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REALIZED ECONOMIC EFFECTS OF THE FULLY REFUNDABLE CHILD TAX CREDIT

The Short-Term Labor Supply Response to the Expanded Child Tax Credit†

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A general feature of tax and transfer programs is some trade-off between the value of redistribution, the fiscal costs of these transfers, and potential economic distortions. These inputs, along with subjective decisions regarding the relative weights placed on the well-being of different people or groups, and normative preferences over intermediate outcomes (such as labor supply) and/or the form of transfers (for example, in-kind or cash), are required to carry out policy evaluations. In this study, we estimate the short-term labor supply response to cash transfers for low- and middle-income households, in the form of a fully refundable child tax credit (CTC).

The 1990s featured a marked shift from so-called "traditional" welfare programs—such as Aid to Families with Dependent Children, which featured cash transfers as a part of the safety net and potential work disincentives—to cash transfers that required recipients to work and have positive earnings, such as the earned income tax credit and the CTC. The contrast between these approaches is related to debates about two features of a nonlinear tax and transfer system: the amount of transfers given to households with zero income (e.g., a guaranteed income) and whether there should be negative marginal tax rates—also known as wage subsidies, or "phase-ins"—along some portion of the tax schedule (see Saez 2002 and Rothstein 2010, for example).

Federal policy in 2021 offered an opportunity to study these alternative models, as the American Rescue Plan (ARP) temporarily moved the CTC from a policy with a work requirement and phase-in to a fully refundable design, extending eligibility to families with no earnings. We compare labor market outcomes—labor force participation and hours worked—for families who qualified for smaller and larger CTC transfers, before and after the credit was paid out. Using a difference-in-difference (DD) and triple-difference approach, we do not detect significant labor supply differences in response to variation in the size of the CTC. When framed as an increase in cash on hand, our confidence intervals rule out a labor force participation rate (LFPR) decline of 0.3 percentage points in response to a 10 percentile increase in CTC relative to income, and when cast as a change in the return to entering employment, we rule out an extensive labor supply elasticity of 0.005.

I. Background

Originally established in 1997, the CTC reduced tax liability by $500 per child for families with children under 17 years of age. The tax credit was nonrefundable at its inception—meaning filers had to have federal income tax liability to claim it—but a portion became refundable after the Economic Growth and Tax Relief Reconciliation Act of 2001. Families could receive a credit for initially 10 percent, and later 15 percent, of earnings above a minimum threshold. In 2019, total spending on the CTC was $118 billion, comparable to the total federal amount spent on children within Medicaid and the Child Health Insurance Program combined (Hahn, Lou, and Isaacs 2020).

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The last major, prepandemic change to the CTC occured with the Tax Cuts and Jobs Act of 2018 (TCJA). The TCJA doubled the maximum credit to $2,000 per child and lowered the minimum earnings threshold to $2,500. Lower-income households with no tax liability, however, could receive at most $1,400 per child. The CTC under TCJA law phased out for single-parent households at an income of $200,000 (which the TCJA raised from $75,000) and for married households at $400,000 (raised from $110,000). As a result, nearly one-third of children lived in households that did not receive the CTC, with the share among Black and Latino children at one-half and virtually no children in the bottom decile of incomes qualifying for the credit (Goldin and Michelmore 2020).

In 2021, the CTC was temporarily redesigned as part of the ARP. The ARP CTC allowed for full refundability of the credit, even for families with zero earnings. In addition, the maximum benefit per child increased to $3,000 for children between the ages of 6 and 17 and to $3,600 for children ages 0 to 5, for single filers earning below $75,000 and married filers earning below $150,000. Above those thresholds, the CTC phased back down to the TCJA's $2,000 level, which then phased out again per pre-2021 law at $200,000 for single filers and $400,000 for married filers. In addition, advance monthly payments were made to families beginning in July of 2021, with the remainder applied to one's tax balance or refund during early 2022. These new ARP parameters were put in place for only one year, although there was discussion of potentially instituting them more permanently. This version of the CTC was more akin to so-called child allowance policies of Australia, Ireland, or Canada.

In a standard model of labor supply, the effect of this policy change on the annual budget generates two forces. First, the policy removes the phase-in of the credit, which had previously created an incentive to work through substitution effects, all things equal. In other words, a negative marginal tax rate, or wage subsidy, was replaced with a more neutral implicit marginal tax rate of zero for low-income households. In addition, the increase in the level of the credit generates an income effect, reducing labor supply when leisure is a normal good. A secondary impact of the policy was to increase effective marginal tax rates over the range where the credit was phased back down from $3,000 or $3,600 to $2,000.

Because the CTC is applied to annual earnings or income, the preceding incentives operate at the level of the annual budget set. In that case, the timing of the payment of the advance monthly CTC within the year under the ARP regime is immaterial. However, for households that are credit constrained, the more immediate impact of the CTC may have operated through its effect on monthly income, as the advance began to be paid out in July. At that frequency, the policy would generally produce an income effect by increasing liquidity for cash-constrained households. We may therefore expect to observe a labor supply response following the initial advance payments in July. In either case, the standard model predicts some reduction in labor supply in response to these changes. However, if there are some fixed costs to working, such as childcare costs, there is a possibility that the transfer could facilitate work for parents with very young children (Looney and Manoli 2016).

Prior studies have estimated the impact of the 2021 extension to the CTC on labor supply. Our study is closest to that of Ananat et al. (2021, 2022), who also used monthly CPS data in one of their specifications to look at labor supply before and after the onset of advance payments. Our findings generally replicate theirs of no significant labor supply response. We extend the analysis by further looking at whether there are labor supply changes when the policy expires at the end of 2021, and by using data from 2019 to conduct additional placebo analysis and to flexibly control for group-specific seasonal trends. A number of other studies, using different sources of data, some administrative and some survey based, similarly fail to find significant labor supply responses (Roll, Hamilton, and Chun 2021; Lourie et al. 2022; Karpman et al. 2022; Pilkauskas et al. 2022). However, Han, Meyer, and Sullivan (2022) find slower employment growth among families with lower levels of education and children, relative to similar families without children during the period when CTC payments were made.

A related set of studies asks more generally how a permanent and fully refundable CTC would effect employment. A report by a National Academies of Science, Engineering, and Medicine panel estimated a reduction of 150,000 jobs but only considered the income

effects of the CTC. Studies that also consider the substitution effects of the policy change predict larger employment reductions, ranging from 296,000 (Brill, Pomerleau, and Seiter 2021) to 386,000 (Goldin, Maag, and Michelmore 2022) jobs, to between 358,000 and 411,000 (Bastian 2022), to 1.5 million (Corinth et al. 2022). In contrast to these studies, we focus on the response to a temporary CTC change, which is likely to entail a smaller behavioral response. These studies also rely on simulations, which require the authors to select a labor supply elasticity, while our estimates use realized outcomes and allow us to remain agnostic regarding that choice.

II. Data and Methods

Our analysis primarily draws on the basic monthly Current Population Survey (CPS), a monthly survey of about 60,000 US households with detail on demographics and labor market outcomes. While the monthly CPS includes measures of wages for a subset of respondents, it only contains one measure of total income (HEFAMINC). This family income variable is coded as a categorical variable rather than a continuous one, with family income over the prior 12 months classified among 16 ranges. CPS questionnaires show that the concept of income for this variable is in principle census money income—that is, CPS interviewers are instructed to exclude tax credits (such as the CTC) and tax liabilities as well as noncash transfers when asking about family income.

To allow for a continuous measurement of income, we impute a continuous measure of family income with the aid of the CPS Annual Social and Economic Supplement (ASEC). The CPS ASEC is a once-a-year supplement, conducted for most respondents in March, which asks about prior year components of income. We classify both our basic monthly and ASEC CPS samples into demographic cells by marriage status (two categories), number of children (four categories), and elderly status (two categories). We then randomly draw, on a weighted basis, continuous values of family income from the CPS ASEC conditional on an individual's discrete family income category and demographic categories in the basic monthly CPS (see Han, Meyer, and Sullivan 2022, for example). We also draw the value of adjusted gross income (AGI) and total earnings from the same CPS ASEC record that provides family income. For basic monthly CPS samples in calendar years up to and including 2021, we draw from the CPS ASEC sample corresponding to the same reference year. For example, the 2022 CPS ASEC refers to outcomes in calendar year 2021. For 2022 monthly data, we repeat our use of the 2022 CPS ASEC, as the 2023 ASEC is not yet available.

We impute CTC eligibility using the drawn continuous values of AGI, the reported number of own children in the monthly CPS, and the relevant tax parameters of the CTC. We do not adjust the CTC level for incomplete take-up. Once we have calculated a CTC-to-income ratio for each household, we order households in their percentile of this ratio, which serves as our main regressor.

The outcomes of interest are (i) labor force participation, using the official labor force definition of being employed, actively seeking a job, or being on temporary layoff/furlough, and (ii) actual hours worked unconditional on employment (nonemployed individuals and absent workers are coded as zero hours worked), which provide a continuous measure of labor utilization.

We estimate DD specifications using data from before and after the payment of the advance CTC in July 2021:

$$(1)\quad y_{it} = \alpha + \beta_0 \hat{CTC}_i + \beta_1 H2_t + \beta_{DD} \hat{CTC}_i \times H2_t + \beta_X X_i + \varepsilon_{it},$$

where β_{DD} is the coefficient of interest, $H2_t$ is an indicator for post-July observations, and $\hat{CTC}_i$ is the percentile rank of the household's CTC-to-income ratio. One potential confound is that households who qualify for different levels of CTC may have different trends in outcomes from the first half to the second half of the year, violating the parallel trends assumption. We therefore include data from 2019 and estimate a triple-difference regression as follows:

$$\begin{aligned}(2)\quad y_{it} = {} & \alpha_0 + \beta_0 \hat{CTC}_i + \beta_1 H2_t \\ & + \beta_3 \hat{CTC}_i \times H2_t + \mathbf{1}\{t \in 2021\} \\ & \times \left(\alpha_1 + \beta_4 \hat{CTC}_i + \beta_5 H2_t \right. \\ & \left. \quad + \beta_{DDD} \hat{CTC}_i \times H2_t\right) \\ & + \beta_X X_i + \varepsilon_{it},\end{aligned}$$

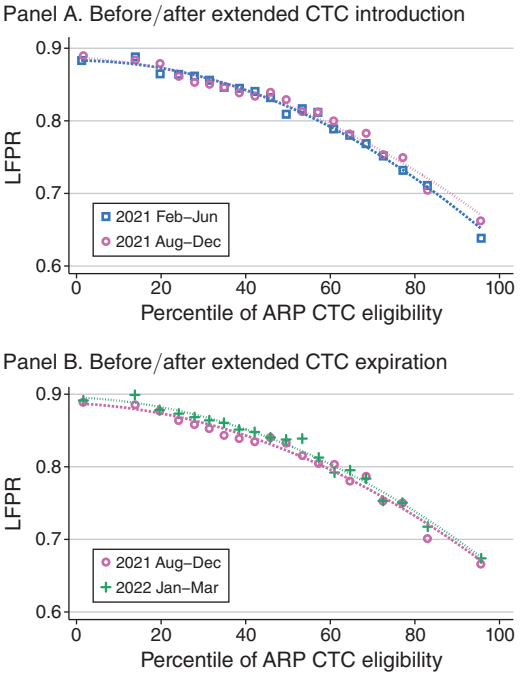

FIGURE 1. RELATIONSHIP BETWEEN ARP CHILD TAX CREDIT ELIGIBILITY AND LABOR FORCE PARTICIPATION

Notes: This figure shows the relationship between ARP CTC eligibility and labor force participation. Panel A shows the relationship before (February–June 2021) versus after (August–December 2021) the introduction of the ARP CTC benefit. Panel B shows the relationship before (August–December 2021) versus after (January–March 2022) the expiration of the ARP CTC benefit.

where β_{DDD} is the coefficient of interest and allows us to address differential seasonal trends for those with smaller and larger CTC benefits. Finally, we reestimate these models using data from before and after the end of 2021 to capture the impact of the expiration of the temporary extension to the CTC.

III. Results

Figure 1 displays a binscatter of labor force participation on our main regressor of interest, percentiles of CTC-to-income ratios. Panel A displays this for five months pre-CTC extension (February–June 2021) and five months post-CTC extension (August 2021–December 2021). This figure shows that labor force participation is nearly identical pre- and post-CTC extension across the distribution of ARP CTC eligibility.

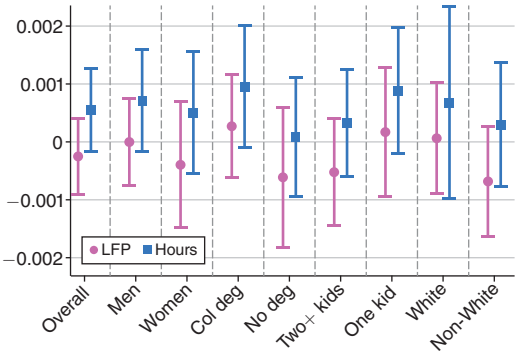

FIGURE 2. EFFECT OF ARP CHILD TAX CREDIT EXTENSION ON LABOR FORCE PARTICIPATION AND TOTAL HOURS WORKED

Notes: This figure shows the effect of the ARP CTC eligibility percentile on labor force participation and hours. The dependent variable is scaled by its standard deviation. Specification is detailed in the text. Standard errors are clustered by region and household size.

The figure suggests that the CTC did not reduce labor force participation.[1]

The aforementioned conclusion is echoed in Figure 1, panel B, which displays the binscatter for the five months of extended CTC in 2021 and three months postexpiration (January–March 2022). Again, this figure shows that labor force participation is nearly identical pre- and post-CTC extension across the distribution, suggesting that the extended CTC did not reduce labor force participation.[2]

Figure 2 reports results from our triple-difference specification (equation (2)) for labor force participation and for total hours worked, broken out by demographic subgroups. The effect sizes are scaled by the standard deviation of the outcome variable for comparability. Across demographic groups, we fail to find

[1] In addition, we imprecisely estimate a positive effect on employment and a negative effect on unemployment—again failing to detect a reduction in labor supply.

[2] One caveat to this analysis: the Bureau of Labor Statistics modified the CPS survey weights, beginning with the January 2022 CPS, based on the results of the 2020 decennial census. This population control resulted in a slight increase in employment and LFPRs for some cohorts. To the extent that this affects our analysis, it will shift down the CTC eligibility–LFPR gradient in the postextension period. Given our null finding, under the assumption that mismeasurement is greatest for lower-income households, this would imply that the CTC caused increased labor force participation—which again runs opposite to the hypothesis that the CTC disincentivized work.

an effect of the extended CTC on labor force participation.

For total hours worked, we likewise fail to find a significant impact on labor supply, although the point estimates tend to be more positive than those derived from labor force participation. Again, this pattern holds across different demographic subgroups.

IV. Conclusion

The ARP of 2021 extended the CTC by increasing the maximum benefit per child to $3,000–3,600 for the July 2021–December 2021 period and removing the work requirement to receive this money. This temporary policy provided a unique opportunity to study the effect of unconditional cash benefits on labor force participation. We fail to find effects of the expanded benefits on labor force participation and total hours worked.

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