

NBER WORKING PAPER SERIES

EFFECTS OF THE EXPANDED CHILD TAX CREDIT ON HOUSEHOLD SPENDING:  
ESTIMATES BASED ON U.S. CONSUMER EXPENDITURE SURVEY DATA

Jake Schild  
Sophie M. Collyer  
Thesia Garner  
Neeraj Kaushal  
Jiwan Lee  
Jane Waldfogel  
Christopher T. Wimer

Working Paper 31412  
<http://www.nber.org/papers/w31412>

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
June 2023

We thank Steve Nunez, Claudia Sahm, colleagues at the Price Index and Number Research Monthly Division meetings, and at the Center on Poverty and Social Policy at Columbia University for their highly valuable comments. We also thank the JPB Foundation, the Annie E. Casey Foundation, and Charles and Lynn Schusterman Family Philanthropies for funding our research. We are also grateful for support from the Columbia Population Research Center which is funded by NICHD: 2P2CHD058486-11

. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2023 by Jake Schild, Sophie M. Collyer, Thesia Garner, Neeraj Kaushal, Jiwan Lee, Jane Waldfogel, and Christopher T. Wimer. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Effects of the Expanded Child Tax Credit on Household Spending: Estimates Based on U.S. Consumer Expenditure Survey Data  
Jake Schild, Sophie M. Collyer, Thesia Garner, Neeraj Kaushal, Jiwan Lee, Jane Waldfogel, and Christopher T. Wimer  
NBER Working Paper No. 31412  
June 2023  
JEL No. D04,I38

### ABSTRACT

The Child Tax Credit (CTC) was substantially expanded through the American Rescue Plan Act of 2021, making the benefit more generous, fully refundable, and more periodic. Early studies documented the positive impact of the expanded CTC on reducing poverty and food insufficiency, but there is little research on the impact it had on household spending and, specifically, its impact on child-related spending. We use data from the Consumer Expenditure Interview Survey (CE) and impute CTC payments for all qualifying households to examine whether the expanded CTC increased spending overall, in major categories, and on specific items related to children's education and development. Our findings indicate that families utilized the CTC payments to enhance the well-being of both their children and the entire household. For each \$100 of imputed CTC payment, our models show that families spent \$75, mainly on food (\$28), housing (\$31), and child-related goods and services (\$15). We also found that the spending response for low-income households, Hispanic households, and non-Hispanic Black households was larger than the spending response of the average household. By analyzing the variation in spending response by race and ethnicity, we are providing policy makers with valuable insights into the experience of marginalized communities.

Jake Schild  
Bureau of Labor Statistics  
Department of Labor  
2 Massachusetts Avenue NE  
Washington, DC 20212-0001  
Schild.Jake@bls.gov

Sophie M. Collyer  
Columbia University  
sophie.collyer@columbia.edu

Thesia Garner  
Bureau of Labor Statistics  
U.S. Department of Labor  
2 Massachusetts Avenue, NE  
Washington, DC 20212  
garner.thesia@bls.gov

Neeraj Kaushal  
Columbia University School  
of Social Work 1255  
Amsterdam Avenue New  
York, NY 10027  
and NBER  
nk464@columbia.edu

Jiwan Lee  
Columbia University  
jl6054@columbia.edu

Jane Waldfogel Columbia  
University School of  
Social Work 1255  
Amsterdam Avenue New  
York, NY 10027  
jw205@columbia.edu

Christopher T. Wimer  
Columbia University  
1255 Amsterdam Avenue  
Office 735  
New York, NY 10027  
cw2727@columbia.edu

## 1. Introduction

The American Rescue Plan Act of 2021 (ARP), enacted in March 2021, significantly expanded the Child Tax Credit (CTC) in three major ways. First, it made the benefit more generous, increasing the maximum benefit size from \$2,000 per child to \$3,000 per child for children aged 6 to 17 years and \$3,600 per child for children aged 0 to 5<sup>1</sup>. Second, it made the benefit “fully refundable,” meaning that tax filers were able to receive the full credit regardless of their tax obligation.<sup>2</sup> Third, it allowed families to receive up to half of their full credit in monthly installments delivered from July to December of 2021 with the remainder delivered at tax time in 2022. As a result of the expansions, from July through December 2021, most low- and middle-income households with children in the United States (U.S.) received monthly cash payments of \$300 per child under age six and \$250 per child between ages of 6 and 17.<sup>3</sup>

Though now expired, the ARP CTC broadened the CTC’s reach and role in addressing the economic hardship of low-income households with children. Early studies analyzing the ARP CTC established that the expansion drove the child poverty rate to the lowest rate on record (Creamer et al., 2022; Marr et al., 2021; Parolin, Collyer, et al., 2021; Pilkauskas et al., 2022), reduced food insufficiency (Parolin, Ananat, et al., 2021; D. J. Perez-Lopez, 2021), lowered rates of material hardships such as running out of money (Collyer et al., 2022; Pilkauskas et al., 2022), was associated with a lower incidence of child abuse and neglect (Bullinger & Boy, 2023), and had no detectable effect on parental employment (Ananat et al., 2022; Roll et al., 2022a).

Using data from the Consumer Expenditure Interview Survey (CE), this study adds a newer set of outcomes to this body of literature by examining the effects of the CTC expansion on household spending across several domains, including child-related spending. While the CE collects data from consumer units,<sup>4</sup> we use family, household, and consumer unit interchangeably in this study. The family investment

---

<sup>1</sup> Before the ARP, eligible children included those under age 17 with a Social Security Number (SSN) who could be claimed as a dependent. Under the ARP, eligible children included those under age 18 with an SSN who could be claimed as a dependent.

<sup>2</sup> Previously, families with earnings below \$2,500 were entirely ineligible for the CTC, the credit amount phased in with earnings at a rate of 15% (i.e., families could receive 15% of their earnings above \$2,500 as a credit, up to the maximum credit amounts). The maximum credit was \$2,000 per child, but only \$1,400 of the \$2,000 per child CTC was refundable. Combined, these policy parameters meant there was an income level that tax filers needed to reach to receive the full CTC benefit, and this level varied by family size (see Curran & Collyer, 2020 for additional details). With the enacting of the ARP, there was no longer a minimum income at which a filer was able to receive the full benefit of the CTC.

<sup>3</sup> Recipients who had previously filed taxes were automatically enrolled to receive the credit while non-filers (typically the lowest income households) had to sign up to receive it using a portal managed by the Internal Revenue Service (IRS).<sup>3</sup> The first monthly payment was distributed to the households of 59.3 million children in July 2021, while the last payment reached 61.2 million children in December 2021 (United States Department of Treasury, 2021).

<sup>4</sup> The CE collects data on “Consumer Units,” which in some cases differ from households. A consumer unit is defined as a group of people who “comprises either: (1) all members of a particular household who are related by blood, marriage, adoption, or other legal arrangements; (2) a person living alone or sharing a household with others or living as a roomer in a private home or lodging house or in permanent living quarters in a hotel or motel, but who is financially independent; or (3) two or more persons living together who use their income to make joint expenditure decisions. Financial independence is determined by the three major expense categories: Housing, food, and other living expenses. To be considered financially independent, at least two of the

model posits that income affects children’s well-being and long-term outcomes. As parents receive more income they are able to purchase items and services that enhance their children’s development (e.g., book and enriching activities) as well as meet basic needs, for example, alleviating food insufficiency and housing insecurity (Wimer & Wolf, 2020; Yeung et al., 2002). Therefore, determining whether and how families spent the additional income received from the monthly CTC payments is pertinent when evaluating the CTC expansion and the potential effects it had on children’s well-being and development. Policymakers have also raised questions as to how families spent the monthly payments and if CTC was spent in ways that did or did not promote children’s well-being. There have been investigations into how parents spent the CTC income using survey reports (Karpman et al., 2021; D. Perez-Lopez & Mayol-García, 2021; Pilkauskas et al., 2022; Pilkauskas & Cooney, 2021; Rachidi, 2021; RAPID-EC, 2021; Roll, Chun, et al., 2021; Zippel, 2021), transactional-level data (Wheat et al., 2022; Parolin et al., 2022), and geo-location data tracking visits to different establishments (Parolin et al., 2022). However, to our knowledge, to date only our earlier work (Collyer et al. 2022) has used nationally representative item-level<sup>5</sup> expenditure data to provide a preliminary look at changes in spending on items across a host of different domains, including on food, housing, or child-related spending.

Comprehensive spending data from the CE allows us to examine the spending response to expanded CTC payments across several domains. We harness the CE data to examine the household spending response to the monthly payments on (1) major expenditure categories, such as food, housing, alcohol and tobacco, leisure, etc., and (2) child-related spending including that for books, clothing, childcare, computers and tablets, and enrichment activities. While the CE collected data on the receipt and use of CTC payments for part of the period under study, we did not leverage these questions as part of our analysis. The CTC questions were first introduced with the October 2021 interviews, after the CTC payments began being distributed. Utilizing these data would require us to exclude a portion of our sample because we do not have data on whether or not a CTC payment was received.

Instead, following many prior studies of policy effects (Currie & Gruber, 1996; Hoynes & Patel, 2018, 2018; Jones et al., 2019; Micheltore & Pilkauskas, 2021; Pilkauskas et al., 2022), we impute a CTC value to proxy how much different families would likely benefit from the policy change and incorporate this predicted CTC value into a difference-in-differences framework to identify the expansion’s effect on spending across domains.<sup>6</sup> Our identification strategy relies on variation in spending between households who could have potentially received the payments and those who could not

---

three major expense categories are to be provided entirely, or in part, by the respondent.” See U.S. Bureau of Labor Statistics (2015). The term consumer unit and household are often used interchangeably in the literature, although households are considered all people who live at an address and thus are not the same as consumer units. However, throughout the manuscript we refer to consumer units as households.

<sup>5</sup> Note that when we refer to “items,” we also are referring to child-related services, such as enrichment activities.

<sup>6</sup> CTC values were imputed because the CE Survey did not collect data on the amount of CTC received.

and on variation in payment size. Our estimates draw on CE data collected in reference to spending in 2021 and 2019. To avoid potential biases arising from differences in spending patterns across family composition and income levels, we restrict our sample to households with qualifying children and are income eligible for the CTC. We designate all households reporting on spending in 2021 as “potentially treated,” while the “non-treated” or “control group” were selected from interviews conducted in reference to 2019. This choice allowed us to control for seasonal spending variation correlated with the period monthly CTC payments were delivered.<sup>7</sup> Our models estimate the difference in spending levels based on payment size for potentially treated households in the treatment period (i.e., the second half of 2021). Payment sizes varied by the number of children in the household, children’s age(s), and reference quarter for which respondents reported their expenditures.

Our findings suggest that families spent the monthly CTC payments on goods and services known to improve child and family well-being. We find that families spent \$75 of each \$100 of imputed CTC payment, with the largest portions devoted to food (\$28) and housing (\$31). This result indicates that families spent most of their benefits to meet basic needs and thereby promoting material well-being. We also find evidence that supports the family investment model, with families spending \$15 of each \$100 CTC payments on child-related goods and services that directly enhance child development and well-being. These results are robust to sensitivity tests that account for the effects of inflation and the effects of household size.

Prior work shows that spending responses vary by liquidity constraints (or cash on hand) (Johnson et al., 2006; Souleles, 1999; Wheat et al., 2022). Our stratified models suggest that low-income households (i.e., with pre-tax incomes below \$50,000) spent a larger share of their monthly payments than high-income households. We also find that spending responses appear larger for non-Hispanic Black and Hispanic households than for non-Hispanic White households.

## **2. Background**

### ***The 2021 Child Tax Credit Expansion***

Prior to the passage of the ARP, the CTC’s most recent parameters were established by the Tax Cuts and Jobs Act of 2017 (TCJA). Under the TCJA, tax filers received a maximum CTC of \$2,000 per child per year.<sup>8</sup> However, the credit was not fully refundable. It was phased in with earnings, and tax

---

<sup>7</sup> We considered a model that relies only on the variation in spending between recipients and non-recipients (i.e., a binary treatment), as opposed to one exploiting variation in payment size, but this strategy drops a significant portion of the variation needed to identify the treatment effect across spending subdomains and demographic groups. However, we analyzed total spending for all households in our sample using the binary treatment model and found the results to be consistent with the continuous treatment model.

<sup>8</sup> For additional information on the history of the Child Tax Credit see Crandall-Hollick (2021), Crandall-Hollick (2018), and Garfinkel et al. (2016).

filers claiming dependent children needed to earn a minimum amount to qualify for any benefit, and higher earnings to qualify for the maximum credit.<sup>9</sup> As a result, one in three children were ineligible for the full benefit value because their parents did not earn enough. Children with single parents, those in rural areas, non-Hispanic Black and Hispanic children, and those in larger households were disproportionately ineligible for the full credit (Collyer et al., 2019; Curran & Collyer, 2020).

The ARP temporarily transformed the CTC into a nearly universal child allowance through three fundamental changes:<sup>10</sup> (1) expanded eligibility, (2) higher credit amounts, and (3) delivery of credit in monthly installments for the second half of 2021. Eligibility was expanded to almost all children, including children in low-income households who were previously excluded, by removing the earnings requirement, and by making the credit fully refundable. Figures 1a and 1b plot the credit amount a family qualified for as a function of adjusted gross income (AGI) according to the TCJA and ARP legislation, respectively. The figures show that the maximum annual credit amounts were increased from \$2,000 per child under the TCJA parameters to \$3,000 for children ages 6-17 and \$3,600 for children under age 6 under the ARP (Figure 1, panel b).<sup>11</sup> Families with incomes below \$112,500 (heads of household) or \$150,000 (joint filers) were eligible for the higher ARP maximum credits; above these levels, the credit began to phase out at a rate of 5% per dollar of AGI until reaching the credit amount that families were eligible for under prior law. That is, no family received a smaller credit than they would have under the TCJA, but the highest income families were not eligible for the higher maximum credits (\$3,000 or \$3,600 per child depending on age). This created a two-step phase out structure depicted in Figure 1 b.

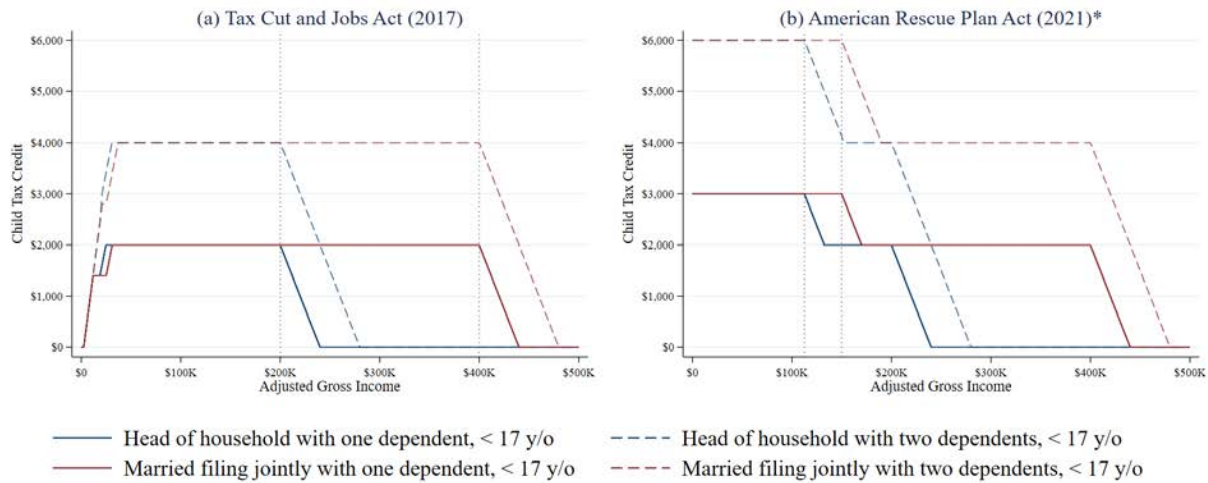
---

<sup>9</sup> See Curran and Collyer (2020) for details on how much a filer needed to earn to qualify for the full credit.

<sup>10</sup> The changes to the CTC in the ARP follow those outlined in the American Family Act (a bill first introduced in both the Senate and House of Representatives in 2017 and reintroduced in 2019) with one exception: in the AFA, the credit would begin to phase out for heads of household with earnings above \$120,000 or and joint filers with Adjusted Gross Incomes (AGI) over \$180,000. In the ARP, the credit began to phase out for families with AGIs above \$112,500 or \$150,000 per year, depending on filing status, but it only phased out until matching the credit values that a family would receive under prior law. This alteration was made because the Biden administration committed to not raising taxes for those with incomes below \$400,000 per year

<sup>11</sup> Included within this change is an increase in the qualifying maximum age from 16 to 17.

**Figure 1:** Child Tax Credit as a Function of AGI and Family Size



\*The ARP increased the qualifying age for children from less than 17 years-old to less than 18 year-old. Additionally, the ARP provides a larger credit for children under the age of 6, \$3,600 instead of \$3,000. Figure (b) applies to households with children 6 to 17 years old.

Under the ARP, families also received the CTC through advanced, monthly payments. Beginning on July 15, 2021, the IRS delivered the credit in advanced, monthly installments of up to \$250 per child 6 to 17 years old or up to \$300 per child under the age of 6 years old, for a period of six months.<sup>12</sup> Note that although the ARP expanded eligibility for the CTC, monthly payments did not reach all eligible households. Payments were distributed automatically based on prior year tax information. Families who did not file taxes in the prior year, presumably due to having an income below the tax-filing threshold, generally needed to register with the Internal Revenue Service (IRS) in order to receive their monthly credit. Data from the U.S. Department of the Treasury (2021) indicate that payments were distributed to 59.3 million children in July and increased steadily until it reached 61.2 children in December.<sup>13</sup> Currently, data on the number of children eligible for the monthly payments were not publicly available at the time of the study, so we do not have precise information of the share of eligible children who actually received the monthly payments, but estimates suggest that the monthly payments reached between roughly 88.5 percent and 91 percent of eligible children (Curran, 2022; Parolin, Collyer, et al., 2021).

***The link between spending and child outcomes***

Additional income provided through cash transfers like the CTC can be characterized as improving children’s long-term outcomes through two channels: family stress and family investments (Wimer & Wolf, 2020). The family stress model posits that economic hardship impairs family

<sup>12</sup> Because the payments began halfway through the year, families received half of the full amount of their credit in 2021 through monthly advanced payments. The remainder of the credit was received when households filed taxes in 2022. Note, children born in 2021 were not eligible for monthly payments. Their families could claim the entirety of the credit at tax time.

<sup>13</sup> U.S. Department of the Treasury issued monthly reports about the disbursement of the advanced CTC payments by state. Use the following link to see the July report: <https://home.treasury.gov/system/files/131/Advance-CTC-Payments-Disbursed-July-2021-by-State-07142021.pdf>

functioning, increasing parents' stress, and undermining their mental health and ultimately children's development (Conger & Conger, 2002). Increased income can thus reduce family stress and improve child outcomes. The family investment model posits that increased income allows parents to purchase or invest in various things that enhance child development and well-being and meet children's basic needs (e.g., books, toys, enriching activities, high-quality childcare, or nutritious food) (Duncan et al., 2011; Yeung et al., 2002). Thus, parents' spending on children represents an important pathway to promote children's development and well-being (Jackson & Schneider, 2022; Kaushal et al., 2011; Kornrich & Furstenberg, 2013; Schneider et al., 2018). This study focuses on the family investment model by investigating whether the expanded CTC affected households' expenditures on children, as well as their overall expenditures on important expenditure categories, such as food, that contribute to child well-being.

### ***Related research***

There are several streams of research that document spending responses to changes in income. Some examine changes in response to tax refunds and rebates (Johnson et al., 2006; Souleles, 1999), while others focus specifically on the receipt of the Earned Income Tax Credit (Barrow & McGranahan, 2000; Gao et al., 2009; Goodman-Bacon & McGranahan, 2008; Halpern-Meekin et al., 2015), in-kind benefits (Hastings & Shapiro, 2018; Smith et al., 2016; Beatty & Tuttle, 2015), cash transfers (Jones et al., 2019; Najjarrezaparast & Pendakur, 2021; Gregg et al., 2006), the Alaska Dividend (Amorim, 2021), and payments received from the Baby's First Years randomized control trial (Gennetian et al., 2022).

Research suggests that households with higher liquidity constraints spend a larger share of their tax refunds (Souleles, 1999), and spending from lump-sum payments like tax refunds and the EITC are disproportionately put towards durable goods (Halpern-Meekin et al., 2015; Gao et al., 2009; Goodman-Bacon & McGranahan, 2008; Barrow & McGranahan, 2000; Souleles, 1999), though there is also evidence that these payments increase spending on nondurables like food (McGranahan & Schanzenbach, 2013; Gao et al., 2009; Johnson et al., 2006). While most of these studies do not examine spending specifically on child-related items, Gao et al. (2009) find evidence suggesting that EITC payments increase spending on children's clothing. A narrower body of literature looks at how families spent more regular cash payments (Gennetian et al., 2022; Gregg et al., 2006; Jones et al., 2019), finding that increases in regular cash payments lead to increased spending on basic needs, childcare and children's goods (Gregg et al., 2006; Jones et al., 2019).

To date, no study documents a causal relationship between CTC payments and families' spending decisions. The existing literature relies on parents' and caregivers' reports of how they spent their CTC (Karpman et al., 2021; D. Perez-Lopez & Mayol-García, 2021; Pilkauskas et al., 2022; Pilkauskas & Cooney, 2021; Rachidi, 2021; RAPID-EC, 2021; Roll, Chun, et al., 2021; Zippel, 2021). These studies



largely find parents reporting spending their monthly CTC payments on food, bills, and other basic family necessities. Perez-Lopez & Mayol-García (2021) found families were more likely to report spending their monthly payments on school-related items in September and October of 2021, and those with younger children were more likely to report using the payments to cover childcare costs. These self-report studies, however, may be subject to social desirability bias or other general response biases, which necessitate more causal research designs.

A handful of innovative studies aimed to surpass self-reported information by utilizing novel data, including anonymized mobile location data and debit/credit-transaction level data. For example, Parolin et al. (2022) found that counties with greater CTC expansion show a greater increase in visits to childcare centers and transactions in grocery stores and personal care establishments. Wheat et al. (2022) found that recipients spent 40% of their July advanced CTC payment, transferred 18% to other accounts, and used 1% for debt payments. Nonetheless, these studies are limited in their ability to provide insight into the specific types of goods and services families are purchasing with the CTC income.

This study is the first to examine changes in spending patterns across a host of spending categories, and specifically on child-related items, using a causal identification strategy in a population-representative dataset for the full period when the advanced CTC payments were in effect.<sup>14</sup> Further, the detailed CE spending categories are constructed based on item-level spending (as opposed to transaction or location-level spending), allowing us to examine changes in spending on specific types of items as opposed to spending in specific places. We are also able to look at heterogeneous treatment responses by household income level and the race/ethnicity of the household head. Such an examination is currently unavailable in the literature of the effects of the CTC expansion.

### **3. Data and estimation strategy**

#### ***Consumer Expenditure Interview Survey***

This study uses internal, micro-level data from the CE collected between January 2019 and March 2022.<sup>15</sup> The CE is a nationally representative survey sponsored by the U.S. Bureau of Labor Statistics that collects spending, demographics, and other financial information for households living in the U.S. The CE is a rotating panel of consumer units (CU), which we refer to interchangeably as households or families, with new CUs added to the survey each month. These CUs are interviewed up to four times at three-month intervals and asked about their demographic characteristics at the time of the interview but spending over the previous three months; we refer to these months as a reference quarter.

---

<sup>14</sup> Our prior work (Collyer et al., 2022) uses a similar methodology, but was restricted to the first two months, July and August, of when the advanced CTC payments were in effect, which is why the findings are described as “preliminary.”

<sup>15</sup> CE Public Use Micro Data (PUMD) can be used to reproduce our analysis. The results produced will be similar but will not exactly match due to the obfuscation applied to the PUMD in order to protect respondent anonymity.

Given the structure of the survey, we observe expenditures at overlapping three-month intervals (or quarters). For example, data collected in August 2021 refer to expenditures from May to July 2021; data collected in September 2021 refer to expenditures from June to August 2021, and so on.

### ***Spending categories***

We analyze changes in outlays, which we refer to as “spending,” across nineteen different categories. We use outlays (spending) instead of BLS defined expenditures because outlays are a better reflection of a household’s out-of-pocket spending. For categories like food and clothing a household’s outlays are equivalent to their expenditures. In contrast, outlays for categories like housing and transportation and not the same as expenditures. Housing outlays include payments towards mortgage principal, which are not included in expenditures because they are considered an investment. Additionally, the net purchase price of a vehicle is included in expenditures, whereas vehicle outlays include any down payment and loan payments.<sup>16</sup>

Ten of the categories we look at are the major spending categories provided in the CE data: (1) housing and utilities; (2) food; (3) alcohol and tobacco; (4) clothing<sup>17, 17</sup>; (5) transportation; (6) health; (7) leisure; (8) personal care; (9) education and reading; and (10) miscellaneous items. We also use detailed item-level spending reports to construct seven item-specific spending categories covering child-related goods and services: (1) children’s clothes<sup>18</sup>; (2) books and toys; (3) computers and tablets; (4) school items; (5) sports items; (6) childcare; and (7) enrichment activities. The remaining two categories are “total spending” and “total child spending,” which are simply the sum of spending reported across the ten major spending categories and of spending in the seven child-related spending categories, respectively. Details on the specific purchases included in each spending category are presented in Appendix Tables 1 (major categories) and 2 (child-related categories).

### ***Measure of the Child Tax Credit Advanced Payment***

Our method for estimating the spending response to the expanded, monthly CTC payments relies on variation in the total amount of monthly CTC income that families could have received in the

---

<sup>16</sup> Expenditures consist of transactions costs, including excise and sales taxes, of goods and services acquired during the interview or recordkeeping period. Expenditure estimates include expenditures for gifts but exclude purchases or portions of purchases directly assignable to business purposes. Periodic credit or installment payments on goods or services already acquired are also excluded. The full cost of each purchase is recorded, even though full payment may not have been made at the date of purchase. See Glossary: <https://www.bls.gov/cex/csxgloss.htm>. More information about the differences between expenditures and outlays can be found on the BLS Frequently Ask Questions page (<https://www.bls.gov/cex/csxfaqs.htm>).

<sup>17</sup> What we refer to as “clothing” is equivalent to what the CE refers to as “apparel and services,” which includes more than just expenditures on clothing.

<sup>18</sup> Starting in 2021Q2, the CE Interview Survey stopped asking about clothing expenditures for separate items and implemented a “global” clothing question. An internal review revealed the change in question led to an increase in the mean value of clothing expenditures. We include a year fixed effect in our model specification which will control for any change in spending as a result of the change in question that is correlated with the effect of the advanced CTC payments.

reference quarter for which they are reporting spending as part of the CE. We discuss our estimation strategy further in the next section, but here we describe how we impute the CTC payments that families could have received.<sup>19</sup>

CTC payments were determined by the IRS at the tax-unit level. The CE data includes tax unit identifiers; thus, using the number and age of dependents claimed by the tax unit, as well as the tax unit's Adjusted Gross Income (AGI), we can calculate the annual 2021 CTC for which tax units are eligible.<sup>20</sup> To get the value of the monthly advanced payment, we divide the imputed annual CTC by twelve. If a household contained multiple tax units, the monthly CTC payments for each tax unit were aggregated to yield a household level monthly CTC payment.

Recall that the reference period for the CE is the previous three-month period (or quarter); therefore, we need to convert the monthly advanced payment into a three-month value to get the total CTC income a household could have received during the reference quarter. Importantly, depending on the interview month, households could have received 0, 1, 2, or 3 months of CTC payments during the reference quarter (see Table 1). Therefore, when determining quarterly CTC payments, we multiplied the monthly payment amount by the number of months in the reference quarter during which families could have received payments. For example, July 2021 interviews have a reference quarter covering April to June 2021, and thus contained no months during which advanced payments could have been delivered. The reference period for August 2021 interviews was May through July 2021, thus containing one month when advanced payments were delivered, so the quarterly CTC amount for households interviewed in August was equivalent to one month of monthly CTC payments. The reference quarter for September 2021 interviews contained two months where payments were delivered, so quarterly CTC payment for households interviewed in September amounted to two monthly payments, and so on. Figure 2 shows the value of the quarterly CTC payment across interview months for a household with one child or two children of varying ages. The depiction shows how the value of the quarterly CTC payment varied both by interview month, the number of children in the household, and the ages of those children (as younger children under age 6 were eligible for larger payments of \$300 per month instead the \$250 older children received).

---

<sup>19</sup> The BLS included two questions in the CE regarding the receipt and use of the CTC between October 2021 and June 2022. These questions were similar to the ones used by the BLS to collect data on Economic Impact Payments, but respondents were not asked the value of advanced CTC payment. See Appendix A for the specific survey questions and a discussion of the responses.

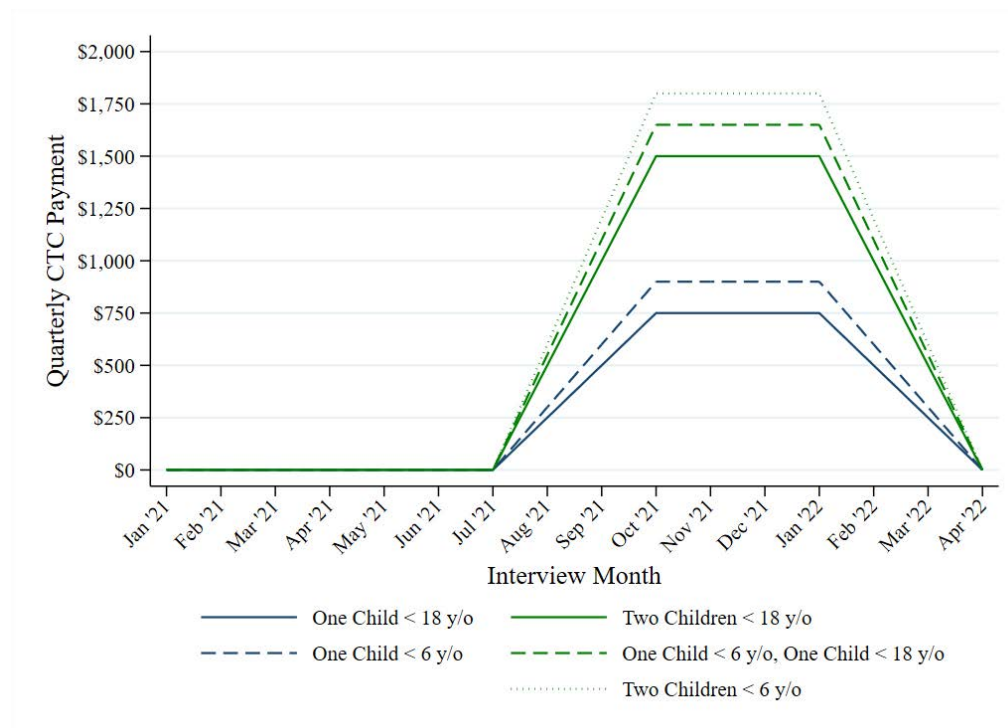
<sup>20</sup> Tax unit level data included in the CE were generated using the National Bureau of Economic Research's TAXSIM model. For more information about the TAXSIM model see Feenberg and Coutts (1993), and for more information about how TAXSIM is used by the BLS see Paulin and Hawk (2015). Although the version of TAXSIM currently used by the BLS (TAXSIM32) imputes annual 2021 CTC payments for tax units in the CE, we chose to calculate these values ourselves because it does not appear that this version of TAXSIM accounts for the increase in qualifying age, from 16 to 17 years old.

**Table 1:** Treatment months in reference quarter by interview month

	Interview month								
	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
Months in reference quarter	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22
	June-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22

Note: The CE asks respondents to report on spending across a three-month reference period (the reference quarter). Table 1 displays the months comprising the reference quarter for CE interviews conducted between July 2021 and March 2022. Months in the reference quarters during which households could have received monthly CTC payments are highlighted in blue.

**Figure 2:** Quarterly CTC Income for Different Family Types by Child Age and Interview Month



Note: Figure 2 shows the total CTC payment a one-child and two-child family could receive in the reference quarter for which they are reporting spending in the CE based on CE interview month.

Our imputations yield an average monthly advanced CTC payment among qualifying households of \$485 and median payment is \$500. These translate to an average quarterly advanced CTC payment of \$1,099 and median payment of \$900 within the reference period. Table 2 presents the average and median payments by household income and race/ethnicity of household head. It should be noted these values represent averages based on the amount households qualify for across all households, regardless of if they reported receiving the payments.<sup>21</sup>

<sup>21</sup> If we restrict the sample to only those who report receipt in the CE, the average and median imputed three-month payment increase to \$1,336 and \$1,100, respectively.

**Table 2: Imputed Value of the Advanced Child Tax Credit Payment for Qualifying Households**

	Monthly Value		Three-Month Reference Quarter		Num Obs.
	Mean	Median	Mean	Median	
<b>All Households</b>	\$485	\$500	\$1,099	\$900	3,547
<b>Income Category</b>					
<i>Under \$50,000</i>	\$530	\$500	\$1,176	\$900	980
<i>\$50,000 to \$100,000</i>	\$509	\$500	\$1,175	\$900	1,067
<i>\$100,000 to \$150,000</i>	\$472	\$497	\$1,079	\$900	1,101
<i>\$200,000+</i>	\$325	\$333	\$729	\$500	399
<b>Race</b>					
<i>Asian</i>	\$439	\$470	\$968	\$800	255
<i>Black</i>	\$507	\$500	\$1,139	\$900	375
<i>Hispanic</i>	\$520	\$500	\$1,179	\$900	785
<i>Other</i>	\$545	\$550	\$1,241	\$1,000	115
<i>White</i>	\$467	\$431	\$1,065	\$817	2,017

Note: Values are calculated using only data for households who qualified for the CTC (i.e., imputed CTC > 0) from August 2021 through March 2022 interviews and weighted using FINLWT21. Reference quarter values are not equivalent to 3 monthly payments because there are some reference quarters during which families could have received only one or two payments based on the months in that quarter. See Table 1 for additional details.

### ***Estimation strategy***

Following many prior studies of policy effects (Currie & Gruber, 1996; Hoynes & Patel, 2018, 2018; Jones et al., 2019; Micheltmore & Pilkauskas, 2021; Pilkauskas et al., 2022), we use an imputed measure of how much families could have benefited from the policy expansion (described in the preceding section) and a difference-in-difference framework to estimate the spending response to the expanded, monthly CTC payments. We could interact the imputed CTC with the response to the question whether or not a household received a monthly payment in order to get a closer approximation of received CTC income, but doing so would require us to drop August and September interviews since respondents were not asked about receipt of the monthly CTC payments until October interviews. Additionally, differences in receipt may be correlated with our outcomes as lowest-income families faced greater barriers when accessing monthly payments. See Curran (2022) for an overview of the monthly payment take up.

We estimate the spending response using data from the CE interviews conducted between January 2021 and March 2022 as well as January 2019 and March 2020. We limit our sample to families

with children who were income-eligible for the 2021 monthly CTC payments.<sup>22</sup> Under our specification, potentially treated households are those interviewed in 2021 and 2022, with the pre-treatment period being January 2021 to July 2021 and the treatment period being between August 2021 and March 2022. Control group households are those interviewed between January 2019 and March 2020. By using households interviewed in 2019 and early 2020 as our control group, we are able to control for seasonal variation in spending that may be correlated with the timing of monthly CTC delivery (e.g., higher levels of spending on back-to-school related items in the fall months).

To estimate the effect of the advanced and expanded CTC payments on spending we estimate the following equation:

$$E_i = \beta_0 + \beta_1 \text{QuartCTC}_{imy} + \beta_2 X_i + \partial_m + \alpha_y + \delta_s + \rho_a + \varepsilon_{imy} \quad (1)$$

$E_{imy}$  represents quarterly spending for consumer unit  $i$  interviewed in month  $m$  and year  $y$ .

$\text{QuartCTC}_{imy}$  is the quarterly advanced CTC payment per \$100 that consumer unit  $i$  could have received during the reference period, which covers spending during the three months prior to the interview month  $m$ , as discussed in the preceding section. The parameter of interest is  $\beta_1$ , which represents the effect of a \$100 increase in imputed CTC benefits on spending.  $X_i$  is a vector of household level characteristics, including family before-tax income and demographic characteristics of the reference person (age group,<sup>23</sup> race/ethnicity, sex, education). We recognize our study period also coincides with the distribution of the Economic Impact Payments (EIP), specifically the second and third rounds of EIP. Although Parker et al. (2023) shows households spend a small portion of their EIP during the period it is received, there could be lagged spending responses that were out of the scope of their paper. Therefore, included in this vector of household level characteristics is a set of controls, with lags, for the three rounds of EIP.<sup>24</sup> Interview month fixed effects ( $\partial_m$ ) are included to control for seasonal variation. We also include interview reference year fixed effects ( $\alpha_y$ ) to control for variation in spending between 2019 and 2021, including annual changes in inflation and spending patterns, as well as state fixed effects ( $\delta_s$ ) to control for state level characteristics/policy that might affect spending.

We also include fixed effects for the number of adults in the household ( $\rho_a$ ) to control for variation in household spending due to family size. Our CTC payments variable derives variation from

---

<sup>22</sup> This means that we excluded very-high-income families who were not eligible for the annual or monthly CTC. Households without children did not receive the CTC and could work as a comparison group, but their spending patterns differ from those of households with children, which could violate the parallel trends assumption.

<sup>23</sup> Age group defined as 18 to 35, 36 to 50, 51 to 65, and 66 and up.

<sup>24</sup> The CE collected data on the receipt, amount, and use of the EIP. See Parker et al. (2023) for more information about the CE EIP questions. A separate dummy variable was created for each of the three rounds of EIP. The dummy variable took a value of one if the household reported receiving an EIP during the reference period, and zero otherwise. One- and two-period lags were created by using responses to the receipt questions from previous interviews in which the household participated. If the household did not have a previous interview for which responses could be drawn, the lags were assumed to be zero.

number of children in the household and their ages. Therefore, we do not control for the number of children. We conduct a sensitivity analysis where we replace the control on number of adults with size of the household. Results of the sensitivity analysis are presented following our primary results.

It is possible that the spending response to the CTC payments varies across households based on their liquidity and baseline income levels, as was found by Wheat et al. (2022). Reports from survey data also suggest that higher-income households were more likely to save income received from the monthly CTC payments while lower-income households were more likely to spend the payments or use it to pay down debt (Rachidi, 2021). For this reason, we separately estimate the spending response by household income level. Since income and liquidity are correlated with race, we also estimate separate spending response by race and ethnicity. We define the following racial/ethnic categories: non-Hispanic Asian, non-Hispanic Black, Hispanic, non-Hispanic other race; and non-Hispanic White.<sup>25</sup>

#### **4. Results**

##### ***Overall***

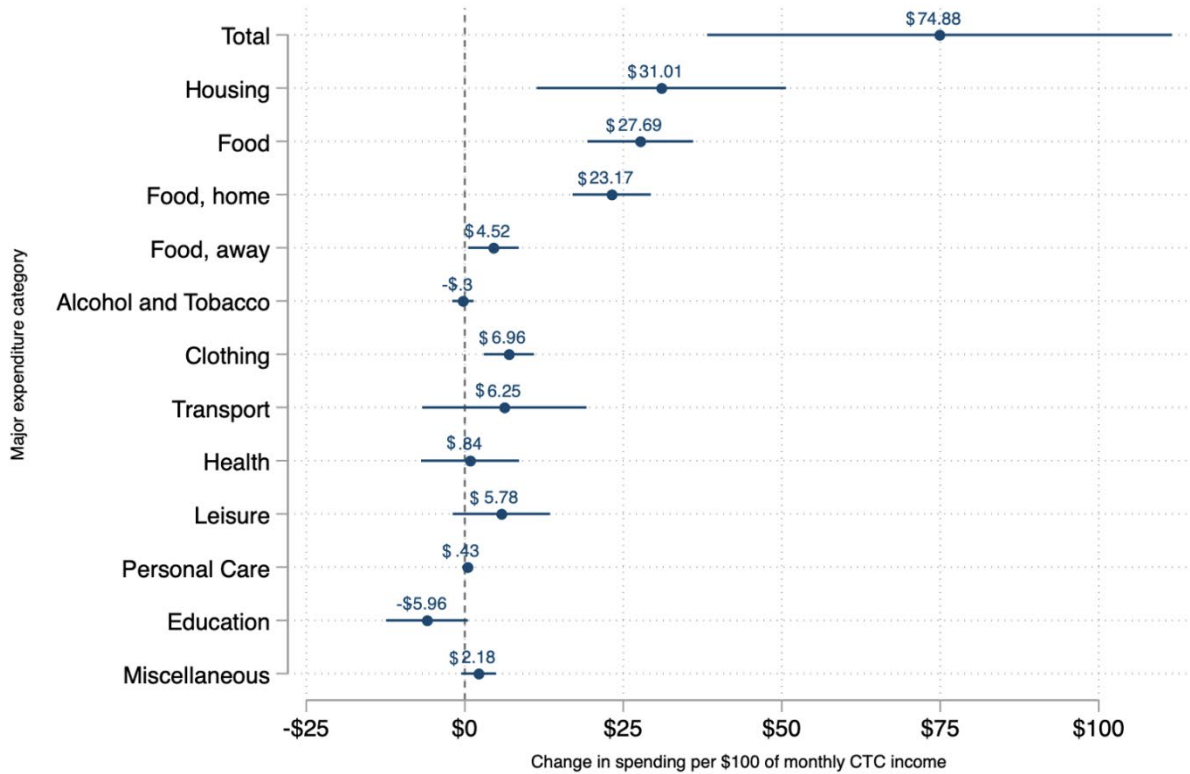
Our analysis reveals that the CTC payments are associated with a notable increase in total spending outlays. A \$100 increase in CTC payment received during the reference quarter is associated with a \$75 increase in total spending for the overall sample. Figure 3 presents the estimated spending response to the CTC payments across major expenditure categories based on the estimation strategy described in Equation 1.<sup>26</sup> Among the different expenditure categories, the greatest increases in spending are seen in food, particularly food at home, housing, and clothing. For every \$100 increase in income, there is an associated increase of \$31 in spending on housing, \$28 on food, and \$7 on clothing. We did not find any significant effect on spending in the other categories we examined, which include alcohol and tobacco, transportation, health, leisure, personal care, education, and miscellaneous spending. These results suggest a majority of the spending response is allocated to necessities, with housing, food, and clothing accounting for 88 percent of the total \$75 spending response.

---

<sup>25</sup> The race and ethnicity of a household was assigned based on responses to the CE in relation to the reference person. See the CE Frequently Asked Questions page for more information about how the reference person is defined (<https://www.bls.gov/cex/csxfqs.htm>).

<sup>26</sup> For a set of descriptive results showing average changes in spending in 2021 for households with children before and after the rollout of the monthly CTC payments (i.e., before and after the August 2021 interview) and compare these changes to between the same periods in 2019, see Appendix B.

**Figure 3:** Estimated effects on spending of a \$100 increase in CTC payments during the reference quarter for major expenditure categories among households with children

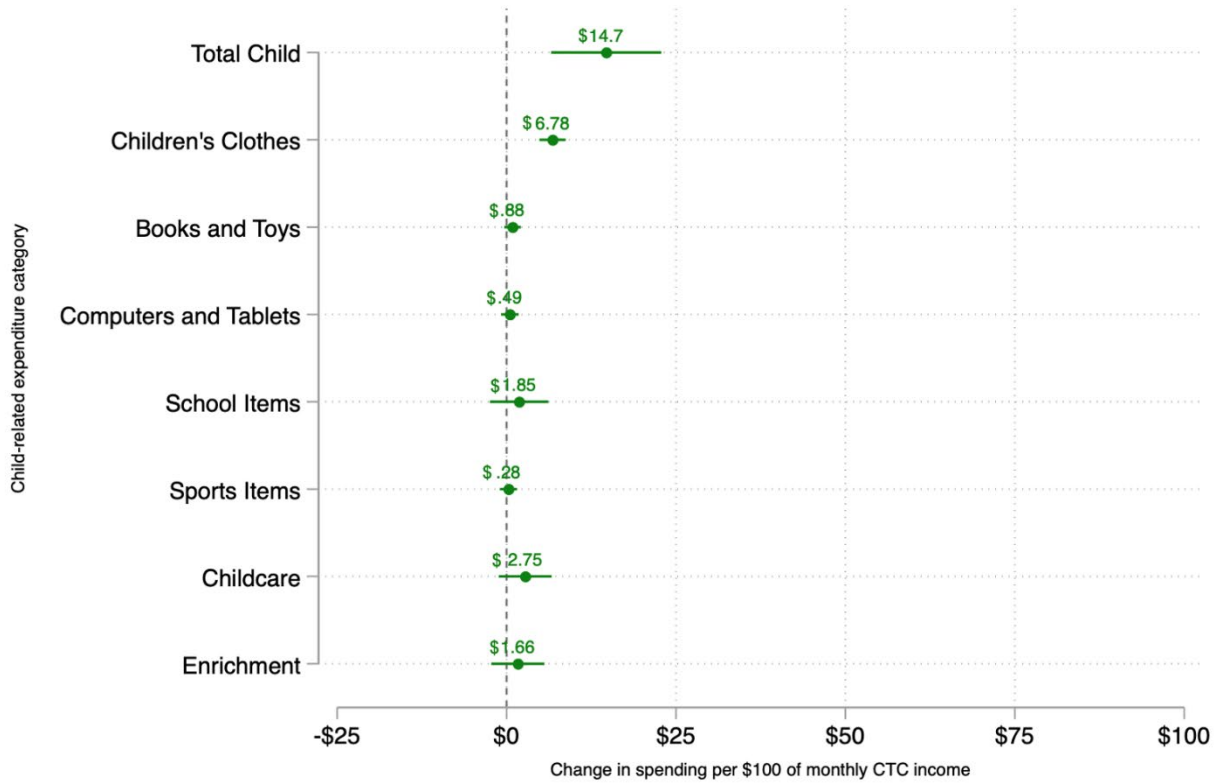


Note: All results derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month. The estimated effect, coefficient from the regression model, represents the change in spending by domain associated with a \$100 increase in quarterly income assumed to be from the CTC. All models include state, year, and month fixed effects, and a fixed effect for number of adults in the household, and demographic controls for household reference person, including age group, race/ethnicity, sex, and education level. We also control for contemporaneous and lagged spending responses to the EIP payments. Estimates are weighted to the national level using FINLWT21. Confidence intervals calculated with robust standard errors are represented by the horizontal lines in the chart.

In Figure 4, we present the estimated association between an increase of \$100 in CTC payments and changes in spending on child-related items. For every \$100 increase in income from the CTC payments during a reference quarter, there is a corresponding \$15 increase in spending on child-related items. Notably, spending on children’s clothing contributes the most to the spending response, accounting for \$7 or 46 percent of the total child-related spending response.



**Figure 4:** Estimated effects on spending of a \$100 increase in CTC payments during the reference quarter across child-related expenditure categories among households with children



Note: All results derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month. The estimated effect, coefficient from the regression model, represents the change in spending by domain associated with a \$100 increase in quarterly income assumed to be from the CTC. All models include state, year, and month fixed effects, and a fixed effect for number of adults in the household, and demographic controls for household reference person, including age group, race/ethnicity, sex, and education level. We also control for contemporaneous and lagged spending responses to the EIP payments. Estimates are weighted to the national level using FINLWT21. Confidence intervals calculated with robust standard errors are represented by the horizontal lines in the chart.

***Results stratified by income level and race/ethnicity***

In Table 5, we provide estimates of the spending response across the major CE expenditure categories for the overall sample as well as stratify them by before-tax income levels. We find that the spending response overall and on specific categories varied across the income distribution, although we cannot reject the hypothesis that the magnitudes of the spending responses are statistically equivalent based on margins of error around the point estimates. However, significant increases in spending on housing were limited to households with before-tax incomes below \$100,000, and among this group, those earning between \$50,000 and \$100,000 had the highest spending response for housing (\$42). For food spending, households with incomes below \$200,000 showed a significant response, and those with income below \$100,000 had the highest spending response. The spending response on clothing was

significant for households with incomes below \$100,000 and statistically insignificant for households earning more than \$100,000. As you see in subsequent results, the increase in spending on clothing was driven by spending on children’s clothing.

**Table 5:** Estimated effects on spending of a \$100 increase in CTC payments during the reference quarter across major expenditure categories among households with children

	Overall	Before tax income			
		Income under \$50,000	\$50,000 - \$100,000	\$100,000 - \$200,000	\$200,000 +
Total	<b>74.88***</b> (18.70)	<b>85.08***</b> (23.51)	<b>82.60**</b> (26.41)	<b>79.59*</b> (35.4494)	51.66 (147.49)
Housing	<b>31.01**</b> (10.03)	<b>33.18**</b> (11.43)	<b>42.25**</b> (15.01)	36.19 (19.46)	12.36 (83.75)
Food	<b>27.69***</b> (4.25)	<b>29.51***</b> (7.98)	<b>30.84***</b> (6.37)	<b>21.68**</b> (7.48)	34.22 (21.57)
<i>Food, home</i>	<b>23.17***</b> (3.15)	<b>25.54**</b> (6.40)	<b>25.16***</b> (4.59)	<b>18.25***</b> (5.18)	16.81 (17.10)
<i>Food, away</i>	<b>4.52*</b> (2.04)	3.97 (2.69)	5.68 (3.71)	3.43 (3.93)	17.41 (10.56)
Alcohol and Tobacco	-0.30 (0.86)	-0.02 (1.34)	0.24 (1.62)	-0.38 (1.55)	-2.03 (3.17)
Clothing	<b>6.96***</b> (2.02)	<b>7.87**</b> (2.79)	<b>7.03**</b> (2.28)	3.42 (5.41)	11.90 (8.43)
Transport	6.25 (6.61)	7.67 (6.69)	-0.85 (10.51)	12.53 (16.06)	12.85 (36.94)
Health	0.84 (3.95)	-0.02 (4.33)	-1.80 (5.27)	6.43 (10.56)	-23.15 (17.04)
Leisure	5.78 (3.92)	5.72 (3.53)	-1.28 (3.27)	6.23 (5.69)	53.75 (44.77)
Personal Care	0.43 (0.42)	0.75 (0.58)	-0.04 (0.63)	0.34 (0.89)	1.02 (2.84)
Education	-5.96 (3.29)	1.64 (2.10)	0.26 (3.40)	-6.72 (6.24)	-54.48 (32.34)
Miscellaneous	2.18 (1.40)	-1.22 (1.64)	5.95 (3.52)	-0.13 (1.73)	5.23 (6.62)
N	14,365	4,248	4,439	4,196	1,482

Note: All results derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month. The estimated effect, coefficient from the regression model, represents the change in spending by domain associated with a \$100 increase in quarterly income assumed to be from the CTC. All models include state, year, and month fixed effects, and a fixed effect for number of adults in the household, and demographic controls for household reference person, including age group, race/ethnicity, sex, and education level. We also control for contemporaneous and lagged spending responses to the EIP payments. Estimates are weighted to the national level using FINLWT21. Robust standard errors reported in parentheses. \*\*\* $p < 0.001$  \*\* $p < 0.01$  \* $p < 0.05$ .

In Table 6, we present the estimated association between \$100 in CTC payments and changes in spending for child-related items, both overall and across the income distribution. Similar to total spending, the effect on child-related total spending is statistically significant for households with before-

tax incomes below \$200,000. However, unlike for the major spending categories, the spending response for child-related spending across the income distribution does not follow the pattern suggested by the literature. Households with incomes between \$100,000 and \$200,000 have a larger spending response than households with incomes below \$100,000. A \$100 increase in CTC payments leads to a \$25 increase in total child related spending for households with incomes between \$100,000 and \$200,000, compared to only a \$14 and \$12 for households with incomes under \$50,000 and between \$50,000 and \$100,000, respectively. This discrepancy is driven by households with incomes in the \$100,000 and \$200,000 range increasing spending on childcare and enrichment, at rates of \$10 and \$9 per \$100, respectively, whereas other households did not show a statistically significant spending response within these categories.

There are several possible reasons for this result. For one, families with incomes between \$100,000 and \$200,000 allocated less of their CTC income to necessities like food and housing (Table 5), which suggests that they had more money available to spend on childcare and enrichment. Additionally, the cost of these categories could have precluded lower-income households from allocating some of the CTC payment to them. For example, purchasing childcare typically incurs a large, upfront cost that lower-income households cannot typically afford. The results of our analysis suggest that although these households received additional income from the CTC payments, it may not have been enough for them to enter the childcare market. It is possible that with a larger payment, one that overcomes the high entry costs, we might observe a different spending response.

**Table 6:** Estimated effects on child-related spending of a \$100 increase in CTC payments during the reference quarter

	Overall	Before tax income			
		Income under \$50,000	\$50,000 - \$100,000	\$100,000 - \$200,000	\$200,000 +
Total Child	<b>14.70***</b> (4.14)	<b>13.50***</b> (3.61)	<b>12.35*</b> (4.91)	<b>24.63**</b> (8.83)	22.63 (39.12)
Children's Clothes	<b>6.78***</b> (0.99)	<b>6.87***</b> (1.57)	<b>8.17***</b> (1.59)	<b>4.79*</b> (2.10)	<b>8.33**</b> (4.03)
Books and Toys	0.88 (0.62)	<b>1.97*</b> (1.00)	1.23 (0.99)	-0.35 (1.18)	0.98 (2.94)
Computers and Tablets	0.49 (0.66)	0.95 (0.85)	-0.60 (0.95)	1.82 (1.62)	0.80 (3.59)
School Items	1.85 (2.20)	1.67 (1.13)	3.46 (2.66)	-0.27 (5.14)	12.43 (22.33)
Sports Items	0.28 (0.65)	0.55 (0.54)	0.57 (1.08)	0.11 (1.52)	2.33 (4.66)
Childcare	2.75 (1.99)	1.35 (1.35)	-1.42 (2.66)	<b>9.78*</b> (4.82)	8.70 (14.50)
Enrichment	1.66 (2.00)	0.13 (1.95)	0.94 (1.33)	<b>8.76*</b> (4.05)	-10.93 (20.63)
N	14,365	4,248	4,439	4,196	1,482

Note: All results derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month. The estimated effect, coefficient from the regression model, represents the change in spending by domain associated with a \$100 increase in quarterly income assumed to be from the CTC. All models include state, year, and month fixed effects, and a fixed effect for number of adults in the household, and demographic controls for household reference person, including age group, race/ethnicity, sex, and education level. We also control for contemporaneous and lagged spending responses to the EIP payments. Estimates are weighted to the national level using FINLWT21. Robust standard errors reported in parentheses. \*\*\* $p < 0.001$  \*\* $p < 0.01$  \* $p < 0.05$ .

Next, we examine changes in spending associated with the CTC payments for families based on the race/ethnicity of the household reference person (Tables 7 and 8). Table 7 shows increases in spending across racial and ethnic groups for the major expenditure categories. We observe statistically significant spending responses for non-Hispanic Black (\$83), Hispanic (\$107), and non-Hispanic White (\$61) households. We also observe increases in spending for non-Hispanic Asian households and those headed by individuals of non-Hispanic other races, but the samples of these populations are smaller, and results are not significant. The spending response for Hispanic households is greater than the CTC payment, a \$100 increase in CTC is associate with a \$107 increase in spending. This response could be related to the large increase in prices during the latter half of 2021; this is addressed in the sensitivity analysis in the next section.

Looking across domains, we find a significant increase in spending on food for all racial and ethnic groups, with the exception of the non-Hispanic other race group, which again is likely a result of the small sample size. In terms of spending on housing, we identify increased spending for the overall

sample, but it only passes a test of statistical significance for households with a Hispanic head. Based on the standard errors surrounding the spending response for food, there do not appear to be significant differences in these responses across racial and ethnic subgroups, but the magnitude of the increase is largest for non-Hispanic Asian and Hispanic households. We also find an increase in spending on clothing for non-Hispanic Black or Hispanic households. Table 7 also shows a significant, though relatively small in magnitude, increase in spending on Leisure items and activities associated with the CTC payments for Hispanic households, which includes fees and admissions to entertainment activities, televisions, radios, and sound equipment, pets, toys, and playground equipment, and other entertainment.

**Table 7:** Estimated effects on spending across major expenditure categories of a \$100 increase in the CTC payments by race/ethnicity of reference person

	Overall	Race/ethnicity of household reference person				
		Asian	Black	Hispanic	Other	White
Total	<b>74.88***</b> (18.70)	85.11 (88.53)	<b>83.27*</b> (37.95)	<b>106.62***</b> (26.01)	123.86 (77.67)	<b>60.62*</b> (28.77)
Housing	<b>31.01**</b> (10.03)	52.59 (57.50)	31.25 (20.84)	<b>45.70***</b> (12.86)	54.13 (31.16)	28.96 (15.73)
Food	<b>27.69***</b> (4.25)	<b>38.08*</b> (18.68)	<b>25.66**</b> (9.34)	<b>30.65***</b> (8.45)	6.55 (20.46)	<b>25.58***</b> (6.21)
<i>Food, home</i>	<b>23.17***</b> (3.15)	<b>27.87*</b> (13.26)	<b>21.88**</b> (6.65)	<b>19.07**</b> (5.97)	5.36 (16.02)	<b>23.75***</b> (4.68)
<i>Food, away</i>	<b>4.52*</b> (2.04)	10.21 (9.99)	3.79 (5.32)	<b>11.56*</b> (4.57)	1.19 (7.94)	1.83 (2.72)
Alcohol and Tobacco	-0.30 (0.86)	2.95 (2.70)	0.22 (1.61)	1.2154 (1.24)	-2.70 (6.41)	-1.79 (1.35)
Clothing	<b>6.96***</b> (2.02)	10.92 (5.72)	<b>7.97*</b> (4.01)	<b>12.84***</b> (3.70)	-0.43 (7.66)	3.70 (3.15)
Transport	6.25 (6.61)	-19.15 (29.47)	7.92 (9.95)	10.81 (11.28)	46.29 (37.84)	1.82 (10.59)
Health	0.84 (3.95)	-6.46 (12.55)	-2.91 (7.14)	4.40 (4.65)	-7.27 (14.41)	3.10 (6.83)
Leisure	5.78 (3.92)	15.06 (10.36)	9.04 (5.64)	<b>6.45*</b> (3.27)	9.08 (9.31)	3.28 (6.46)
Personal Care	0.43 (0.42)	1.48 (1.04)	1.17 (1.74)	1.07 (0.72)	-1.66 (1.46)	-0.19 (0.47)
Education	-5.96 (3.29)	-15.72 (12.20)	-2.05 (3.69)	<b>-5.00*</b> (2.02)	5.54 (14.11)	-6.30 (5.65)
Miscellaneous	2.18 (1.40)	5.37 (7.72)	<b>5.01*</b> (2.40)	-1.51 (2.19)	14.33 (9.77)	2.46 (2.27)
N	14,365	1,073	1,530	3,132	395	8,235

Note: All results derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month. The estimated effect, coefficient from the regression model, represents the change in spending by domain associated with a \$100 increase in quarterly income assumed to be from the CTC. All models include state, year, and month fixed effects, and a fixed effect for number of adults in the household, and demographic controls for household reference person, including age group, race/ethnicity (in the case of model 1), sex, and education level. We also control for contemporaneous and lagged spending responses to the EIP payments. Estimates are weighted to the national level using FINLWT21 Robust standard errors reported in parentheses. \*\*\* $p < 0.001$  \*\* $p < 0.01$  \* $p < 0.05$ .

Table 8 presents estimated changes in spending on child-related spending by race and ethnicity. The results show significant increases in total spending for child-related items among non-Hispanic Black, Hispanic, or non-Hispanic other race/ethnicity households. Estimates for non-Hispanic Black households show each \$100 increase in income from the CTC associated with a \$28 increase in spending on child-related items and services, which is largely driven by an increase in spending on children’s clothing (\$11) and enrichment (\$11). For Hispanic households, we find that \$15 of each \$100 in CTC income was spent on child-related items and services, with a majority being accounted for by increase spending on children’s clothing (\$10). The spending response for non-Hispanic other race households was driven by an increase in spending on childcare. While not finding a significant change in total child-related spending for households with a non-Hispanic Asian or non-Hispanic White reference person, the results show the monthly payments associated with a significant increase in spending on children’s clothing for these groups.

**Table 8:** Estimated effects on child-related spending of a \$100 increase in CTC payments during the reference quarter by race/ethnicity of reference person

	Overall	Race/ethnicity of household head				
		Asian	Black	Hispanic	Other	White
Total Child	<b>14.70***</b> (4.14)	23.61 (19.36)	<b>28.06***</b> (6.87)	<b>14.74***</b> (4.20)	<b>56.47**</b> (17.73)	9.59 (6.73)
Children's Clothes	<b>6.78***</b> (0.99)	<b>6.13**</b> (1.99)	<b>10.55***</b> (2.76)	<b>10.18***</b> (2.00)	3.98 (4.49)	<b>3.98**</b> (1.32)
Books and Toys	0.88 (0.62)	2.43 (2.51)	0.92 (1.63)	1.76 (1.44)	2.58 (2.21)	0.24 (0.81)
Computers and Tablets	0.49 (0.66)	(1.81) (4.05)	0.61 (1.82)	(0.10) (1.16)	2.16 (4.60)	1.03 (0.93)
School Items	1.85 (2.20)	(2.53) (4.66)	(0.85) (2.70)	0.77 (1.39)	14.59 (12.52)	3.51 (3.97)
Sports Items	0.28 (0.65)	2.98 (3.39)	0.09 (0.98)	0.10 (0.69)	2.60 (2.56)	0.13 (1.11)
Childcare	2.75 (1.99)	7.07 (13.86)	5.98 (3.58)	0.91 (2.10)	<b>28.94**</b> (9.99)	1.94 (3.20)
Enrichment	1.66 (2.00)	9.35 (8.47)	<b>10.77*</b> (5.14)	1.13 (1.00)	1.62 (2.68)	-1.24 (2.91)
N	14,365	1,073	1,530	3,132	395	8,235

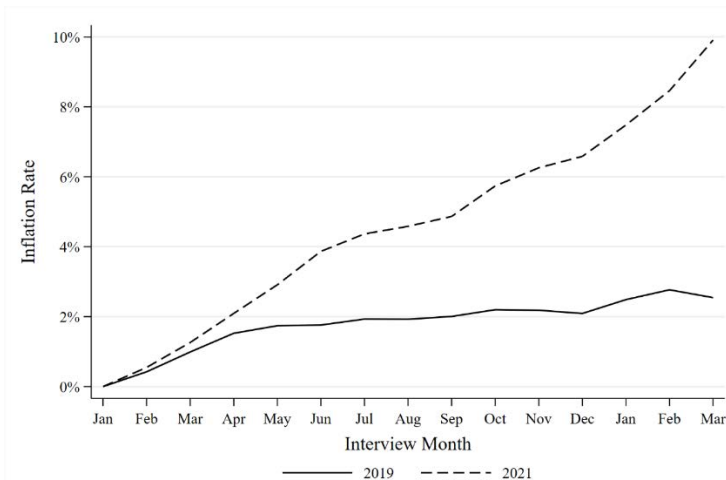
Note: All results derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month. The estimated effect, coefficient from the regression model, represents the change in spending by domain associated with a \$100 increase in quarterly income assumed to be from the CTC. All models include state, year, and month fixed effects, and a fixed effect for number of adults in the household, and demographic controls for household reference person, including age group, race/ethnicity (in the case of model 1), sex, and education level. We also control for contemporaneous and lagged spending responses to the EIP payments. Estimates are weighted to the national level using FINLWT21. Robust standard errors reported in parentheses. \*\*\* $p < 0.001$  \*\* $p < 0.01$  \* $p < 0.05$ .

## 5. Sensitivity tests

Two decisions we made when constructing our model might impact our results. The first decision was to keep our spending measures in nominal dollars. If the parallel trends assumption holds, the year fixed effect should capture the effect of inflation or changes in spending patterns from 2019 to 2021. However, 2021 saw a dramatic surge in inflation across the year. Figure 5 shows the inflation rate for 2019 and 2021 relative to January for the respective year, and it is clear the inflation rates for these two years do not follow the same trend. Furthermore, the month-to-month changes are higher in all months after April of 2021 than in the same period of 2019. The concern is that the high rate of inflation is correlated with the receipt of advanced CTC payments, which could result in the treatment effect reflecting both increased spending due to higher prices and the spending response due to the advanced payments.

To understand whether the advanced CTC payments affected spending, over and above how families adjusted to higher inflation, we run a sensitivity test where we adjust spending data for inflation by converting spending to constant January 2021 dollars using the BLS' Consumer Price Index for All Urban Consumers (CPI-U). We use the monthly CPI-U, rather than the annual CPI-U, to account for the higher rate of inflation in the latter part of 2021 that did not occur in the latter part of 2019.

**Figure 5:** Inflation Rates Relative to January of the Respective Year



Note: Both 2019 and 2021 inflation rates are calculated relative to January of the respective year. The inflation rate is calculated using the Consumer Price Index for All Urban Consumers (CPI-U). Price index data comes from the U.S. Bureau of Labor Statistics

The second decision was to include a control for the number of adults in the household in our primary model but not to control for the number of CTC-eligible dependents (i.e., children). The number of eligible dependents is the main factor that determines the amounts of CTC. If we were to estimate Equation (1) for each group categorized by the number of dependents, we would lose a significant amount of identifying variation. However, if families with the same number of adults but more children

experienced a higher increase in spending, on average, then our primary results could be upwardly biased if we do not control for the number of children in the family. To test for this this, we conducted a sensitivity test which includes a control for household size (including adults and children).

Table 9 presents the results of the inflation sensitivity test for a subset of the major and child-related spending categories. Panel A provides the results of the sensitivity test across the income distribution, and Panel B provides the results disaggregated by race and ethnicity. After adjusting to real dollars, the total spending response for the entire sample is \$63. As expected, the spending response in real dollars was lower than the nominal spending response of \$75. The decline in the spending response suggests that \$12, or about 16 percent, of the nominal spending response was a result of increased prices. The spending response was still statistically significant, indicating the CTC payments had an impact on real spending. The reduction in response suggests that the additional income helped households offset the negative effect of higher prices. Hamilton et al. (2022) finds an analogous result in the second wave of the Social Policy Institute's CTC panel survey. Around 70 percent of CTC recipients who were negatively affected by inflation said the CTC payments helped them to better manage higher prices.

The effect of adjusting for inflation varied, but was not statistically different, across the income distribution, with higher-income households experiencing a greater decline in spending response. This finding aligns with the presumption that higher-income households are less budget constrained. As they have the means to afford their preferred basket of goods, they are less likely to adjust their spending in real terms when given additional income. However, because the CTC payments were distributed at the same time households were experiencing a drastic increase in prices, high-income households were able to use the additional income from the CTC payment to increase their nominal spending and maintain their standard of living.

The effect of inflation was also heterogenous, but not statistically different, across race and ethnicity. After adjusting for inflation, only Hispanic households showed a statistically significant spending response for total spending. Moreover, while the spending response for Hispanic households is still quite large, it is now below \$100. Based on the inflation adjusted results, we suggest that the spending in excess of the CTC payment observed in Table 7 was a result of the correlated increase in prices. Hispanic households were able to increase their spending in real terms as a result of the CTC payments, but also had to increase spending in nominal terms in order to maintain, or lessen the reduction of, their standard of living.



**Table 9: Estimated effects on inflation adjusted spending of a \$100 increase in CTC payment during the reference quarter**

<b>A: Spending response by income</b>						
	Overall	Before tax income				
		Income under \$50,000	\$50,000 - \$100,000	\$100,000 - \$200,000	\$200,000 +	
Total	<b>63.17***</b> (17.84)	<b>71.94***</b> (22.18)	<b>65.89**</b> (25.29)	61.80 (33.56)	26.89 (141.04)	
Housing	<b>26.51**</b> (9.61)	<b>28.02**</b> (10.82)	<b>34.60*</b> (14.43)	29.55 (18.55)	1.89 (80.40)	
Food	<b>24.11***</b> (4.03)	<b>25.69***</b> (7.53)	<b>26.62***</b> (6.05)	<b>17.80*</b> (7.09)	28.07 (20.54)	
Total Child	<b>13.31***</b> (3.98)	<b>12.18***</b> (3.47)	<b>10.64*</b> (4.68)	<b>21.54*</b> (8.47)	19.33 (37.67)	
Children's Clothes	<b>6.11***</b> (0.94)	<b>6.22***</b> (1.49)	<b>7.47***</b> (1.51)	<b>4.07*</b> (2.00)	7.38 (3.85)	
Childcare	2.53 (1.92)	1.25 (1.31)	-1.71 (2.55)	8.92 (4.62)	8.22 (14.22)	
Enrichment	1.64 (1.91)	0.02 (1.87)	0.84 (1.28)	<b>8.17*</b> (3.84)	-10.90 (19.83)	
N	14,365	4,248	4,439	4,196	1,482	
<b>B: Spending response by race of reference person</b>						
	Overall	Race/ethnicity of household head				
		Asian	Black	Hispanic	Other	White
Total	<b>63.17***</b> (17.84)	69.79 (84.51)	69.97 (36.01)	<b>90.28***</b> (24.57)	119.63 (75.79)	49.37 (27.56)
Housing	<b>26.51**</b> (9.61)	44.88 (54.82)	25.87 (19.63)	<b>39.48**</b> (12.29)	53.71 (30.02)	24.48 (15.14)
Food	<b>24.11***</b> (4.03)	33.25 (17.81)	<b>21.79*</b> (8.92)	<b>26.17**</b> (7.99)	3.82 (19.49)	<b>22.38***</b> (5.88)
Total Child	<b>13.31***</b> (3.98)	22.33 (18.76)	<b>25.75***</b> (6.55)	<b>13.20**</b> (4.02)	<b>55.39**</b> (17.57)	8.23 (6.49)
Children's Clothes	<b>6.11***</b> (0.94)	<b>5.65**</b> (1.95)	<b>9.62***</b> (2.63)	<b>9.23***</b> (1.89)	3.35 (4.38)	<b>3.51**</b> (1.25)
Childcare	2.53 (1.92)	6.96 (13.55)	5.75 (3.45)	0.76 (2.04)	<b>28.56**</b> (9.90)	1.58 (3.08)
Enrichment	1.64 (1.91)	9.13 (8.38)	<b>10.08*</b> (4.80)	1.07 (0.98)	1.84 (2.72)	-1.15 (2.79)
N	14,365	1,073	1,530	3,132	395	8,235

Note: All results derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month. The estimated effect, coefficient from the regression model, represents the change in spending by domain associated with a \$100 increase in quarterly income assumed to be from the CTC. All models include state, year, and month fixed effects, and demographic controls for household reference person, including age group, race/ethnicity, sex, and education level. We also control for contemporaneous and lagged spending responses to the EIP payments. Estimates are weighted to the national level using FINLWT21. All spending amounts were adjusted to January 2021 dollars using the CPI-U.

The sensitivity test results that include a control for total household size (adults and children) are presented in Table 10. Again, Panel A provides the results stratified across the income distribution, and Panel B provides the results disaggregated by race and ethnicity. When we control for total household size instead of just the number of adults, the spending response on housing, food, and child-related goods and services for the overall sample continues to be significant. As expected, the magnitude as well as the precision of these estimates has declined compared to our primary results. Both the number of adults and the size of the household are positively correlated with total spending, but the size of the household has a stronger correlation with the size of the CTC payment.<sup>27</sup> The CTC payment is based on the number of qualifying dependents, which are included when measuring the size of the household but not when measuring the number of adults. Thus, some of the variation in spending due to the CTC payment could be attributed to the size of the household (i.e., number of qualifying dependents). The reduction in precision has resulted in some of the spending responses for specific income or race and ethnicity groups to become insignificant, but they still remain positive. Furthermore, the general pattern and statistical significance of the results with respect to child-related spending remains intact.

Overall, our results appear robust to these sensitivity tests. Although our primary results may be slightly upwardly biased, even after accounting for inflation and all members of the household, the estimates still show a positive, statistically significant spending response.

---

<sup>27</sup> The correlation between total spending and the number of adults is 0.07, and the correlation between total spending the size of the household is 0.12. The correlation between the size of the CTC payment and the number of adults is 0.17, and the correlation between the size of the CTC payment and the size of the household is 0.74.

**Table 10: Estimated effects on spending of a \$100 increase in CTC payment during the reference quarter, controlling for household size**

<b>A: Spending response by income</b>						
	Overall	Before tax income				
		Income under \$50,000	\$50,000 - \$100,000	\$100,000 - \$200,000	\$200,000 +	
Total	<b>41.17*</b> <b>(18.42)</b>	37.56 (22.32)	<b>55.69*</b> <b>(27.95)</b>	58.52 (35.52)	2.64 (146.921)	
Housing	<b>23.20*</b> <b>(10.56)</b>	18.04 (11.42)	32.71 (17.33)	32.82 (19.93)	-3.66 (85.764)	
Food	<b>13.08**</b> <b>(4.23)</b>	14.56 (7.64)	<b>17.96**</b> <b>(6.60)</b>	8.20 (7.60)	10.75 (21.935)	
Total Child	<b>13.90***</b> <b>(3.94)</b>	<b>11.37***</b> <b>(3.82)</b>	<b>12.21*</b> <b>(4.94)</b>	<b>20.20*</b> <b>(8.99)</b>	24.54 (33.65)	
Children's Clothes	<b>5.11***</b> <b>(0.97)</b>	5.47 (1.58)	<b>6.52***</b> <b>(1.59)</b>	2.81 (2.07)	7.03 (3.78)	
Childcare	<b>5.10*</b> <b>(2.07)</b>	2.42 (1.50)	0.92 (2.61)	11.54 (5.01)	12.03 (14.81)	
Enrichment	1.94 (1.69)	-0.59 (2.04)	1.15 (1.40)	7.76 (4.25)	-2.72 (11.34)	
N	14,365	4,248	4,439	4,196	1,482	
<b>B: Spending response by race of reference person</b>						
	Overall	Household reference person's race/ethnicity				
		Asian	Black	Hispanic	Other	White
Total	<b>41.17*</b> <b>(18.42)</b>	40.88 (88.66)	48.08 (39.29)	<b>84.90**</b> <b>(26.09)</b>	41.98 (84.16)	22.16 (28.32)
Housing	<b>23.20*</b> <b>(10.56)</b>	42.04 (59.23)	21.42 (21.32)	<b>38.27**</b> <b>(12.97)</b>	22.62 (37.28)	18.86 (16.99)
Food	<b>13.08**</b> <b>(4.23)</b>	22.29 (17.36)	9.80 (9.37)	<b>19.20*</b> <b>(8.48)</b>	-17.33 (20.89)	10.67 (6.18)
Total Child	<b>13.90***</b> <b>(3.94)</b>	26.94 (20.22)	<b>27.41***</b> <b>(7.13)</b>	<b>14.23**</b> <b>(4.33)</b>	<b>50.44**</b> <b>(18.95)</b>	7.55 (6.42)
Children's Clothes	<b>5.11***</b> <b>(0.97)</b>	<b>4.84*</b> <b>(2.07)</b>	<b>8.77**</b> <b>(2.64)</b>	<b>8.99***</b> <b>(2.05)</b>	2.36 (4.49)	2.33 (1.29)
Childcare	<b>5.10*</b> <b>(2.07)</b>	13.17 (14.88)	<b>8.47*</b> <b>(3.77)</b>	2.58 (2.06)	<b>28.47*</b> <b>(11.36)</b>	4.26 (3.34)
Enrichment	1.94 (1.69)	5.43 (8.16)	<b>10.77*</b> <b>(5.35)</b>	1.04 (1.02)	1.23 (2.99)	-0.64 (2.32)
N	14,365	1,073	1,530	3,132	395	8,235

Note: All results derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month. The estimated effect, coefficient from the regression model, represents the change in spending by domain associated with a \$100 increase in quarterly income assumed to be from the CTC. All models include state, year, and month fixed effects, and demographic controls for household reference person, including age group, race/ethnicity, sex, and education level. We also control for contemporaneous and lagged spending responses to the EIP payments. Estimates are weighted to the national level using FINLWT21. In place of fixed effects for number of adults in the household, we include fixed effects for the total number of individuals in the households.

## 6. Conclusion

The 2021 expansion to the federal Child Tax Credit was a historic change to social policy in the United States. For 6 months in 2021, households with children in the United States received monthly payments akin to child allowances distributed in many other high-income nations (e.g., Canada, Ireland, and the United Kingdom). In this paper, we model how these households might have spent these monthly payments. We exploit the variation in income gains that families received from the monthly payments by number and age of children in the household and by time (interview month). We estimated the effect on household spending overall and across several categories using data from the Consumer Expenditure Interview Survey with data collected between January 2019 and March 2022.

Our results show a strong positive spending response to the imputed monthly payments. We find that the monthly payments increased overall spending and spending in specific areas, mainly on food, housing, and child-related goods and services. Our models stratified by income also suggest that households who are presumed to be more economically disadvantaged spent a larger share of their monthly payments. Under our primary specification, households with before tax incomes below \$50,000 spent \$85 of each \$100 of CTC payment received during the reference quarter while the estimated spending response those with incomes above \$200,000 was \$51 and not statistically significant. Additionally, both non-Hispanic Black and Hispanic households showed a larger spending response than non-Hispanic White households. By analyzing the variation in spending response by race and ethnicity, we hope to provide policy makers with valuable insights into the experience of marginalized communities, a key priority for the current administration.<sup>28</sup>

Two possible critiques of our primary model are that we do not appropriately account for the unprecedented inflation in 2021 or household size. The results of our robustness tests show that when we adjust the model for inflation and account for all individuals in the household, not just adults, the magnitude of the spending response declines, but the general patterns still hold. Specifically, households across demographic groups appear to have a robust spending response with respect to child-related spending.

Our study provides more complete evidence of the effect the 2021 CTC expansion had on spending among households with children. Much of the evidence on the effects of similar transfers is either based on other countries (Gregg et al., 2006; Jones et al., 2019) or of payments to a narrow population receiving lump-sum payments, like those from the Alaska Permanent Dividend (Amorim, 2021) or the EITC (Barrow & McGranahan, 2000; Gao et al., 2009; Goodman-Bacon & McGranahan,

---

<sup>28</sup> At the time of publication, an active Executive Order is in effect regarding equity, which can be found at <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/>.

2008; Halpern-Meeekin et al., 2015). We extend understanding of the spending response to a child allowance-like policy in the United States, though we note that 2021 was also an atypical year due to the pandemic and responses could be different in more typical economic circumstances.

That said, in more precarious circumstances, we find that families increased spending on basic needs that promote family wellbeing (food and housing), as well as on child-related items. The findings fall in line with the family investment model, where increased income from the monthly payments led to investment in goods and services associated with child development and family wellbeing. The results also are in accordance with reports of reduced food insecurity and material hardship in the period when families received the monthly payments, as the increase income increased food spending and then reduced food insufficiency.

It should be noted that our results assume all qualifying households receive a monthly CTC payment. However, for the period the CE asks about receipt of the CTC, 59 percent of households with children under the age of 18 report receipt.<sup>29</sup> By imputing the CTC payment for all qualifying households we are assigning payments to households who may not have reported receipt. These include households who did not receive a monthly CTC payment and did not report receipt (true negatives) as well as households who received a monthly CTC payment but did not report receipt (false negatives).<sup>30</sup> If we restrict our imputation of the CTC payment to only those households who report receipt the spending response for spending related to children is not statistically different from what is reported based on all qualifying households.

Future avenues of research include studying how family spending changed when the payments were rolled back and if these decreases in spending explain, for example, the higher rates of food insufficiency in 2022 relative to 2021 (Zereyesus et al., 2022). Leveraging responses to the CE CTC receipt question to identify the treatment-on-treated effect is also left for future research. Additionally, it would be of interest to compare changes in spending from the monthly CTC payments to the Economic Impact Payments, and to determine if labeling the CTC payments as specifically payments for children led families to allocate a larger portion of them to child-related goods and services.

---

<sup>29</sup> The rate of receipt only increases by 1 percent if we restrict our sample to “qualifying households,” households with at least one child less than 18 years old and incomes low enough that they do not phase out of the CTC.

<sup>30</sup> It is also possible for a household to have reported receiving a CTC payment when no payment was actually received (false positive).

## Reference

- Abdelwahed, L., Robbins, J., Campbell, C., Ohannessian, S., & Czurylo, T. (2022). Measuring Spending Inequality in the United States in Real Time. <https://equitablegrowth.org/measuring-spending-inequality-in-the-united-states-in-real-time/>
- Amorim, M. (2021). Socioeconomic Disparities in Parental Spending after Universal Cash Transfers: The Case of the Alaska Dividend. *Social Forces*, 101(1). <https://doi.org/10.1093/sf/soab119>
- Ananat, E., Glasner, B., Hamilton, C., & Parolin, Z. (2022). *Effects of the Expanded Child Tax Credit on Employment Outcomes: Evidence from Real-World Data from April to December 2021*. National Bureau of Economic Research Working Paper Series, Working Paper No. 29823. <https://doi.org/10.3386/w29823>
- Barrow, L., & McGranahan, L. (2000). The Effects of the Earned Income Credit on the Seasonality of Household Expenditures. *National Tax Journal*, 53(4.2), 1211–1243. <https://doi.org/10.17310/ntj.2000.4S1.08>
- Beatty, T. K. M., & Tuttle, C. J. (2015). Expenditure Response to Increases in In-Kind Transfers: Evidence from the Supplemental Nutrition Assistance Program. *American Journal of Agricultural Economics*, 97(2), 390–404. <https://doi.org/10.1093/ajae/aau097>
- Bullinger, L. R., & Boy, A. (2023). Association of Expanded Child Tax Credit Payments With Child Abuse and Neglect Emergency Department Visits. *JAMA Network Open*, 6(2). <https://doi.org/10.1001/jamanetworkopen.2022.55639>
- Collyer, S., Garner, T., Kaushai, N., Lee, J., Schild, J., Waldfogel, J., & Wimer, C. (2022). Effects of the Expanded Child Tax Credit on Household Expenditures during the Interview Survey Reference Period: Preliminary Evidence from the Consumer Expenditure Survey. BLS Working Paper Series. Working Paper No. 549. <https://www.bls.gov/osmr/research-papers/2022/pdf/ec220040.pdf>
- Collyer, S., Gandhi, J., Garfinkel, I., Ross, S., Waldfogel, J., & Wimer, C. (2022). The Effects of the 2021 Monthly Child Tax Credit on Child and Family Well-Being: Evidence from New York City.

*Socius: Sociological Research for a Dynamic World*, 8.

<https://doi.org/10.1177/23780231221141165>

Collyer, S., Harris, D., & Wimer, C. (2019). Left Behind: The One-Third of Children in Families Who Earn Too Little to Get the Full Child Tax Credit. *Poverty and Social Policy Brief*, 3(6).

<https://www.povertycenter.columbia.edu/s/Who-Is-Left-Behind-in-the-Federal-CTC-CPSP-2019.pdf>

Conger, R. D., & Conger, K. J. (2002). Resilience in Midwestern Families: Selected Findings from the First Decade of a Prospective, Longitudinal Study. *Journal of Marriage and Family*, 64(2), 361–373. <https://doi.org/10.1111/j.1741-3737.2002.00361.x>

Creamer, J., Shrider, E., Burns, K., & Chen, F. (2022). *Poverty in the United States: 2021*. U.S. Census Bureau. Report No. P60-277. <https://www.census.gov/library/publications/2022/demo/p60-277.html>

Curran, M. (2022). *Research Roundup of the Expanded Child Tax Credit: One Year On*. Center on Poverty and Social Policy at Columbia University.

<https://static1.squarespace.com/static/610831a16c95260dbd68934a/t/63732dd8efcf0e5c76aea26e/1668492763484/Child-Tax-Credit-Research-Roundup-One-Year-On-CPSP-2022.pdf>

Curran, M., & Collyer, S. (2020). Children Left Behind in Larger Families: The Uneven Receipt of the Federal Child Tax Credit by Children's Family Size. *Poverty and Social Policy Brief*.

<https://www.povertycenter.columbia.edu/s/Child-Tax-Credit-Larger-Families-CPSP-2020-8rsg.pdf>

Currie, J., & Gruber, J. (1996). Saving Babies: The Efficacy and Cost of Recent Changes in the Medicaid Eligibility of Pregnant Women. *Journal of Political Economy*, 104(6), 1263–1296.

<https://doi.org/10.1086/262059>

Duncan, G. J., Morris, P. A., & Rodrigues, C. (2011). Does Money Really Matter? Estimating Impacts of Family Income on Young Children's Achievement With Data From Random-Assignment Experiments. *Developmental Psychology*, 47(5), 1263–1279. <https://doi.org/10.1037/a0023875>

- Gao, Q., Kaushal, N., & Waldfogel, J. (2009). How Have Expansions in the Earned Income Tax Credit Affected Family Expenditures? *Welfare Reform and Its Long-Term Consequences for America's Poor*, 104–139. <https://doi.org/10.1017/CBO9780511605383.005>
- Goodman-Bacon, A., & McGranahan, L. (2008). How do EITC recipients spend their refunds? *Economic Perspectives*, 32(2). Gale General OneFile.
- Gregg, P., Waldfogel, J., & Washbrook, E. (2006). Family expenditures post-welfare reform in the UK: Are low-income families starting to catch up? *Labour Economics*, 13(6), 721–746. <https://doi.org/10.1016/j.labeco.2005.10.002>
- Halpern-Meehin, S., Edin, K., Tach, L., & Sykes, J. (2015). *It's not like I'm poor: How working families make ends meet in a post-welfare world*. University of California Press.
- Hamilton, L., Roll, S., Despard, M., Maag, E., Chun, Y., Brugger, L., & Grinstein-Weiss, M. (2022). The impacts of the 2021 expanded child tax credit on family employment, nutrition, and financial well-being: Findings from the Social Policy Institute's Child Tax Credit Panel (Wave 2). Global Economy and Development at Brookings. Working Paper No. 173. [https://www.brookings.edu/wp-content/uploads/2022/04/Child-Tax-Credit-Report-Final\\_Updated.pdf](https://www.brookings.edu/wp-content/uploads/2022/04/Child-Tax-Credit-Report-Final_Updated.pdf)
- Hastings, J., & Shapiro, J. M. (2018). How Are SNAP Benefits Spent? Evidence from a Retail Panel. *American Economic Review*, 108(12), 3493–3540. <https://doi.org/10.1257/aer.20170866>
- Hoynes, H. W., & Patel, A. J. (2018). Effective Policy for Reducing Poverty and Inequality? The Earned Income Tax Credit and the Distribution of Income. *Journal of Human Resources*, 53(4), 859–890. <https://doi.org/10.3368/jhr.53.4.1115.7494R1>
- Jackson, M. I., & Schneider, D. (2022). Public Investments and Class Gaps in Parents' Developmental Expenditures. *American Sociological Review*, 87(1), 105–142. <https://doi.org/10.1177/00031224211069975>
- Johnson, D. S., Parker, J. A., & Souleles, N. S. (2006). Household Expenditure and the Income Tax Rebates of 2001. *The American Economic Review*, 96(5), 1589–1610.



- Jones, L. E., Milligan, K., Jones, L. E., Milligan, K., & Stabile, M. (2019). Child cash benefits and family expenditures: Evidence from the National Child Benefit. *Canadian Journal of Economics*.
- Karpman, M., Maag, E., Kenney, G. M., & Wissoker, D. A. (2021). *Who Has Received Advance Child Tax Credit Payments, and How Were the Payments Used?* Urban Institute.  
<https://www.urban.org/sites/default/files/publication/105023/who-has-received-advance-ctc-payments-and-how-were-the-payments-used.pdf>
- Kaushal, N., Magnuson, K., & Waldfogel, J. (2011). *How is family income related to investments in children's learning?* (G. J. Duncan & R. Murnane, Eds.; pp. 187–206). Russell Sage Foundation.  
<https://www.russellsage.org/>
- Kornrich, S., & Furstenberg, F. (2013). Investing in Children: Changes in Parental Spending on Children, 1972–2007. *Demography*, 50(1), 1–23. <https://doi.org/10.1007/s13524-012-0146-4>
- Marr, C., Cox, K., & Sherman, A. (2021). *Build Back Better's Child Tax Credit Changes Would Protect Millions From Poverty—Permanently*. Center on Budget and Policy Priorities.  
<https://www.cbpp.org/research/federal-tax/build-back-betters-child-tax-credit-changes-would-protect-millions-from>
- McGranahan, L., & Schanzenbach, D. W. (2013). *The Earned Income Tax Credit and Food Consumption Patterns*. SSRN Scholarly Paper No. 2366846. <https://doi.org/10.2139/ssrn.2366846>
- Micheltore, K., & Pilkauskas, N. (2021). Tots and Teens: How Does Child's Age Influence Maternal Labor Supply and Child Care Response to the Earned Income Tax Credit? *Journal of Labor Economics*, 39(4), 895–929. <https://doi.org/10.1086/711383>
- Najjarrezaparast, P., & Pendakur, K. (2021). How Did the Canada Child Benefit Affect Household Spending? *Canadian Public Policy*, 47(4), 479–496. <https://doi.org/10.3138/cpp.2020-137>
- OECD (2013), *OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth*, OECD Publishing, Paris. <https://doi.org/10.1787/9789264194830-en>
- Parolin, Z., Ananat, E., Collyer, S., Curran, M., & Wimer, C. (2021). *The Initial Effects of the Expanded Child Tax Credit on Material Hardship*. National Bureau of Economic Research Working Paper

- Series, Working Paper No. 29285.  
[https://www.nber.org/system/files/working\\_papers/w29285/w29285.pdf](https://www.nber.org/system/files/working_papers/w29285/w29285.pdf)
- Parolin, Z., Collyer, S., Curran, M. A., & Wimer, C. (2021). *Monthly Poverty Rates among Children after the Expansion of the Child Tax Credit*. Center on Poverty and Social Policy, Columbia University, Poverty and Social Policy Brief 20412.
- Perez-Lopez, D. J. (2021). *Household Pulse Survey Collected Responses Just Before and Just After the Arrival of the First CTC Checks*. U.S. Census Bureau.  
<https://www.census.gov/library/stories/2021/08/economic-hardship-declined-in-households-with-children-as-child-tax-credit-payments-arrived.html>
- Perez-Lopez, D., & Mayol-García, Y. (2021). *Nearly a third of parents spent Child Tax Credit on school expenses, parents with young children used Child Tax Credit payments for childcare*. U.S. Census Bureau. <https://www.census.gov/library/stories/2021/10/nearly-a-third-of-parents-spent-child-tax-credit-on-school-expenses.html>
- Pilkaskas, N., & Cooney, P. (2021). *Receipt and Usage of Child Tax Credit Payments among Low-Income Families: What We Know*. Poverty Solutions.  
<https://poverty.umich.edu/publications/receipt-and-usage-of-child-tax-credit-payments-among-low-income-families-what-we-know/>
- Pilkaskas, N., Michelmore, K., Kovski, N., & Shaefer, H. L. (2022). *The Effects of Income on the Economic Wellbeing of Families with Low Incomes: Evidence from the 2021 Expanded Child Tax Credit*. National Bureau of Economic Research Working Paper Series, Working Paper No. W30533. <https://doi.org/10.3386/w30533>
- Rachidi, A. (2021). *New Survey Data Raises Questions About the Expanded Child Tax Credit*. American Enterprise Institute. <https://www.aei.org/poverty-studies/new-survey-data-raises-questions-about-the-expanded-child-tax-credit/>
- RAPID-EC. (2021). *The Child Tax Credit is Buffering Families from Financial Hardship*.  
<https://rapidsurveyproject.com/our-research/child-tax-credit-is-buffering-families-from-hardship>

- Roll, S., Chun, Y., Brugger, L., & Hamilton, L. (2021). *How are Mississippi families using their Child Tax Credit payments? Evidence from Census Data*. Social Policy Institute. <https://cpb-us-w2.wpmucdn.com/sites.wustl.edu/dist/a/2003/files/2021/09/CTC-One-pager-MS.pdf>
- Roll, S., Hamilton, L., & Chun, Y. (2021). *Expanded Child Tax Credit Payments Have Not Reduced Employment*. Social Policy Institute. [https://openscholarship.wustl.edu/cgi/viewcontent.cgi?article=1057&context=spi\\_research](https://openscholarship.wustl.edu/cgi/viewcontent.cgi?article=1057&context=spi_research)
- Schneider, D., Hastings, O. P., & LaBriola, J. (2018). Income Inequality and Class Divides in Parental Investments. *American Sociological Review*, 83(3), 475-507. <https://doi.org/10.1177/0003122418772034>
- Smith, T. A., Berning, J. P., Yang, X., Colson, G., & Dorfman, J. H. (2016). The Effects of Benefit Timing and Income Fungibility on Food Purchasing Decisions among Supplemental Nutrition Assistance Program Households. *American Journal of Agricultural Economics*, 98(2), 564–580. <https://doi.org/10.1093/ajae/aav072>
- Souleles, N. S. (1999). The Response of Household Consumption to Income Tax Refunds. *American Economic Review*, 89(4), 947–958. <https://doi.org/10.1257/aer.89.4.947>
- United States Department of Treasury. (2021). *Treasury and IRS Announce Families of Nearly 60 Million Children Receive \$15 Billion in First Payments of Expanded and Newly Advanceable Child Tax Credit*. <https://home.treasury.gov/news/press-releases/Treasury-and-IRS-Announce-Families-of-Nearly-60-Million-Children-Receive-%2415-Billion-Dollars-in-First-Payments-of-Expanded-and-Newly-Advanceable-Child-Tax-Credit>
- U.S. Bureau of Labor Statistics. (2015, February). *Consumer Expenditure Surveys: Glossary*. <https://www.bls.gov/cex/csxgloss.htm#:~:text=Consumer%20unit%20%2D%20A%20consumer%20unit,in%20permanent%20living%20quarters%20in>
- Wheat, C., Deadman, E., & Sullivan, D. (2022). *How families used the advanced Child Tax Credit*. JPMorgan Chase Institute. <https://www.jpmorganchase.com/institute/research/household-income-spending/how-families-used-advanced-CTC>

Wimer, C., & Wolf, S. (2020). Family Income and Young Children's Development. *The Future of Children*, 30(2). [www.futureofchildren.org](http://www.futureofchildren.org)

Yeung, W. J., Linver, M. R., & Brooks-Gunn, J. (2002). How Money Matters for Young Children's Development: Parental Investment and Family Processes. *Child Development*, 73(6), 1861–1879. <https://doi.org/10.1111/1467-8624.t01-1-00511>

Zippel, C. (2021). *9 in 10 Families With Low Incomes Are Using Child Tax Credits to Pay for Necessities, Education*. Center on Budget and Policy Priorities. <https://www.cbpp.org/blog/9-in-10-families-with-low-incomes-are-using-child-tax-credits-to-pay-for-necessities-education>

## Appendix A. Spending Category Definitions and CE Interview Questions

**Appendix Table A1: Major Expenditure Categories**

Category	Description
Housing and utility	Shelter cost; utility cost; household operations; house furnishings and equipment
Food	Food at home and away from home (including meals as, and not as, pay)
Alcohol and tobacco	Alcoholic beverages and tobacco and smoking supplies
Clothing	Clothing and footwear for men, women, boys, and girls, and other apparel products and services
Transportation	Cars and trucks, other vehicles, gasoline and motor oil, maintenance and repairs, vehicle insurance, rental, leases, licenses, and public transportations
Health	Health insurance, medical services, prescription drugs, and medical supplies
Leisure	Fees and admissions to entertainment activities, televisions, radios, and sound equipment, pets, toys, and playground equipment, and other entertainment
Personal care	Wigs, hairpieces, or toupees, electric personal care appliances, and personal care services for males and females, including haircuts
Education and reading	Tuition, schoolbooks, supplies, and equipment for college, elementary and high school, day care center, and other schools, and other school-related expenses; newspapers and magazines and books
Miscellaneous	Miscellaneous expenditures including funeral, cash contributions, insurance and pension
Total Expenditure	Total of above

**Appendix Table 2: Child-related Expenditure Categories**

Category	Description
Children's clothes	Infant and children clothing and footwear
Books and toys	Books and toys including infant furniture and equipment
Computers and tablets	Computers, tablets, digital book readers, and other related software and accessories including CD
School items	School related items including tuition, schoolbooks, supplies, and school lunch
Sports items	Sports item including athletic gear, bicycles, and camping items
Childcare	Babysitting and childcare and day care
Enrichment activities	Enrichment activities and outings including trips club membership tickets to events fees for lessons musical instruments
Total Child Expenditure	Total of above

### *Child Tax Credit Receipt*

In response to the passage of the ARP, the BLS included a module of questions in the Consumer Expenditure Interview Survey asking about the CTC starting with the October 2021 interviews. BLS did not include questions about the expanded CTC in the Diary Survey. The BLS developed CTC questions based on the questions used in earlier modules that were designed to ask about Economic Impact Payments, except no question about the amount of CTC received was included. The CTC questions asked are presented below and focus on receipt and general use:

**CHDTXP.** The Federal government’s 2021 American Rescue Plan included an advanced payment of the Child Tax Credit. Since the first of the (reference month), have (you/you or any members of your household) received a MONTHLY Child Tax Credit payment from the Federal government?

- Yes (go to CHDTXPTH)
- No (go to S20B\_END)

**CHDTXPTH.** How did or will (you/you or any members of your household) use the Child Tax Credit payment?

- Mostly spend it (go to S20B\_END)
- Mostly save it (go to S20B\_END)
- Mostly use it to pay off debt (go to S20B\_END)

Appendix Table A3 shows responses to the two CTC questions for three different cross-sections: by interview month, by income, and by race and ethnicity. The frequencies are derived from the CE fielded from August 2021 through March 2022. The sample for the column reporting the rate of receipt is restricted to only households with at least one child under the age of 18 years old and who does not have a missing value for CHDTXP. The sample for the columns reporting the rates of use is restricted to households who reported receiving an advanced CTC payment ( $CHDTXP = 1$ ) and who does not have a missing value of CHDTXPH.

Panel A of Table 3A shows the rate of reported receipt and reported use by interview month. The first row of Panel A shows the overall rate of receipt, 59 percent. Rates for August and September are missing because the CTC questions were not included until October 2021 interviews. The rate of receipt in October was 63 percent and grew to 66 percent in January. Reported receipt fell to 58 percent in January and then to 38 percent in March. The overall rate of receipt in the CE is lower than the 79 percent Hamilton et al. (2022) report; however, this receipt rate was restricted to eligible households, rather than all households with children. Data from the Census Bureau Household Pulse Survey (HPS) show about 57 percent of households with children report receiving an advanced CTC payment (Karpman et al., 2021).

Most households that reported receipt reported mostly spending the advanced CTC payment (54 percent) with the remaining households about evenly split between “mostly save” (24 percent) and “mostly use it to pay off debt” (22 percent). The distribution of reported use appears to hold fairly steady across the interview months until the last few interview months. In February, there is a slight increase in the reported rate of using the CTC for spending that is intensified in March. The increase in spending comes from a decrease in both savings and using the CTC to pay off debt, but the rate of savings saw a

bigger decline. These results are in line with what other studies have found (Hamilton et al., 2022; Karpman et al. 2021; Pilkauskas and Cooney, 2021).

Panels B show the rates of reported receipt and use by income. Households with income between \$50,000 and \$100,000 were slightly more likely to report receipt than households with income below \$50,000. Households with income above \$200,000 were the least likely to report receipt, which is in line with the phaseout rules for the CTC. Reported rates of using the CTC payment for spending were higher for households with lower income. 62 percent of households with incomes under \$50,000 report mostly spending the CTC and only 12 percent reported mostly saving it. In contrast, 56 percent of households with incomes between \$50,000 and \$100,000 report mostly spending the CTC and the rate of mostly saving it increases to 20 percent. The discrepancy in report usage is even more stark when looking at households with income above \$200,000. Only 40 percent report mostly spending the CTC and 47 percent report mostly saving it.

Finally, Panel C shows the rates of receipt and use by race and ethnicity. Non-Hispanic, White households were the most likely to report receiving a CTC payment (61 percent), but this is only slightly more likely than the rate of receipt reported by Hispanic households (60 percent). Non-Hispanic, Black households were the least likely to report receiving a CTC payment, with only 55 percent of these households reporting receipt. Non-Hispanic, Asian and Non-Hispanic, White households were the least likely to report mostly spending the CTC payment, 49 percent and 53 percent respectively. Non-Hispanic, Other and Hispanic households were the most likely to report mostly spending the CTC, 60 percent and 56 percent respectively. Non-Hispanic, Black households were the most likely to report using the CTC payment to pay off debt, 27 percent.

**Appendix Table A3: Rates of reported receipt and use of the advanced CTC payment**

A. Reported receipt and use by interview month				
	Reported receipt	Use		
		Mostly spend it	Mostly save it	Mostly use it to pay off debt
Overall	59.15%	53.66%	23.89%	22.44%
August '21	-	-	-	-
September '21	-	-	-	-
October '21	63.16%	51.75%	26.35%	21.90%
November '21	62.77%	53.74%	25.27%	20.99%
December '21	65.57%	53.34%	23.05%	23.61%
January '22	66.09%	51.60%	24.60%	23.80%
February '22	57.76%	54.38%	23.16%	22.46%
March '22	38.17%	60.62%	18.44%	20.94%

B. Reported receipt and use by income				
	Reported receipt	Use		
		Mostly spend it	Mostly save it	Mostly use it to pay off debt
Overall	59.15%	53.66%	23.89%	22.44%
Under \$50,000	57.79%	62.20%	11.74%	26.06%
\$50,000 - \$100,000	62.72%	55.92%	20.15%	23.93%
\$100,000 - \$200,000	61.87%	47.91%	31.39%	20.71%
\$200,000 +	47.51%	40.33%	46.63%	13.04%

C. Reported receipt and use by race of reference person				
	Reported receipt	Use		
		Mostly spend it	Mostly save it	Mostly use it to pay off debt
Overall	59.15%	53.66%	23.89%	22.44%
Asian	49.86%	49.26%	36.91%	13.83%
Black	54.52%	55.00%	17.68%	27.32%
Hispanic	60.12%	56.01%	18.62%	25.37%
Other	57.42%	59.87%	20.16%	19.97%
White	61.02%	52.65%	26.20%	21.16%

Note: Results derived from the CE fielded from August 2021 to March 2022. Estimates are weighted to the national level using FINLWT21. Values for August and September are not reported because the questions were not asked during these interview months. The sample used for the "Reported receipt" column is limited to households with children under the age of 18 years old and whose value was not missing. About 4 percent of the sample across all interview months have a missing value for receipt, not including August or September. The sample used for the "Use" columns is limited to households who reported receiving the CTC (CHDTXP = 1) and whose value was not missing. About 1 percent of the sample across all interview months have a missing value for reported use, not including August or September.



## **Appendix B. Descriptive results**

Our descriptive findings show that spending among households with children was higher in the period when they could have received the monthly CTC payments compared to prior periods. Table B4 shows the average three-month expenditures for consumer units with children under age 18 across our expenditure categories of focus. We present results for 2021 and 2019, and we disaggregate average expenditures within each year into two periods. ‘2021’ is defined as interviews conducted in January 2021 through March 2022, and ‘2019’ is defined as interviews conducted in January 2019 through March 2020. Period 1 includes data from CE interviews conducted before August and period 2 includes data from interviews conducted in August or later. In 2021, period 2 is period during which families could receive their monthly CTC payments. Data from 2019 serves as a helpful reference for what might have happened between these periods in the absence of the CTC payments. Overall, the results show increases in spending among consumer units with children in 2021 between period 1 and 2 across all expenditure categories, and our “naïve diff-in-diff (final column of Table B4), shows that most of these increases were larger than what was observed in 2019. These results show a difference in spending between these two periods in 2021 that differs from 2019 patterns. However, they do not control for several other factors that could affect spending, which we deal address by estimating effects with our main model, and in our sensitivity analysis (i.e., the role of inflation).

**Appendix Table B4:** Change in spending between pre and post for families with children (naïve first difference)

	2019			2021			Naïve diff-in- diff
	Period 1 Jan '19 to Jul '19 Interviews	Period 2 Aug '19 to Mar '20 Interviews	Diff	Period 1 Jan '21 to July '21 Interviews	Period 2 Aug '21 to Mar '22 Interviews	Diff	
<b>Major categories</b>							
Total outlays	\$15,182	\$15,195	\$194	\$16,332	\$17,638	\$1,306	\$1,112
Food	\$2,752	\$2,764	\$22	\$3,046	\$3,332	\$286	\$264
<i>Food at home</i>	\$1,912	\$1,906	-\$2	\$2,220	\$2,306	\$86	\$88
Housing	\$6,546	\$6,440	-\$102	\$7,001	\$7,414	\$413	\$516
Alcohol & tobacco	\$189	\$210	\$22	\$205	\$238	\$34	\$12
Clothing	\$350	\$394	\$40	\$474	\$658	\$183	\$143
Transportation	\$2,807	\$2,806	\$16	\$2,828	\$3,052	\$224	\$208
Health	\$1,208	\$1,203	\$0	\$1,290	\$1,320	\$30	\$30
Leisure	\$757	\$754	-\$5	\$882	\$970	\$88	\$93
Personal care	\$108	\$104	-\$4	\$109	\$122	\$13	\$17
Education	\$307	\$403	\$127	\$344	\$379	\$35	-\$92
Misc.	\$159	\$117	-\$51	\$153	\$154	\$0	\$52
<b>Child-rel. spending</b>							
Total child spending	\$1,126	\$1,195	\$50	\$1,188	\$1,361	\$174	\$124
Children's clothes	\$166	\$199	\$30	\$212	\$287	\$75	\$45
Books and toys	\$66	\$67	\$0	\$87	\$95	\$8	\$8
Computers and tablets	\$184	\$194	-\$1	\$199	\$205	\$6	\$8
School items	\$64	\$65	\$13	\$91	\$105	\$14	\$1
Sports items	\$51	\$53	\$2	\$96	\$92	-\$5	-\$7
Childcare	\$327	\$348	\$11	\$255	\$286	\$31	\$20
Enrichment	\$268	\$269	-\$2	\$248	\$291	\$43	\$45
N	3,583	3,860		3,339	3,574		

Note: Average spending amounts derived from the CE fielded from January 2019 to March 2020 and from January 2021 to March 2022. Sample limited to households with children who would qualify for a monthly CTC payment (i.e., imputed CTC > 0), regardless of interview month, and weighted using FINLWT21.