislation to expand the CTC would eliminate the relationship test and convert the residency test from an annual to a month-by-month determination.

III. DATA AND METHODOLOGY

Our data come from the Annual Social and Economic Supplement (ASEC) to the 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.[10] This leaves us with a sample of 44,959 children, representing approximately 69 million individuals in the United States.[11]

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

[9] If both a parent and nonparent 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.

[10] 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 percent of all individuals under the age of 17.

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

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.[12] Following the qualifying child rules, we further restrict this set of 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.[13]

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 child to the child's parent(s), if present, as well as the nonparent relative with the highest income in the

[12] For 1 percent of children, the relationship data collected in the CPS do 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.

[13] 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 the child to work, or whether a child provides half of their own support. By abstracting from these requirements, our analysis will overstate the share of children who benefit from the credit. Using the earnings of the individuals in the household as a proxy for the support test, less than 0.1 percent of individuals under the age of 17 earn more than half of total household income. We treat these individuals as ineligible for the CTC. As a proxy for having a Social Security number, we examine noncitizenship reporting in our sample. About 2.5 percent, or 1.7 million children, report noncitizenship. Approximately 20 percent of these children are white, 11 percent are Black, 40 percent are Hispanic, and 27 percent are Asian. Results were nearly identical when restricting the sample to individuals who self-report US citizenship in the ASEC. (These results may underestimate the noncitizenship population if noncitizens are less likely to respond to the survey.)

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.[14] 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) nonparent, to increase the chances that the child will qualify for the CTC.[15] 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 nonparent 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. Because 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.[16] 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.

IV. RESULTS

A. Baseline Law

This subsection investigates patterns of CTC eligibility among children in the overall population and across various population subgroups, under the CTC rules in place during 2020.

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 phaseout range (Columns 1–3). We estimate that approximately 10 percent of children, corresponding to almost 6.7 million individuals in the United States, are completely ineligible for the CTC (Column 1) — that is, their tax filing unit receives no benefit from the CTC and has income below the CTC phaseout range. Ineligible

[14] When two or more unmarried taxpayers are parents (or stepparents) 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.

[15] 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 (2016).

[16] Throughout, we use "child" to refer to an unmarried individual under the age of 17. Note that 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.

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 with 14 percent among all children) or Hispanic (30 percent compared with 26 percent among all children), and less likely to be white, non-Hispanic (36 percent compared with 50 percent among all children). These racial differences arise because of substantial racial differences in income and family structure. Black and Hispanic children live in households with lower income, and Black children in particular are less likely to live with their fathers (driven in part by trends in mass incarceration in recent decades [Pettit and Gutierrez, 2018]), and less likely to live with any parent relative to white and Hispanic children.

More generally, ineligible children are also more likely to have both parents absent from the household (22 percent compared with 4 percent overall) and are particularly unlikely to have a father present (71 percent do not have a present father, compared with 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 percent of children, corresponding to approximately 17 million individuals, are partially eligible for the CTC (Column 2 of Table 1) — that is, their tax filing unit has income below the CTC phaseout 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 percent poverty rate. The average CTC benefit per child in this group is about $1,200 — about 60 percent of the full credit amount per child. Like ineligible children, the children who receive a partial credit are more likely than the overall population to be Black (19 percent compared with 14 percent) or Hispanic (39 percent compared with 26 percent), and less likely to be white (32 percent compared with 50 percent). Partially eligible children also tend to be younger than the overall child population, and they are more likely to be under age six (38 percent, compared with 35 percent overall). Finally, partially eligible children are less likely to have a father present (45 percent do not live with their father, compared with 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 United States 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 United States, none of the children who are eligible for the full credit are poor. Compared with the overall population, fully eligible children are more likely to be white (59 percent compared with 50 percent of all children) and less likely to be Black (10 percent compared with 14 percent of

Table 1

Child Characteristics by CTC Eligibility

	Income Below Phaseout Threshold			Income Above Phaseout Threshold		
	No Credit	Partial Credit	Full Credit	Partial Credit	No Credit	All Children
	(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	6,680,478	17,061,170	44,051,326	620,618	829,696	69,243,288
Income	1,359	23,463	112,561	408,732	746,538	90,247
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	8.16	7.60	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:	0	1,193	2,000	1,245	0	1,578
Nonrefundable portion	0	1,027	1,792	1,245	0	1,192
Refundable portion	0	166	211	0	0	388
Number of observations	4,177	10,682	29,148	409	543	44,959

Note: CPS 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 phaseout ($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 nonzero CTC amount that is less than $2,000 per CTC-qualifying child. Population estimates calculated using CPS March supplement weights. Income refers to the AGI of the tax filing unit to which the child is assigned. White, Black, and Asian racial/ethnic categories refer to individuals who do not also indicate they are Hispanic. Married refers to the marital status of the tax filing unit. CTC per child refers to the total (i.e., refundable and nonrefundable 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 CPI.

Table 2

Why Don't Children Qualify for the CTC?

Earnings test	79.5%
Relationship test	1.0%
Relationship and earnings tests	8.2%
Income phaseout	11.0%
Support test	0.1%
Total	99.9%
Number of observations	4,720

Note: CPS 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 phaseout threshold is considered ineligible due to the income phaseout. All estimates calculated using CPS March supplement weights.

all children) or Hispanic (20 percent compared with 26 percent of all children). These children are also more likely to live in a married-parent household (82 percent compared with 67 percent overall) rather than a single-parent household.

Columns 4 and 5 of Table 1 present characteristics of children who receive either a partial benefit (1 percent of children) or no benefit (1 percent of children) from the CTC because of the income phaseout. By definition, such children live in very well-off households, with average household incomes of approximately $409,000 and $746,000, respectively.[17] Compared with 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 (80 percent) 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 percent) receive no CTC benefit because their income exceeds the top of the phaseout range. The remaining children who receive no CTC benefit are

[17] 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 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.

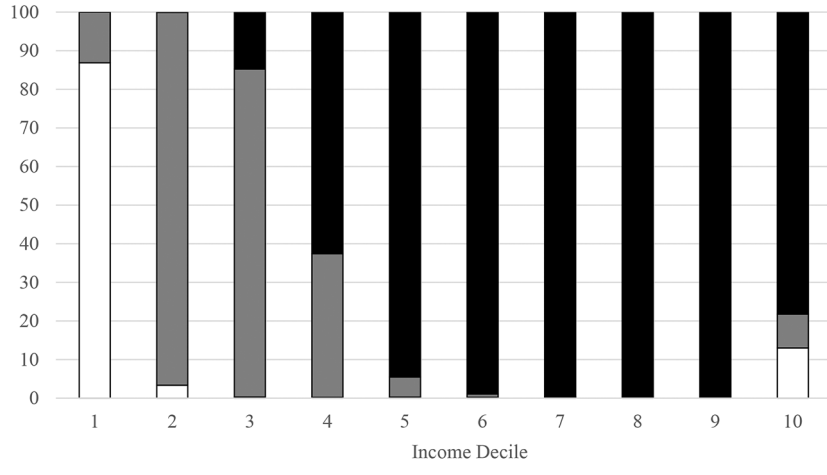
ineligible solely because of the relationship test (1 percent) — that is, they do not reside with an eligible relative such as a parent or grandparent — or as a result of the earnings and relationship tests in conjunction with one another (8 percent).[18] A child in the latter category, for example, would gain eligibility for the CTC if either the relationship or earnings test were relaxed. Finally, a small minority (0.1 percent) are ineligible because they earn more than half of total household earnings, which we treat as failing the support test.

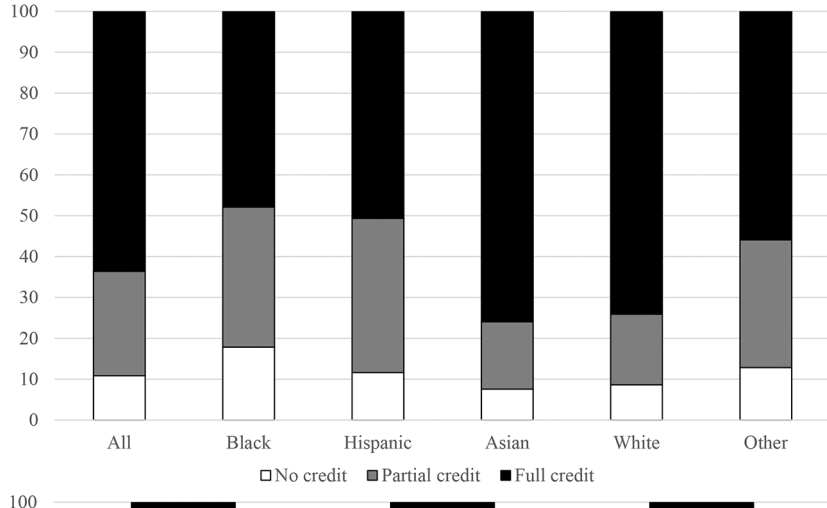
Figure 1 further explores differences in CTC eligibility by income (Panel A), race (Panel B), and child's age (Panel C). Because the CTC is tied to earnings, it is not surprising that the figure reveals stark patterns across the income distribution. The vast majority of those in the bottom decile of the national AGI distribution are completely ineligible for the CTC (87 percent), and the majority of filers in the bottom 30 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 percent of children qualify for a reduced CTC because of the income phaseout, consistent with the extremely high-income thresholds at which the phaseout begins to occur.

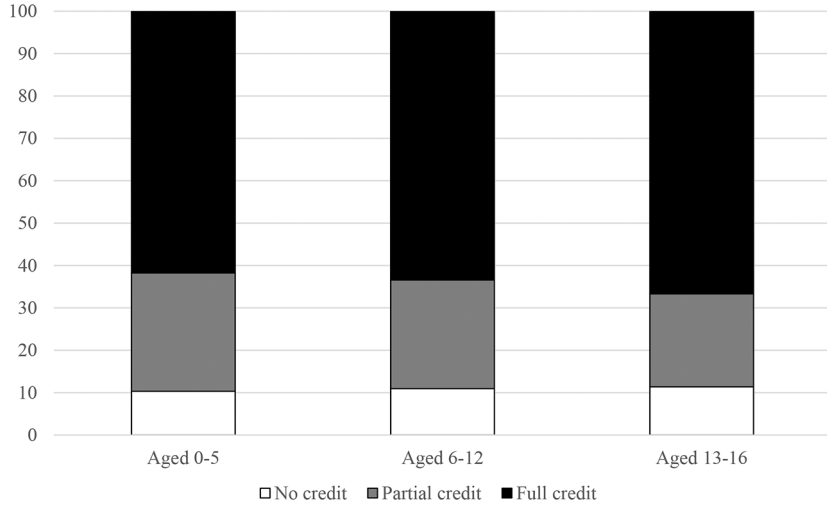
We next investigate racial disparities in CTC eligibility (Panel B of Figure 1). While approximately three-quarters of white and Asian children are eligible for the full CTC benefit, this applies to only about half of Black and Hispanic children. There are some differences in eligibility between Black and Hispanic children — Black children are more likely to be completely ineligible for the CTC (18 percent compared with 12 percent among Hispanic children), whereas Hispanic children are more likely to be eligible for a partial credit (38 percent compared with 34 percent among Black children).

The differences in CTC eligibility by race that we observe appear to be driven by differences in income and family structure (see Table A1). Black children, for instance, reside in households where the average family income is about $51,000, compared with $58,000 among Hispanic children, $113,000 among white children, $124,000 among Asian children, and $84,000 among all other children. Black children are also much more likely to live in poverty — 23 percent — compared with their Hispanic (18 percent), white (9 percent), Asian (7 percent), and all other (17 percent) peers. Black children are also nearly three times more likely to reside in a household that does not meet the $2,500 threshold required to claim any CTC refund (16 percent) compared with white children (6 percent), with Hispanic children falling in between (10 percent). With respect to family structure, white children are more than twice as likely as Black children to be claimed by married taxpayers and more than three times as likely to be claimed by a tax filing unit in which their father is present.

[18] As an example of the latter possibility, consider a child living with their 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 the mother could claim the credit for the child) and because of the relationship test (otherwise the cohabitating partner could claim the credit for the child).


100
90
80
70
60
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0
1
2
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4
5
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8
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Income Decile
No credit
Partial credit
Full credit


100
90
80
70
60
50
40
30
20
10
0
All
Black
Hispanic
Asian
White
Other
No credit
Partial credit
Full credit


100
90
80
70
60
50
40
30
20
10
0
Aged 0-5
Aged 6-12
Aged 13-16
No credit
Partial credit
Full credit

Similarly, relative to Hispanic children, Black children are more likely to live in households with income below $2,500 and are much more likely to reside with a single parent, both of which contribute to differences in partial-eligibility between Black and 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 with 67 percent among children aged 13–16) and more likely to be eligible for a partial credit (28 percent compared with 22 percent among children aged 13–16). These differences are likely driven by differences in earnings among families with young children compared with older children, rather than differences in living arrangements. Kids under the age of six live in households with lower AGI (about $87,000 compared with $93,500, on average, for families with kids six and older) and are more likely to be ineligible for any credit because of the earnings test. In contrast, children under age six are more likely to live with any parent (97 percent, compared with 95 percent among older children) and more likely to live with married parents compared with children aged six and older (70 percent, compared with 67 percent, respectively).

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 baseline 2020 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 baseline law (previously described in Table 1). Column 2 shows the effect

Figure 1. Distribution of CTC eligibility by child characteristic. (A) Eligibility by income, (B) eligibility by race, and (C) eligibility by child age. CPS 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 ($2,000 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 nonzero CTC amount of less than $2,000 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. White, Black, and Asian racial/ethnic categories refer to individuals who do not also indicate they are Hispanic. All estimates calculated using CPS March supplement weights.

Table 3

Simulations of CTC Policy Reforms

	Baseline Law	Eliminate Relationship Test	Eliminate Earnings Test	Eliminate Refundability Cap	Fully Refundable	Fully Refundable and Eliminate Relationship Test	Characteristics of All Children
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Child Eligibility							
Percent receiving no credit	10.9	8.0	2.2	10.9	2.2	1.7	
Percent receiving partial credit	25.5	26.8	33.8	19.1	0.9	1.3	
Percent of children receiving full credit	63.6	65.2	64.0	70.1	96.9	97.0	
Estimated number of children in US population receiving full credit	44,051,326	45,129,553	44,345,061	48,508,533	67,101,009	67,190,414	
Panel B: Newly Eligible Children							
Number of children		1,958,321	5,897,558	0	5,897,558	6,229,682	69,243,288
Share of all children		0.03	0.09	0	0.09	0.09	1.00
Income		557	856		856	906	90,247
Race/ethnicity							
Black		0.15	0.26		0.26	0.26	0.14
Hispanic		0.37	0.30		0.30	0.30	0.26
Asian		0.03	0.03		0.03	0.03	0.05
White		0.39	0.35		0.35	0.36	0.50
Other		0.06	0.06		0.06	0.06	0.05

Family structure						
No mother present	0.33	0.19		0.19	0.23	0.08
No father present	0.67	0.68		0.68	0.70	0.26
No parent present	0.30	0.13		0.13	0.17	0.04
Panel C: Newly Eligible for Full Credit						
Number of children	1,078,226	293,735	4,457,207	22,958,728	23,048,133	69,243,288
Share of all children	0.02	0.004	0.06	0.33	0.333	1
Income	2,748	35,351	31,276	17,656	17,601	90,247
Race/ethnicity						
Black	0.13	0.23	0.16	0.21	0.21	0.14
Hispanic	0.38	0.22	0.42	0.36	0.36	0.26
Asian	0.05	0.09	0.04	0.03	0.03	0.05
White	0.39	0.38	0.33	0.33	0.33	0.50
Other	0.05	0.08	0.05	0.06	0.06	0.05
Family structure						
No mother present	0.37	0.20	0.08	0.11	0.11	0.08
No father present	0.65	0.46	0.39	0.51	0.51	0.26
No parent present	0.33	0.19	0.03	0.06	0.06	0.04

Note: CPS ASEC 2018. The table shows the effect of alternative policy reforms to the CTC rules. Panel A shows the effect on child eligibility; Panel B shows the characteristics of those children who receive a nonzero credit amount because of the reform; Panel C shows the characteristics of those children who receive a full credit because of the reform, but were eligible for a partial credit without the reform. White, Black, and Asian racial/ethnic categories refer to individuals who do not also indicate they are Hispanic. 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 $1,400. 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 AGI of the tax filing unit to which the child is assigned under current law. All estimates are calculated using CPS March supplement weights. All income dollars inflated to 2019 real terms using CPI.

of eliminating the relationship test. For example, without the relationship test in place, children of nonworking 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 baseline 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.[19] In addition, the reform would increase the share of children receiving the full CTC by 1.6 percentage points, 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 $557. Hispanic children in particular would benefit from this reform; 37 percent of the newly eligible children are Hispanic, compared with 26 percent of the overall US population — reflecting, in part, the disproportionately large share of Hispanic children who live with a parent's cohabiting partner (see Table A1).

Column 3 of Table 3 considers the effects of eliminating the earnings test — that is, 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 10.9 percent under baseline law to just 2.2 percent following this change. In contrast, it would not substantially increase the share of children eligible to receive the full CTC benefit, because the $1,400 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 $856. The reform would also disproportionately affect Black children: 26 percent of the newly eligible children are Black, compared with 14 percent of all children.

Column 4 of Table 3 shows the effects of eliminating the $1,400 cap on refundability. Not surprisingly, this reform would not benefit children who were ineligible for the credit under baseline law, but it would increase full eligibility among those partially eligible (see Column 4, Panel C). Correspondingly, the children who benefit from this reform have higher income than the other reforms discussed so far, with an average household income of $31,276. Hispanic children are disproportionately likely to be harmed by the refundability cap, constituting 42 percent of the children who benefit from its elimination compared with 26 percent 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 phaseout. This reform would

[19] 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 nonparent to claim the child under the tie-breaker test and that nonparent is subject to the CTC phaseout. In practice, we observe only a few children in our data who would lose CTC eligibility by eliminating the relationship test.

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 phaseout, as well as children who do not meet the relationship test with respect to any household member. The combination of these reforms would also disproportionately affect Black and Hispanic children, which would entirely eliminate racial gaps in CTC eligibility under the 2019 law.

Column 6 considers 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. Comparing Columns 5 and 6, eliminating the relationship test would extend eligibility to approximately 330,000 children relative to removing the earnings and refundability limits alone.[20] As expected from our earlier discussion, the results show that such a reform would most benefit the groups that are disproportionately harmed by the baseline CTC rules, such as Black and Hispanic children, children living in poverty, and children with single-parent headed households.

V. CONCLUSION

Drawing on a representative sample of children in the United States, we have explored which children benefit from the CTC and which children are excluded from the benefits of the 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 disparities are meaningful; a large body of research suggests that excluding children from cash transfers in this way harms children in both the short and long term.

The vast majority of households that are not eligible for the credit are ineligible because they fail to meet the earnings requirement, accounting for nearly 80 percent of all ineligible children. The 2021 ARPA expansion to the CTC makes several changes that would dramatically reduce the number of ineligible children. In particular, the 2021 expansion makes the credit fully refundable, as in our simulation presented in Table 3, Column 5, and expands the benefit amount from $2,000 per child to $3,000 per child aged 6–17, and $3,600 per child under age 6. Our results suggest that this reform would substantially increase the number of children eligible for the full credit (from 64 percent under the 2020 law, to nearly 97 percent of all

[20] 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 percent 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.

children under the ARPA provision) and would eliminate racial gaps in eligibility, as more than half of the children gaining eligibility through full refundability are Black or Hispanic. With these reforms in place, 98 percent of Black and Hispanic children would be eligible for the full benefit, as would about 97 percent of white and Asian children. Others have also shown that, if made permanent, the ARPA expansion to the CTC could reduce child poverty by more than 40 percent (Center on Poverty and Social Policy, 2021; Marr et al., 2021).

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, Fitzpatrick, and Hanson, 2005; Jones, 2014). Take-up rates are not evenly distributed: families with income below the minimum required to file are historically less likely to claim tax credits (see, e.g., Jones, 2004), which likely affects Black and Hispanic children more than white children. At the same time, like other tax credits, some of those claiming the CTC will not actually qualify under its rules. Third, our investigation into the role played by the various CTC rules results 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.

Despite these limitations, our analysis highlights how ostensibly race-neutral policies can have disproportionate impacts on communities of color. In the particular case of the CTC, both the earnings test and the relationship tests disproportionately render Black and Hispanic children ineligible for the full CTC benefit. For Black children, lower rates of eligibility are driven by racial income disparities and a higher likelihood of failing the earnings test relative to their white and Hispanic peers. Black children are also much more likely to live without their fathers (56 percent compared with 29 percent and 18 percent among Hispanic and white children, respectively) or without any parent (7 percent compared with 3–4 percent among white and Hispanic children), which likely contributes to differences in income. Legacies of mass incarceration and labor force discrimination also disproportionately affect Black and Hispanic communities (Pager, 2003; Bertrand and Mullainathan, 2004; Alexander, 2010), accounting for at least some of the racial disparities in income and family structure. Hispanic children, on the other hand, have lower rates of complete ineligibility relative to their Black peers, in part because they live in households with higher income ($59,000 compared with $51,000 among Black children) and are less likely

to fail the earnings test (10 percent compared with 16 percent of Black children), but their limited tax liability means Hispanic children are more likely to be eligible for a partial credit relative to white and Asian children. If the reforms to the CTC as part of the 2021 ARPA are made permanent, our analyses suggest that the changes would eliminate racial inequities in the CTC.

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DISCLOSURES

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APPENDIX

Table A1

Descriptive Statistics by Race

	Ineligible (AGI below Phaseout Threshold)					All Children				
	Black	Hispanic	White	Asian	Other	Black	Hispanic	White	Asian	Other
Number of children	1,659,670	1,980,644	2,412,171	197,487	425,652	9,518,480	17,688,750	34,785,811	3,525,287	3,724,960
Income	1214.40	1184.96	1758.90	1380.22	460.40	51,839	58,985	113,650	124,351	83,764
Income < federal poverty line	0.75	0.78	0.72	0.68	0.73	0.23	0.18	0.09	0.07	0.17
Qualifying child (Y/N)	0.94	0.88	0.86	0.92	0.82	0.989	0.986	0.990	0.996	0.979
Number of qualifying children	2.24	2.38	1.80	1.94	1.94	2.31	2.35	2.27	1.98	2.34
Age	8.01	8.07	8.54	7.38	7.68	8.05	7.96	8.20	8.03	7.69
Aged 0–5	0.34	0.35	0.31	0.40	0.38	0.35	0.35	0.34	0.36	0.37
Aged 6–12	0.43	0.40	0.42	0.39	0.41	0.41	0.42	0.42	0.41	0.41
Aged 13–16	0.22	0.26	0.27	0.21	0.21	0.24	0.23	0.25	0.23	0.21
Family structure										
Married filer	0.09	0.16	0.21	0.43	0.09	0.38	0.63	0.76	0.87	0.56
No mother present	0.25	0.21	0.31	0.28	0.39	0.12	0.08	0.08	0.04	0.12
No father present	0.82	0.67	0.67	0.52	0.80	0.56	0.29	0.18	0.10	0.34
No parent present	0.20	0.17	0.25	0.25	0.33	0.07	0.04	0.03	0.02	0.07

Cohabiting partner in household	0.12	0.25	0.23	0.08	0.16	0.08	0.10	0.07	0.02	0.11
Reasons ineligible										
Fail qualifying child test	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fail earnings test	0.94	0.87	0.86	0.92	0.82	0.16	0.10	0.06	0.05	0.09
Fail earnings test and qualifying child test	0.05	0.11	0.12	0.08	0.18	0.01	0.01	0.01	0.00	0.02
Max AGI in house hold is below $2500	0.73	0.52	0.53	0.53	0.57	0.13	0.06	0.04	0.03	0.06
Number of observations	830	1146	1733	113	357	4702	10759	24738	2167	2593

Note: Current Population Survey ASEC 2018. The table shows characteristics of the children in our sample by race/ethnic origin. All columns are limited to unmarried individuals under the age of 17 at the time of the survey. Columns 1–5 are limited to children whose federal adjusted gross income is too low to receive any CTC benefit; Columns 6–10 include all children by race/ethnic origin. 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. White, Black, and Asian racial/ethnic categories refer to individuals who do not also indicate they are Hispanic. Married refers to the marital status of the tax-filing unit. All income dollars inflated to 2019 real terms using the Consumer Price Index (CPI).

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