

For How Long Does Higher Cash Assistance Eligibility Reduce Financial Hardship? Evidence from the Household Pulse Survey

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Abstract

This paper investigates the temporal heterogeneity in the effect of higher cash assistance eligibility on financial hardship, a measure that captures respondents' perceived difficulty in paying for usual household expenses. I utilize multiple quasi-experimental contexts created by the differential generosity in cash assistance provided through the tax system between 2021 and 2022 for households with and without children. I use data from the United States Census Bureau's Household Pulse Survey, which has regularly gathered data on self-reported financial hardship since August 2020. For identification, I employ an event study design. Results suggest that the longevity of the effect ranges from a couple of weeks to several months, depending on the generosity and frequency of payments. Findings also suggest that the effect of smaller monthly payments on financial hardship is identical to larger yearly lump-sum payments. In addition, the magnitude of the effect appears to be higher among single-mother households.

Keywords: Financial Hardship, Household Pulse Survey, Earned Income Tax Credit, Child Tax Credit, Economic Impact Payment, Child and Dependent Care Tax Credit.

1. Introduction

Lower-income households in the U.S., especially those with children, often experience financial hardship – a condition characterized by difficulty paying for usual household expenses such as food and housing. The economic turmoil engendered by the COVID-19 pandemic further worsened the situation for these households. In the early weeks of the pandemic, lower-income parents were twice more likely to cut back on food expenditure and two-and-a-half times more likely to reduce savings or increase credit card debt than higher-income parents (Karpman et al., 2020). Literature shows that financial hardship is positively associated with health risk behaviors (Sampson et al., 2021), mental health problems (Frankham et al., 2020; Ryu et al., 2023), self-harm behavior (Barnes et al., 2016), and marital instability (Gudmunson et al., 2007) and negatively associated with political participation (Schaub, 2021). Because financial hardship can have far-reaching consequences for societal well-being, from a policy perspective, it is crucial to understand the extent to which different cash assistance programs provide financial relief to resource-constrained households.

Every year, lower-income households receive cash assistance after filing their taxes from Earned Income Tax Credit (EITC) and Child Tax Credit (CTC)¹, two large anti-poverty programs. From EITC, households with children receive substantially more cash assistance than identical households without children, and only the former receive CTC payments. In addition to EITC and CTC, in early January and mid-March 2021, both groups received cash assistance through the Economic Impact Payments (EIP) 2 and 3 programs² as part of the Coronavirus Response and Relief Supplemental Appropriations Act of 2021 and American Rescue Plan Act (ARPA) of 2021, respectively (U.S. Government Accountability Office, 2022). Additionally, the ARPA increased the generosity of the CTC program for the 2021 tax year and made households with children eligible for receiving up to 50% of their estimated 2021 CTC benefits in advanced monthly periodic payments between July and December 2021 (Crandall-Hollick, 2022). According to the United States Department of the Treasury, in the fiscal year 2021, the federal government spent \$569.5 billion in refundable tax credits and EIP payments (Department of the Treasury, 2022). In 2022, although there were no EIP payments, the ARPA made the Child and Dependent Care Tax Credit (CDCTC) program fully refundable, through which many households became eligible to receive further cash assistance (Crandall-Hollick, 2021a).

A substantial body of research suggests that EITC and CTC programs pull millions of households out of poverty and enhance their well-being by improving health and educational outcomes (Marr et al., 2015).

¹ The refundable part of the CTC is referred to as the Additional Child Tax Credit or ACTC (Crandall-Hollick, 2021b).

² Also referred to as stimulus payments.

Conceptually, (keeping all else constant) a higher cash assistance eligibility from welfare programs increases the probability that resource-constrained households can pay for their day-to-day and month-to-month expenses, which, in turn, reduces their perceived financial hardship. However, it is not quite clear *how long the effect lasts* and *how longevity varies depending on the generosity and the frequency of payments*.

This study uses the United States Census Bureau’s Household Pulse Survey to investigate the temporal heterogeneity in the relationship between higher cash assistance eligibility and households’ perceived financial hardship. For identification, I employ an event-study design, which utilizes the variation in cash assistance eligibility for households with and without children from the EITC, CTC, EIP, and CDCTC programs between 2021 and 2022. In general, findings suggest that the longevity of the effect ranges from a couple of weeks to several months, depending on the generosity and the frequency of payments. Further, results indicate that the longevity of the effect induced by smaller monthly tax credit payments tends to be equal to or greater than yearly lump-sum tax credit payments and greater than stimulus payments. Lastly, the effect of higher cash assistance eligibility appears to be strongest among single-mother households.

This study makes two contributions to the literature on the relationship between cash assistance programs and financial hardship experienced by lower-income households in the U.S. First, by using a high-frequency dataset, it elucidates how the financial hardship perceived by these households evolves over time, especially before and after important policy events. Second, by employing a design-based approach, it investigates how the design features of cash assistance programs (e.g., generosity and frequency of payments) affect the magnitude and the longevity of the effect of higher cash assistance eligibility on households’ perceived financial hardship.

2. Conceptual Framework and Research Objectives

Although there exists no theory that directly explains the relationship between cash assistance and perceived financial hardship, based on related theories and empirical findings, this section explains possible mechanisms connecting the two constructs. The relationship can be conceptualized as a two-step process: Cash assistance affects a household’s financial behavior, which impacts their assessment of financial hardship. To elaborate on the first step, after receiving cash assistance, households can choose to do one or more of the following: 1) spend the money, 2) save it, 3) invest it, and 4) use it to pay down the debt they accumulated either in expectation of the cash assistance or for some other purposes. The canonical permanent income hypothesis (PIH) posits that households consume a constant proportion of their permanent income and save their transitory income (Friedman, 1957). If households treat the cash received

from a program (e.g., stimulus benefits) as transitory income, according to the PIH, they will save most of it. Because a transitory income shock leads to little or no change in expenditure, there should be negligible/no change in their perceived financial hardship. Now, suppose the households treat the cash received from a program that provides yearly lump-sum payments (e.g., tax credit programs) as part of their permanent income. In that case, PIH predicts they would adjust their consumption upwards by a constant factor for every remaining period in their lifetime. This prediction implies that there would be no change in consumption in the months before and after the cash assistance reception. Furthermore, households would borrow against anticipated future cash assistance to achieve a smooth consumption pattern across months and pay back their debt after receiving the assistance. Literature suggests that indebtedness has a psychological cost as it is negatively associated with people's perceived psychological well-being (Brown et al., 2005) and life satisfaction (Ruberton et al., 2016). Assuming that well-being and hardship measures are negatively correlated, reduced debt can decrease households' perceived financial hardship in the post-cash-assistance-reception periods.

Contrary to PIH, Baugh et al., 2021 and Parker, 2017 found that households increased spending after receiving anticipated cash assistance from tax refunds and stimulus payments. Baugh et al., 2021 suggested that the behavioral life-cycle hypothesis (BLCH) by Shefrin & Thaler, 1988 best explained the increased consumption behavior. The BLCH posits that 1) most households behave as if they use three mental accounts: current spendable income, current assets, and future income and 2) the marginal propensity to consume (MPC) differs across these accounts. For example, the MPC would be highest if households consider the cash received from a program (e.g., monthly CTC payments) as part of their current spendable income account and the lowest if they consider the cash from another welfare program (e.g., yearly lump-sum EITC and CTC payments) as part of their future income account before receiving the benefits. Notably, the BLCH allows for the possibility that after receiving lump-sum payments, households increase their consumption as they start perceiving the cash as part of their current income account. Taken together, based on the BLCH and empirical findings, it seems reasonable to assume that many resource-constrained households, who struggle to pay for usual expenses in the pre-cash-assistance-reception months, would increase consumption equal to or above their minimum needs in the post-cash-assistance-reception months, which would reduce their perceived financial hardship.

Everything considered, this paper builds on the premise that a higher cash assistance eligibility reduces financial hardship to a greater extent. In this paper, I primarily investigate the temporal heterogeneity in the hypothesized effect. Additionally, I explore whether the longevity of the effect depends on the generosity and the frequency of payments (larger yearly lump-sum vs. smaller monthly payments). Also, I examine whether the effect tends to be greater among subgroups who are more likely to be financially vulnerable.

3. Background

3.1 Financial hardship among lower-income households in the U.S.

The higher incidence of financial hardship among lower-income households is caused by events such as income volatility, medical illness and other emergencies, changes in family composition, and lack of access to mainstream financial services (Barr, 2012). Literature suggests that EITC-recipient lower-income households find a much-needed financial boost after receiving their tax refunds (Halpern-Meekin et al., 2018). Despard et al., 2015, analyzing data from the Household Financial Survey 2013, found that EITC recipients were more likely to pay down their debt (mostly unsecured debt) and less likely to save their tax refunds relative to non-recipients. Furthermore, the authors found that the recipients used the refunds to meet essential needs (e.g., food, housing, clothing, shoes, school supplies, furniture, car, etc.). In terms of recipients' perceptions, based on in-depth interviews of 115 EITC recipients, Sykes et al., 2015 found that EITC recipients valued the debt relief brought by the money received from the program and saw it as a "springboard for upward mobility."

3.2 Relationship between cash assistance and financial hardship: Evidence from the literature

In the extant literature, several studies investigated the relationship between cash assistance and financial hardship. These studies utilize interventions that differ along multiple dimensions, such as conditionality (conditional vs. unconditional cash transfer), generosity, frequency of payments (one-time vs. yearly lump-sum payments), expectation (expected vs. unexpected payments), experimental nature (experimental vs. quasi-experimental), spatial scale (federal vs. local), and operationalization of financial hardship.

Miller et al., 2015 used experimental data from Family Rewards, a conditional cash transfer program in New York City. They found a substantial reduction in financial strain during the three years in which cash rewards were offered through the program (from late 2007 to late 2010). Courtin et al., 2018 analyzed data from the same program and suggested that it improved parents' perception of their health and levels of hope by reducing financial hardship.

In 2020, as an attempt to help mitigate the financial distress engendered by the COVID-19 pandemic, there was a renewed interest in cash transfer programs in the U.S. Pilkauskas et al., 2023 used data from a randomized control trial conducted by GiveDirectly, a charitable organization. The experiment provided a one-time \$1000 unconditional cash in May 2020 to low-income households in 12 states. According to the authors, although there was no effect of the program on material hardship³ for the full sample, there was a reduction in hardship for families with less than \$500 income in the previous month. In another study, Jacob

³ operationalized as a 9-item index that incorporated measures of difficulties paying for usual household expenses

et al., 2022 used data from a similar experiment by the same organization that provided a one-time \$1000 unconditional cash assistance in October 2020 to lower-income households living in high-poverty zip codes across the country. The authors did not find any effect on material hardship measures either for the full sample or any subgroups. These null findings seem surprising given that the reception of \$1000 cash, keeping all else constant, makes households objectively better off.

Several studies investigated the effect of EITC on financial hardship and specific aspects of it, such as food and housing hardships. Kramer et al., 2019 used data from the EITC Periodic Payment Pilot conducted in Chicago in 2014–2015 and found that advance periodic payments were associated with lower levels of perceived financial stress over the months. The authors suggest that the potential mediators of the relationship include a lower need for borrowing, lower food insecurity, and fewer unpaid bills. Rehkopf et al., 2014 and Batra & Hamad, 2021 found that yearly lump-sum EITC eligibility reduced household food insecurity and child food insecurity in the months (February-April) when most eligible households received the benefits. Lenhart, 2022 used across-year (2001-2017) variation caused by the 2009 EITC expansion for households with three or more children and found that the expansion reduced food insecurity. Pilkauskas & Michelmore, 2019 exploited the federal, state, and family size variations in EITC generosity over the last three decades to investigate the effect of EITC on the housing and living arrangements of single mothers. They found that increased EITC benefits reduced housing cost burdens.

3.3 Cash assistance through the tax system in 2021-2022

Between 2021 and 2022, lower-income households received cash assistance through the tax system from EITC, CTC, EIP, and CDCTC programs. The assistance households were eligible to receive from these programs depended mainly on three factors: 1) pre-tax annual household income, 2) filing status, and 3) number of children. As a simplified summary, table 1 shows the maximum eligibility from these programs for households with and without children. As evident from the table, at certain points (i.e., early January '21, March '21, July-December '21, and March '22), households with children were eligible to receive substantially more cash assistance than otherwise identical households without children. This study utilizes these across-month differential cash assistance eligibility for the two groups to identify the temporal heterogeneity in the effect of higher cash assistance eligibility on households' perceived financial hardship.

Table 1: Maximum cash assistance eligibility from different programs through the tax system for lower-income (<\$50,000) households with and without children

Program	Year	Beginning of disbursement	Households with children	Households without children
EIP 2	2021	December 29, 2020	Household size * \$600	
EITC	2021	The first week of March 2021	\$3,584 (1 qualifying child) \$5,920 (2 qualifying children) \$6,660 (3 or more qualifying children)	\$538
CTC	2021	The first week of March 2021	\$1400 per child aged <17	0
EIP 3	2021	March 12, 2021	Household size * \$1400	
Advance CTC	2021	July 15, 2021 (ended on December 15, 2021)	Monthly payments of \$300 per child aged <6 Monthly payments of \$250 per child aged 6-17	0
EITC	2022	The first week of March 2022	\$3,618 (1 child aged <19) \$5,980 (2 children aged <19) \$6,728 (3 or more children aged <19)	\$1,502
CTC	2022	The first week of March 2022	\$1800 per child aged <6 \$1500 per child aged 6-17	0
CDCTC	2022	The first week of March 2022	\$4000 for 1 qualifying individual \$8000 for 2 or more qualifying individuals	

Source: Internal Revenue Service. Notes: For CTC 2022, the amount mentioned in the table assumes that the household received 50% of their CTC benefits as advanced monthly payments between July and December 2021. For CDCTC, a qualifying individual refers to a child under 13 years old or other dependent who is not able to care for themselves.

4. Data

4.1 Household Pulse Survey

This paper uses data from the Household Pulse Survey (HPS). The United States Census Bureau, in collaboration with several other federal agencies, has conducted this experimental survey in regular intervals since April 23, 2020. The goal of the survey is to track how the pandemic and other temporal events affected people's lived experiences. The HPS started asking a question about the difficulty in paying for usual expenses from wave 13 (August 19-August 31, 2020) onward. I use data from HPS waves 13 to 48, roughly capturing the period between August 2020 and August 2022. Within this period, household units were interviewed only once, which makes the HPS a repeated cross-sectional survey. Table A1 in

Appendix A shows the start and end dates of data collection, sample size, and the response rate for each HPS wave.

4.2 Main Analytical Sample

The main analytical sample of this study (N=604,922) is composed of the HPS respondents who meet two conditions: 1) responded to the questions on the difficulty paying for usual expenses, pre-tax annual household income, and marital status and 2) lived in a household with pre-tax annual income less than \$50,000. I analyze data for households with less than \$50,000 annual income because this segment includes the common beneficiaries of all the programs of interest (i.e., EIP, EITC, CTC, Advance CTC, and CDCTC). Appendix A describes the procedure for selecting the main analytical sample.

Table A2 in Appendix A presents the weighted summary statistics of the respondents in each HPS wave. Unsurprisingly, on average, households with (panel A) and without (panel B) children have different socio-economic characteristics. For example, households with children tend to have larger household sizes and are more likely to live in a house either rented or owned with a mortgage. Also, these respondents are more likely to be married, employed, Black, Hispanic, female, and younger and less likely to have a college degree or above. These differences imply that along with differential eligibility to receive cash assistance from the tax system, the average households with and without children in the main analytical sample are fundamentally different. However, as this paper employs an event study design to identify the effect, the similarity in the characteristics of the average households within each group (i.e., with and without children) across HPS waves is more important. Based on the findings in Table A3, the average within-group characteristics across waves seem quite similar. Nevertheless, I control for these socio-economic variables in the empirical models to account for the small within-group differences across waves.

4.3 Operationalizing Financial Hardship

Regarding financial hardship, the HPS asks, “In the last 7 days, how difficult has it been for your household to pay for usual household expenses, including but not limited to food, rent or mortgage, car payments, medical expenses, student loans, and so on? Select only one answer.” The response options are: 1) not at all difficult, 2) a little difficult, 3) somewhat difficult, and 4) very difficult. I create a binary financial hardship dummy which takes a value of 1 if the respondent selects *very difficult* and 0 otherwise. I assume households that reduce their consumption of usual goods and services due to lack of money would be most likely to select *very difficult* while responding to this question. Therefore, this operationalization is, presumably, more indicative of material deprivation experienced by households.

Note that the one-item financial hardship measure used in this paper is different from related measures used in the literature, such as multi-item financial hardship and single-item financial difficulty (Butterworth et al., 2009), multi-item financial strain (Kahn & Pearlin, 2006), multi-item financial stress (Cardona-montoya & Mongrut, 2022), multi-item financial well-being (Consumer Financial Protection Bureau, 2017), and single-item financial satisfaction (Xiao et al., 2014). Therefore, I estimate a linear probability model to explore whether the socio-economic predictors of the other measures are also associated with financial hardship⁴. The ten predictors are pre-tax annual household income, marital status, gender assigned at birth, educational attainment, generation, race, Hispanic origin, number of children under 18, homeownership status, and SNAP reception. Based on the results shown in Table 2, it appears that all the variables, except for Hispanic origin, are statistically significantly associated with financial hardship. Also, the directions of these associations are in the expected directions. For example, the literature suggests that age cohort and household income are positively associated with financial well-being (Collins & Urban, 2020), and the findings in Table 2 suggest that the two variables are negatively associated with financial hardship. Also, some other predictors of financial well-being, for example, race, educational attainment, marital status, and homeownership (Consumer Financial Protection Bureau, 2017), are correlated with financial hardship. Additionally, financial hardship shares some of the predictors of material hardship, such as age cohort, race, and employment status (Beverly, 2001). Everything considered, the one-item financial hardship appears to be a valid measure of difficulties households face in meeting their day-to-day and month-to-month expenses – one crucial aspect of financial well-being.

Table 2: Socio-economic predictors of financial hardship

	Coefficient (Standard error)
Constant	24.3*** (0.917)
Pre-tax annual household income (Reference: Less than \$25,000)	
\$25,000 - \$34,999	-7.05*** (0.274)
\$35,000 - \$49,999	-10.8*** (0.262)
Marital status (Reference: Now married)	
Widowed	-1.10*** (0.335)
Divorced	1.40*** (0.277)
Separated	7.12*** (0.682)
Never married	-0.766* (0.307)
Gender assigned at birth (Reference: Male)	
Female	-0.485* (0.22)

⁴ Additionally, I estimate the same model using a binary logistic regression which shows that the associations between the socio-economic predictors and financial hardship are similar (in terms of direction and statistical significance) to the ones from the linear regression estimates.

Educational attainment	
<i>(Reference: Less than high school)</i>	
Some high school	-0.907 (1.02)
High school graduate	-2.81** (0.857)
Some college	-1.69548
Associate's degree	-2.65** (0.868)
Bachelor's degree	-7.41*** (0.856)
Graduate degree	-7.15*** (0.864)
Generation	
<i>(Reference: Boomers and others)</i>	
Gen Z	7.25*** (0.465)
Millennials	12.7*** (0.342)
Gen X	12.6*** (0.286)
Race	
<i>(Reference: White)</i>	
Black	4.80*** (0.332)
Asian	-2.57*** (0.543)
Other or in combination	5.95*** (0.477)
Hispanic origin	
<i>(Reference: non-Hispanic)</i>	
Hispanic	-0.367 (0.338)
Number of people under 18	
<i>(Reference: 0)</i>	
1	3.95*** (0.325)
2	4.77*** (0.446)
3	6.55*** (0.646)
4	8.55*** (1.04)
5	13.4*** (1.31)
Housing owned or rented	
<i>(Reference: Owned free and clear)</i>	
Owned with a mortgage/loan	4.34*** (0.245)
Rented	7.82*** (0.263)
Occupied without payment of rent	16.9*** (0.770)
SNAP receipt	
<i>(Reference: Yes)</i>	
No	-9.28*** (0.319)
Adj. R ²	0.10

Notes: Author's calculation based on data from the United States Census Bureau's Household Pulse Survey waves 13 to 48. Sample (N= 597,369) consists of respondents from households with less than \$50,000 pre-tax annual income for whom there are no missing data on the variables of interest. Household-level weights and heteroskedasticity-robust standard errors are used in the analysis.

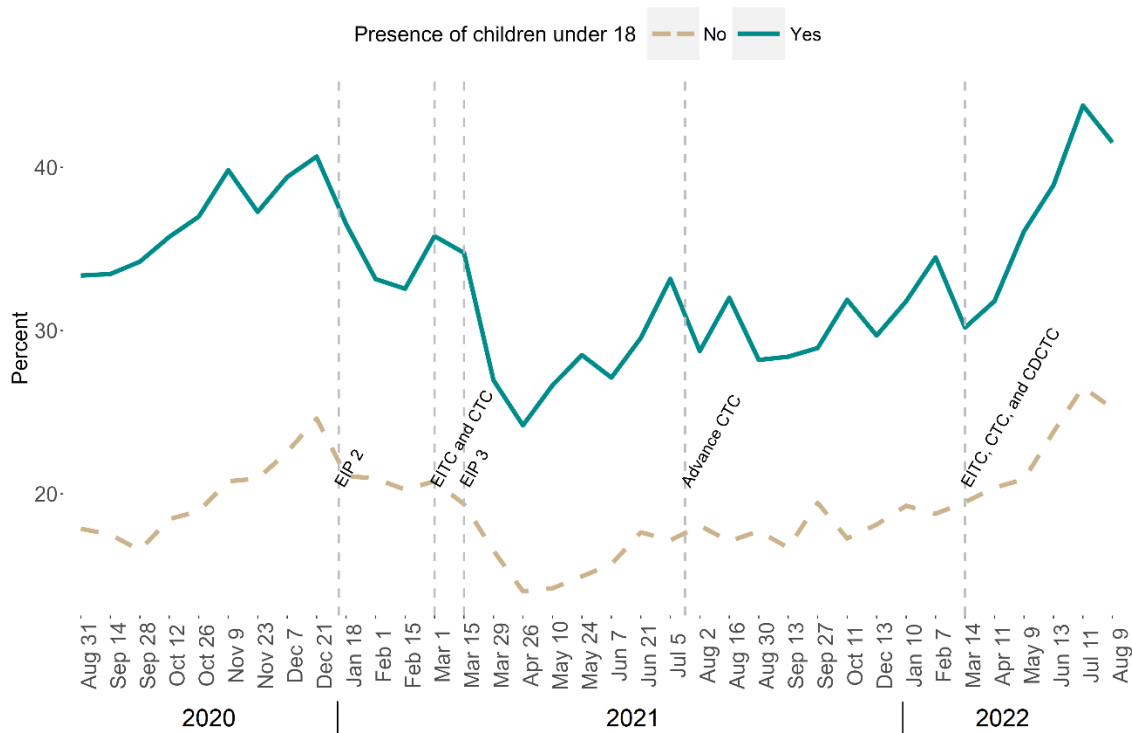
4.4 Trends in Financial Hardship

Figure 1 shows the trends in financial hardship for the average households with and without children between August 2020 and August 2022. In the last half of 2020, financial hardships reported by both groups gradually increased and fell in early January 2021 when the IRS started disbursing the EIP 2 payments. Descriptively, it appears that the decrease in hardship in early January was greater for households with children who were eligible to receive more cash assistance through EIP 2. Next, we observe another instance of a decrease in hardship for both groups around mid-March 2021 when households started receiving cash

assistance from EITC, CTC, and EIP 3 payments. Again, the decrease in hardship was apparently greater for households with children who were eligible to receive substantially more cash assistance combinedly from the three programs in March. However, hardship started increasing for both groups in early May 2021. Between July and December 2020, households with children were eligible to receive monthly cash assistance from the advance CTC program. Over this period, households with children experienced phases of decrease and increase in hardship, whereas the trends remained relatively smooth (although going upward) for households without children. In January 2022, when the advance CTC payments stopped, households with children reported financial hardship as high as they did in early July 2021 (i.e., right before the beginning of advance CTC payments). Then, in March 2022, households became eligible to receive cash assistance from EITC, CTC, and CDCTC programs. Around mid-March 2022, relative to the earlier two months, we observe a reduction in financial hardship for households with children but not for households without children. From April 2022 onward, as inflation soared, financial hardship for both groups continued to increase.

Although Figure 1 is helpful as a visual summary of the changes in financial hardship for the two groups before and after the events of interest, the numbers shown in it do not incorporate any statistical tests. Consequently, neither statistical nor causal inferences can be drawn solely based on these findings. In the next section, I explain the empirical strategy used in this paper for statistical and causal inference purposes.

Figure 1: Trends in financial hardship for the households with and without children



Notes: Author’s calculation based on data from United States Census Bureau’s Household Pulse Survey weeks 13 to 48. Sample (N=604,922) consists of respondents from households with less than \$50,000 pre-tax annual income. Household-level weights are used in the analysis.

5. Empirical Strategy

I estimate the following model to investigate the magnitude and the longevity of the effect of the eligibility to receive higher cash assistance on perceived financial hardship:

$$Y_{it} = \gamma_s + \gamma_t + \gamma_{st} + \sum_{\tau=-8}^{-1} \delta_{\tau} Child_i * Week_{\tau} + \sum_{\tau=1}^{27} \delta_{\tau} Child_i * Week_{\tau} + X_{it} + \epsilon_{it} \quad (1)$$

where Y_{it} refers to financial hardship reported by respondent i in period t . γ_t is a vector of temporal (HPS wave) fixed effects which account for the events that identically affected every household in period t . γ_s is a vector of state fixed effects which account for the time-invariant factors that identically affected every household living in state s . γ_{st} is a vector of state and temporal interaction effects⁵ which account for all the events that identically affected outcomes of every household living in state s in period t . $Child_i$ is a dummy that takes a value of 1 if respondent i lives in a household with at least one child under 18 and a value of 0 otherwise. X_{it} is a vector of socio-economic control variables⁶. $\tau = 0$ corresponds to HPS wave 21 (reference period) conducted between December 9 and December 21, 2020. ϵ_{it} is the error term. The coefficients of interest in equation (1) are δ_{τ} , which can be interpreted as estimators of the effect of higher cash assistance eligibility on financial hardship for the lower-income households with children if the *parallel trends* assumption holds. In the context of this study, the assumption can be stated as: conditional on the covariates, had the households with children were eligible to receive cash assistance as low as the eligibility of the households without children, the trends in their average financial hardship in post-January-2021 periods would have been parallel to the trends in average financial hardship for the households without children. Zero coefficients of δ_{τ} for periods $\tau = -1$ to -8 would suggest parallel pre-treatment trends, which does not necessarily confirm the validity of parallel trends assumption, but empirical researchers often present them as evidence in favor of it (Cunningham, 2021).

⁵ Incorporating state and period interaction effects (γ_{st}) in the model serves the same purpose as adding state-level temporal factors, such as state-specific COVID cases, unemployment rate, eviction policies, etc. for different periods.

⁶ Across analytical samples, the common control variables are: employment status in the last 7 days, homeownership status, educational attainment, age, and SNAP reception. Additionally, for the full sample, the model includes these variables: interactions among pre-tax annual household income category, marital status, and household size; gender assigned at birth, race, and Hispanic status. For the unmarried female and unmarried male samples, the models include these variables: interactions among pre-tax annual household income category, marital status, and household size; race, and Hispanic status. Finally, for the household income below \$25,000 sample, the model includes these variables: interactions among marital status and household size; gender assigned at birth, race, and Hispanic status.

One limitation of equation (1) is that it operationalizes the treatment based on the presence of children under 18 in the household; however, keeping other factors constant, households with more children were eligible to receive more tax credit. Therefore, I estimate another model in which the binary $Child_i$ dummy in equation (1) is replaced by a $Num.Child_i$ variable, which refers to the number of children under 18 in the respondent i 's household.

$$Y_{it} = \gamma_s + \gamma_t + \gamma_{st} + \sum_{\tau=-8}^{-1} \delta_{\tau} Num.Child_i * Week_{\tau} + \sum_{\tau=1}^{27} \delta_{\tau} Num.Child_i * Week_{\tau} + X_{it} + \epsilon_{it} \quad (2)$$

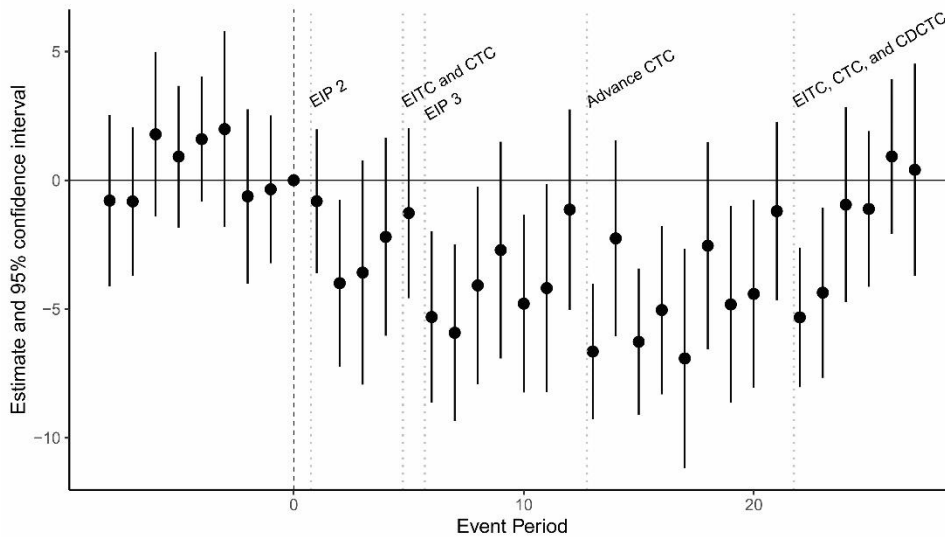
I estimate all the models in R using the fixest package (Berge, 2018). For estimation, I use weighted least squares (WLS) procedure and cluster the standard errors at the state level.

6. Results

Figure 2 shows the findings of equation (1) in which the differential cash assistance eligibility is captured by the presence of children under 18 in the household. In the periods before the reference event period (period 0), the estimated coefficients are not significantly different from 0 at the 5% significance level. It suggests that between August 2020 and December 2020, when there were no cash assistance programs differentially affecting households with and without children, the trends in average financial hardship for the two groups were moving in parallel. For the post-January-2021 periods, we observe statistically significant negative coefficient ($\delta_2 = -4.00$, 95% CI [-7.32, -0.67]) in event period 2 (January 20-February 1, 2020). The estimated coefficients for the next three periods, although negative, are not significantly different from 0. These findings imply that the effect of higher cash assistance eligibility from EIP 2, which were disbursed in early January 2021, lasted for about a couple of weeks and then faded out. Next, in early March 2021, lower-income households started receiving yearly lump-sum EITC and CTC payments, which provided substantially more benefits to households with children than households without children. Additionally, households started receiving EIP 3 payments in mid-March 2021. For event periods 6 to 12 (March 17-July 5), the estimated coefficients are negative and statistically significant for event periods 6 ($\delta_6 = -5.31$, 95% CI [-8.71, -1.91]), 7 ($\delta_7 = -5.92$, 95% CI [-9.44, -2.41]), 8 ($\delta_8 = -4.08$, 95% CI [-8.01, -0.15]), 10 ($\delta_{10} = -4.79$, 95% CI [-8.33, -1.26]), and 11 ($\delta_{11} = -4.19$, 95% CI [-8.33, -0.05]). These findings imply that the eligibility to receive more generous tax credit payments reduced financial hardship to a greater extent between March and June 2020; however, the effect, apparently, faded away in late June. Between July and December, households with children were eligible to receive advance CTC payments every month. As indicated by the negative and statistically significant coefficients for the event periods 13

($\delta_{13} = -6.65$, 95% CI [-9.34, -3.96]), 15 ($\delta_{15} = -6.27$, 95% CI [-9.18, -3.36]), 16 ($\delta_{16} = -5.04$, 95% CI [-8.39, -1.69]), 17 ($\delta_{17} = -6.92$, 95% CI [-11.28, -2.55]), 19 ($\delta_{19} = -4.82$, 95% CI [-8.74, -0.90]), and 20 ($\delta_{20} = -4.41$, 95% CI [-8.15, -0.68]), there were reductions in financial hardship after the eligibility to receive cash assistance from advance CTC began. Interestingly, both the magnitude and the longevity of the effect these smaller monthly payments on perceived financial hardship appear to be greater than the effect of the earlier lump-sum EITC and CTC payments. Also, for the event period 22 (January 6-February 7, 2022), by when the advance CTC payments ended, the estimated coefficient is not significantly different from 0, which implies that perceived financial hardship for the households with children increased in early 2022. Finally, in March 2022, lower-income households started receiving yearly lump-sum tax credit payments. The estimated coefficients for the event periods 22 ($\delta_{22} = -5.32$, 95% CI [-8.10, -2.55]) and 23 ($\delta_{23} = -4.36$, 95% CI [-7.75, -0.98]), which were conducted in March and April 2022, are negative and significantly different from 0. However, the coefficients for the remaining periods are statistically insignificant. These estimates imply that the effect of the higher cash assistance eligibility through the tax system in 2022 lasted between March and April but faded out afterwards.

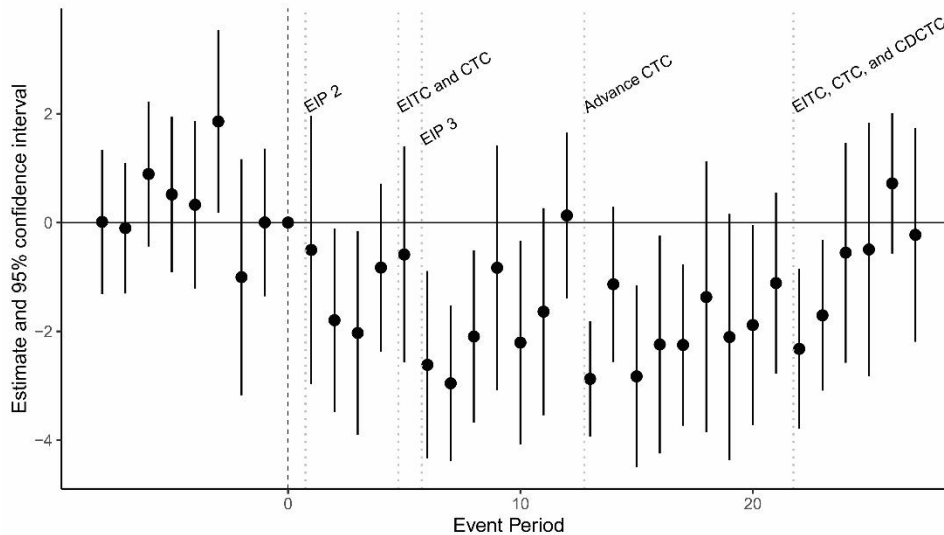
Figure 2: Effect of higher cash assistance eligibility on households’ perceived financial hardship (main analytical sample, binary treatment)



Notes: Author’s calculation based on data from United States Census Bureau’s Household Pulse Survey weeks 13 to 48. Sample (N=604,922) consists of respondents from households with less than \$50,000 pre-tax annual income. All models include these variables: state fixed effects, period fixed effects, state and period interaction effects, pre-tax annual household income category, marital status, household size, employment status in the last 7 days, homeownership status, educational attainment, race, Hispanic origin, gender assigned at birth, and age. Household-level weights are used in the analysis and standard errors are clustered at the state level. Numbers are rounded to two decimal places. Significance codes: ‘***’ p< 0.001, ‘**’ p< 0.01, ‘*’ p< 0.05, ‘.’ p< 0.1

Figure 3 shows the findings of equation (2) in which the differential cash assistance eligibility is captured by the number of children under 18 in the household. Similar to equation (1), the findings from equation (2) suggest that higher cash assistance eligibility from multiple programs operated through the tax system reduced financial hardship to a greater extent between 2021 and 2022.

Figure 3: Effect of higher cash assistance eligibility on households’ perceived financial hardship (main analytical sample, numeric treatment)



Notes: Author’s calculation based on data from United States Census Bureau’s Household Pulse Survey weeks 13 to 48. Sample (N=604,922) consists of respondents from households with less than \$50,000 pre-tax annual income. All models include these variables: state fixed effects, period fixed effects, state and period interaction effects, pre-tax annual household income category, marital status, household size, employment status in the last 7 days, homeownership status, educational attainment, race, Hispanic origin, gender assigned at birth, and age. Household-level weights are used in the analysis and standard errors are clustered at the state level. Numbers are rounded to two decimal places. Significance codes: ‘****’ p< 0.001, ‘***’ p< 0.01, ‘**’ p< 0.05, ‘.’ p< 0.1

Appendix figures A1 to A3 present the findings of equation (1) estimated for three subgroups: 1) unmarried female respondents, 2) Black and/or Hispanic respondents, and 3) respondents from households with less than \$50,000 annual income. The estimates in figure A2 suggest that the effect of financial hardship from all the programs for the households of unmarried female respondents with children was greater than the effect for the households in the main analytical sample. These findings, suggesting that the benefits of cash assistance through the tax system are greater among households headed by single mothers, align with the existing literature (Marr et al., 2015). For the subsample composed of Black and/or Hispanic respondents, findings suggest that higher cash assistance eligibility only from the advance CTC program reduced financial hardship. Lastly, among the respondents composed of respondents living in households with less than \$25,000 pre-tax annual income, higher cash assistance eligibility from EITC, CTC, and EIP 3 payments and advance CTC payments reduced financial hardship over a short period. Note that for these two

subsamples, the sample sizes become smaller (relative to both the main analytical sample and the unmarried-female subsample) which increases the standard errors of the estimated coefficients and decreases the statistical power to detect a non-zero effect.

7. Conclusion and Discussion

This study used data from the Household Pulse Survey – a unique dataset that gathered data in regular intervals throughout the COVID-19 pandemic – to investigate the longevity of the effect of higher cash assistance eligibility from multiple programs operated through the tax system between 2021 and 2022 on financial hardship. Findings suggest that all the interventions (yearly lump-sum tax credits, stimulus payments, and advanced monthly tax credits) reduce the average household’s perceived financial hardship. The magnitude and longevity of the effect in the post-cash-assistance-reception periods depend on the generosity and frequency of payments. Results indicate that the smaller advance monthly CTC payments, provided between July and December 2021, reduced the average household’s perceived financial hardship to almost the same extent as the much larger cash assistance provided earlier in 2021 through the EITC, CTC, and EIP 3 programs. Furthermore, results suggest that the effect of higher lump-sum tax credit eligibility in 2022 lasted between March and April but faded away afterwards. The relatively short-lived effect for 2022 (compared to 2021) is possibly driven by two factors: 1) higher inflation and 2) the absence of stimulus payments. Lastly, consistent with the existing literature, I find that the effect was stronger among single mother households.

The findings of this study should be interpreted in light of its limitations. First, this study cannot detect whether and when households received cash assistance because the HPS did not ask questions about receiving benefits from different programs⁷. Also, IRS data suggests that about one in five eligible households do not claim EITC benefits (Internal Revenue Service, 2021b). Consequently, the causal estimands of this paper are intent-to-treat effects, which are possibly lower than the average treatment effects on the treated. Second, the residual effect of interventions that happened earlier (e.g., tax credit and stimulus payments in March 2021) may have carried over to later periods, potentially biasing the estimated effects of later interventions upwards (e.g., advance CTC payments between July and December, 2021). Third, the estimated models may not have accounted for other temporal events that differentially affected the financial hardships experienced by respondents with and without children. Four, the analytical samples used in this study are composed of people who responded to the question on pre-tax annual household

⁷ Some of the HPS weeks ask questions on whether the household received EIP and advance CTC payments. However, because the HPS is not a panel survey, the information on EIP reception is not directly applicable to the empirical models of this study.

income, marital status, and difficulty with usual expenses. Although the number of non-respondents of the latter two questions are negligible, more than one in five HPS respondents did not respond to the question on household income. If the respondents of the question on household income are systematically different from the non-respondents, the estimates are biased. Despite these limitations, this paper's findings have several implications for future research on cash assistance programs and financial hardship in the U.S. context.

From a measurement perspective, the one-item 7-day financial hardship measure appears to be valid for tracking the difficulties households face in meeting their necessities in the short-run. As shown in Table 2, socio-economic characteristics – e.g., household income, marital status, homeownership, etc. – known to be associated with other outcomes related to households' financial health, such as material hardship and financial well-being, are also predictive of the financial hardship measure. Additionally, the average value of financial hardship changes longitudinally in relation to relevant policy events (e.g., cash assistance payments, increase in inflation, etc.). Two key advantages of this parsimonious measure are 1) potentially lower recall bias given the shorter reference period and 2) decreased survey completion time. Consequently, inclusion of this question in other surveys can be helpful in terms of tracking how people's perceived financial hardship vary over the months of a calendar year. Future research should investigate to what extent financial hardship is correlated with other validated measures of financial health, such as the multi-item financial well-being measure developed by the Consumer Financial Protection Bureau. Such an investigation will delineate to what extent this one-item measure explains a household's overall financial health.

From a program design perspective, one key finding of this study is that periodic cash assistance can be an effective solution in reducing perceived financial hardship, especially during the later part of a calendar year. This aligns with the finding by Kramer et al., 2019 that people who received four advanced periodic EITC payments reported lower financial stress over the months than those who received EITC payments as a yearly lump-sum. Conceptually, the payment frequency that reduces households' perceived hardship and enhances their well-being depends on their financial situation. For example, households that are able to pay for usual expenses from their regular earnings may prefer a larger lump-sum tax credit payment as it enables them to purchase big-ticket items. On the contrary, households that struggle to pay for their usual expenses with their regular earnings may prefer advanced periodic payments because the intervention helps them smooth consumption without having to incur debt.

Although this study provides strong evidence that a higher cash assistance from different programs between 2021 and 2022 were associated with a greater reduction in perceived financial hardship, it did not investigate the underlying mechanisms driving the association due to the lack of data on financial behaviors

in the HPS. Future studies should combine longitudinal data from multiple sources, such as credit bureau data and consumer expenditure data, to investigate the underlying financial behaviors (i.e., changes in consumption and debt) that mediated the relationship between cash assistance eligibility and perceived financial hardship.

Appendix A

Table A1: Description of HPS weeks

Year	HPS Wave	Event Period	Data collection period	Number of respondents	Response rate (percent)
2020	13	-8	August 19 – August 31	109,051	10.3
	14	-7	September 2 – September 14	110,019	10.3
	15	-6	September 16 – September 28	99,302	9.2
	16	-5	September 30 – October 12	95,604	8.8
	17	-4	October 14 – October 26	88,716	8.1
	18	-3	October 28 – November 9	58,729	5.3
	19	-2	November 11 – November 23	71,939	6.6
	20	-1	November 25 – December 7	72,484	6.7
	21	0	December 9 – December 21	69,944	6.5
	2021	22	1	January 6 – January 18	68,348
23		2	January 20 – February 1	80,567	7.5
24		3	February 3 – February 15	77,122	7.3
25		4	February 17 – March 1	77,788	7.3
26		5	March 3 – March 15	78,306	7.4
27		6	March 17 – March 29	77,104	7.2
28		7	April 14 – April 26	68,913	6.6
29		8	April 28 – May 10	78,467	7.4
30		9	May 12 – May 24	72,897	6.8
31		10	May 26 – June 7	70,854	6.7
32		11	June 9 – June 21	68,067	6.4
33		12	June 23 – July 5	66,262	6.3
34		13	July 21 – August 2	64,562	6.1
35		14	August 4 – August 16	68,799	6.5
36		15	August 18 – August 30	69,114	6.5
37		16	September 1 - September 13	63,536	6.0
38		17	September 15 – September 27	59,833	5.6
39		18	September 29 - October 11	57,064	5.4
40		19	December 1 – December 13	60,826	5.8
2022		41	20	December 29, 2021 – January 10	74,995
	42	21	January 26 – February 7	75,482	7.2
	43	22	March 2 – March 14	84,158	7.9
	44	23	March 30 – April 11	63,769	6.0
	45	24	April 27 – May 9	61,767	5.8
	46	25	June 1 - June 13	62,826	6.2
	47	26	June 29 - July 11	58,304	5.7
	48	27	July 27 - August 8	46,801	4.4

Source: United States Census Bureau, 2023c

Selecting the main analytical sample

To select the main analytical sample, I apply the following steps:

- 1) I merge HPS weeks 13 to 48, which combinedly have a total of 2,632,319 respondents.
- 2) Excluding the respondents with missing responses to the question on pre-tax annual household income (INCOME variable), I get a sample of 2,045,557 respondents (22.29% missing response rate).
- 3) Then, I exclude respondents with missing responses to the question on marital status (MS variable). This reduces the sample to 2,036,752 respondents.
- 4) Next, exclusion of respondents with missing responses to the question on difficulty to pay for usual expenses (EXPNS_DIF variable) reduces the sample to 2,034,398 respondents.
- 5) Finally, I narrow the sample down to respondents living in households with pre-tax annual income below \$50,000. The main analytical sample consists of 604,922 respondents.

Table A2: Summary statistics of main analytical sample

Panel A: Households with children

Week	Sample size	Income <\$25k	Income \$25k-\$35k	Income \$35k-\$50k	Married	Employed	House hold size	White	Black	Hispanic	Female	Age	Rent/ Mortgage	College
13	7,576	39.69	29.81	30.5	37.94	49.3	4.07	64.28	23.81	27.87	65.69	42.88	80.65	9.86
14	7,696	39.08	29.17	31.76	38.96	52.74	4.13	60.7	25.02	26.22	66.44	42.66	83.24	9.98
15	6,811	39.15	28.27	32.58	38.24	50.16	4.1	64.6	22	27.8	66.05	43.51	81.95	9.5
16	6,361	39.96	30.12	29.92	36.77	53.12	4.06	62.33	22.33	26.77	67.33	42.86	82	10.19
17	5,885	39.29	30.79	29.92	40.09	50.17	4.18	61.92	23.17	27.38	64.91	43.21	83.17	10.29
18	3,730	38.63	28.32	33.05	40.21	48.37	4.21	63.15	23.95	24.87	66.37	43.12	80.5	9.59
19	4,882	38.55	29.29	32.16	40.62	51.87	4.12	64.65	22.09	28.59	65.31	42.92	84.51	10.78
20	4,876	40.25	29.09	30.66	40.82	46.25	4.17	64.67	23.01	25.56	66.29	42.83	82.3	9.9
21	4,757	39.54	28.34	32.12	39.47	47.37	4.15	66.11	20.96	27.19	65.95	43.59	82.12	10.22
22	4,458	38.71	30.08	31.21	39.07	47.78	4.22	63.06	23.6	28.3	65.75	43.02	82.07	10.53
23	5,087	39.17	28.16	32.67	41.8	47.24	4.15	61.93	23.15	26.24	67.27	42.62	80.55	10.92
24	4,761	40.11	29.1	30.79	39.41	49.08	4.12	67.19	22.11	27.72	64.13	42.96	82.11	10.43
25	4,735	39.32	30.97	29.71	39.84	45.39	4.15	62.42	23.42	25.83	64.84	42.7	82.13	9.94
26	4,654	39.19	29.97	30.84	41.2	47.03	4.26	64.19	22.82	29.04	66.06	42.17	80.83	10.77
27	4,391	39.58	28.58	31.85	40.02	52.38	4.08	65.57	20.95	25.91	65.14	42.52	82.49	11.27
28	3,762	40.02	29.89	30.08	40.53	49.83	4.12	67.52	19.89	27.65	65.15	43.36	80.77	10.36
29	4,563	38.62	30.22	31.16	39.44	51.15	4.14	66.04	22.02	26.79	65.55	43	81.46	10.92
30	4,407	39.49	33	27.51	38.45	50.6	4.11	66	23.21	26.61	65.81	42.97	81.83	10.92
31	4,161	37.29	31.63	31.09	38.05	50.59	4.07	64.42	23.29	25.33	66.91	43.02	81.45	11.32
32	4,128	38.86	30.14	31	40.21	51.25	4.14	65.83	22.09	28.32	67.02	42.6	81.87	11.13
33	3,873	41.12	27.89	30.99	41.25	51.15	4.2	63.61	23.43	25.88	66.43	43.04	81.14	10.6
34	4,008	42.42	29.44	28.14	38.72	44.55	4.15	65.96	21.4	28.4	65.8	43.42	79.13	10.6
35	4,222	41.8	30.12	28.08	40.42	47.25	4.2	66.53	21.46	26.09	65.67	43.31	82.14	11.3
36	4,239	40.89	27.62	31.49	37.49	47.32	4.19	65.29	22.87	27.96	64.98	43.01	80.79	11.95
37	3,839	41.08	28.54	30.38	40.66	49.43	4.21	65.09	23.19	26.34	66.05	42.73	80.28	11.52

38	3,606	43.12	28.61	28.26	39.37	48.39	4.08	62.97	23.06	26.06	67.97	43.03	80.67	12.23
39	3,391	43.75	26.76	29.49	39.81	47.33	4.14	65.39	23.07	27.45	65.82	44.01	79.53	11.03
40	4,177	42.83	27.93	29.24	39.23	51.84	4.09	64.58	22.78	28.18	66.11	41.93	81.63	9.42
41	5,756	42.6	27.16	30.24	37.43	47.2	4.2	64	24.28	27.58	67.31	41.11	82.91	10.39
42	5,574	40.45	28.97	30.58	40.48	48.84	4.14	66.58	22.43	26.67	65.09	41.77	80.36	10.13
43	5,764	39.34	29.95	30.71	39.26	53.78	4.13	65.14	22.64	28.59	64.3	41.66	79.5	10.01
44	3,875	41.8	27.82	30.37	41.09	52.46	4.12	67.27	20.13	26.65	67.08	42.23	78.84	9.99
45	3,718	42.69	28.34	28.97	37.77	50.41	4.12	63.72	22.9	27.76	72.47	43.08	80.51	11.51
46	3,768	41.66	27.46	30.89	38.08	51.25	4.12	62.79	23.96	25.66	67.29	41.96	80.31	9.43
47	3,516	40.41	28.61	30.99	38.85	47.17	4.17	65.65	24.23	26.41	68.71	42.15	78.97	10.76
48	3,163	39.55	28.66	31.8	37.26	51.87	4.1	64.71	21.17	26.46	69.19	41.61	80.04	9.39

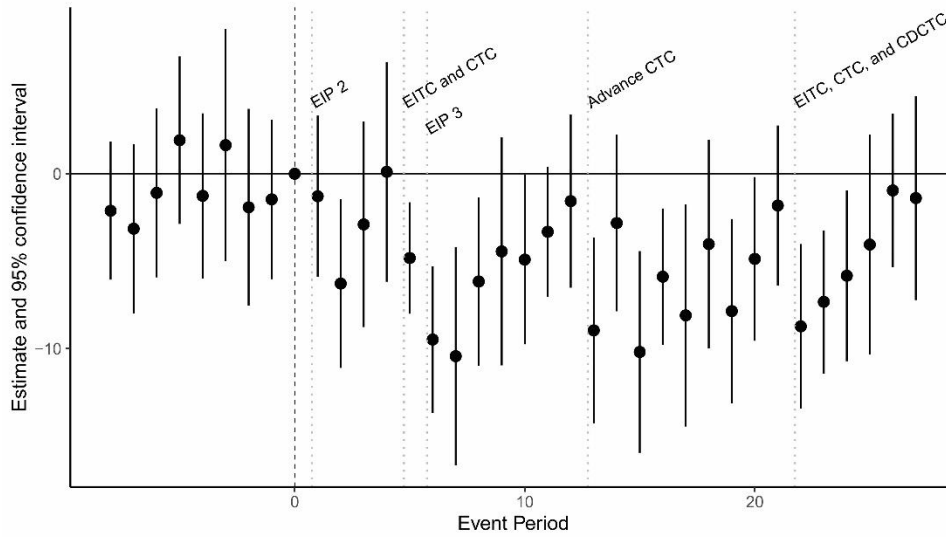
Notes: Sample consists of Household Pulse Survey respondents living in households with at least one child under 18 and less than \$50,000 pre-tax annual income. Household-level weights are used in the analysis. Numbers are rounded to two decimal places.

Panel B: Households without children

Week	Sample size	Income <\$25k	Income \$25k-\$35k	Income \$35k-\$50k	Married	Employed	House hold size	White	Black	Hispanic	Female	Age	Rent/ Mortgage	College
13	16,872	38.78	28.16	33.06	28.37	40.89	1.82	77.22	13.89	14.18	54.66	54.96	68.52	18.14
14	17,410	37.46	29.6	32.94	27.32	42.68	1.85	77.33	13.53	13.88	55.47	54.52	69.48	18.14
15	15,803	38.46	28.75	32.79	27.83	42.05	1.84	76.25	14.41	13.87	54.42	54.51	68.95	16.81
16	15,245	37.79	29.33	32.88	28.35	42.25	1.84	76.37	14.25	12.83	54.83	54.39	68.68	18.15
17	13,878	39.03	28.89	32.08	28.01	40.52	1.84	77.16	13.64	13.81	53.86	54.68	67.29	18.05
18	9,362	36.45	29.13	34.41	28.89	38.55	1.84	78.87	11.67	13.28	55.08	55.26	66.82	18.32
19	11,270	36.97	29.36	33.68	29.47	40.58	1.85	78.36	12.49	12.96	54.95	55.83	69.27	18.04
20	11,584	38.32	28.33	33.36	30.04	38.11	1.88	78.71	13.11	13.41	55.45	55.11	68.56	18.84
21	11,533	40.09	28.02	31.89	27.77	38.9	1.86	76.94	13.16	14.3	55.54	54.88	68.47	18.67
22	10,892	37.59	28.38	34.03	30.08	39.34	1.91	78.35	12.54	14.26	53.47	54.19	68.81	18.92
23	13,268	37.42	28.28	34.29	28.6	41.26	1.92	77.72	13.31	13.08	53.8	53.12	69.52	17.75
24	12,939	39.04	28	32.96	28.97	41.54	1.91	77.31	13.65	13.76	54.09	53.7	68.28	19.12
25	12,878	39.82	27.95	32.23	30.2	39.61	1.92	78.21	12.18	14.55	54.73	54.26	67.46	18.08
26	12,567	37.56	29.56	32.88	28.6	41.89	1.91	77.71	13.6	13.14	54.1	53.48	68.9	18.91
27	12,314	38.68	29.25	32.07	27.73	41.39	1.86	78.37	13.05	13.86	54.18	53.43	68.88	18.65
28	10,266	37.96	29.14	32.9	28.91	40.29	1.85	77.74	13.96	13.2	54.96	54.93	65.51	18.87
29	12,074	39.13	28.4	32.47	29.15	41.42	1.88	78.2	13.08	13.93	55.7	54.88	67.59	19.25
30	11,064	38.67	30.49	30.83	28.3	40.86	1.87	77.12	13.2	14.95	55.38	54.96	68.14	18.77
31	10,702	38.31	28.58	33.11	29.64	43.39	1.88	78.21	12.44	13.21	54.46	54.55	68.68	19.14
32	10,343	39.13	30.48	30.39	27.09	41.39	1.85	77.1	14.62	12.89	54.28	54.53	68.59	18.56
33	10,122	38.81	29.32	31.87	28.15	40.97	1.88	78	12.74	14.74	55.87	54.88	66.79	19.38
34	11,246	40.63	29.03	30.34	29.06	41.31	1.88	77.31	14.33	12.76	54.42	54.55	68.48	17.58
35	11,779	38.55	28.33	33.13	30.16	41.47	1.89	78.64	13.69	14.24	54.82	54.29	68.62	18.79
36	11,753	39.97	28.5	31.53	30.29	40.26	1.89	78.85	12.79	13.85	55.34	54.6	67.01	18.63
37	11,054	38.54	29.04	32.42	29.43	39.18	1.92	78.43	13.37	13.64	53.8	54.48	66.1	18.49
38	10,518	39.85	28.54	31.61	28.22	39.52	1.89	77.11	14.09	13.77	54.03	54.27	68.13	17.45
39	10,049	39.47	29.33	31.2	29.07	41.13	1.86	77.85	13.8	13.39	56.4	54.69	67.38	18.37
40	11,703	40.41	28.89	30.7	27.97	42.38	1.83	78.76	13.06	12.48	54.68	53.49	68	19.33
41	14,082	41.84	28.9	29.26	27.2	39.84	1.83	77.93	13.5	13.33	54.1	53.56	68.78	17.78
42	14,436	40.02	27.63	32.36	27.07	42.34	1.83	78.48	12.99	13.6	54.19	53.26	68.61	18.79
43	15,616	39.73	30.32	29.95	27.25	43.68	1.82	78.02	13.28	14.52	54.11	53.52	68.92	19.17
44	11,875	40.6	29.16	30.23	26.76	42.92	1.83	77.26	13.61	14.51	53.21	53.74	67.84	18.38
45	11,216	40.51	28.33	31.15	28.64	42.63	1.87	78.54	13.01	14.71	54.21	53.04	69.13	18.79
46	10,980	39.8	29.42	30.79	26.46	41.39	1.8	76.81	13.97	15.33	52.96	53.52	66.18	17.2
47	10,085	40.15	28.3	31.55	26.64	40.23	1.82	74.84	15.29	14.95	53.21	53.96	66.08	17.54
48	7,974	39.49	28.62	31.9	24.75	44.65	1.84	78.23	11.95	14.88	54.24	52.27	69.32	16.86

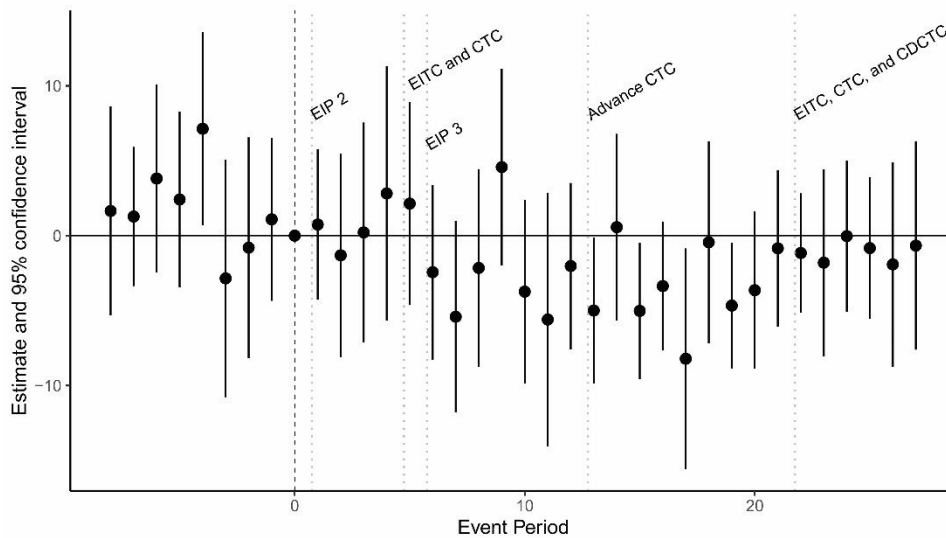
Notes: Sample consists of Household Pulse Survey respondents living in households with no children under 18 and less than \$50,000 pre-tax annual income. Household-level weights are used in the analysis. Numbers are rounded to two decimal places.

Figure A1: Effect of higher cash assistance eligibility on households' perceived financial hardship (unmarried female)



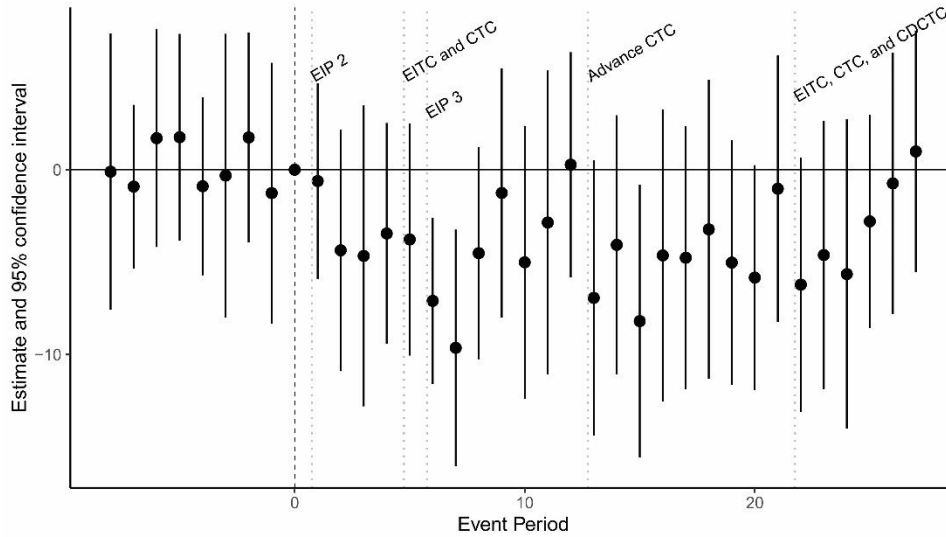
Notes: Author's calculation based on data from United States Census Bureau's Household Pulse Survey weeks 13 to 48. Sample (N=289,349) consists of respondents from households with less than \$50,000 pre-tax annual income. All models include these variables: state fixed effects, period fixed effects, state and period interaction effects, pre-tax annual household income category, marital status, household size, employment status in the last 7 days, homeownership status, educational attainment, race, Hispanic origin, and age. Household-level weights are used in the analysis and standard errors are clustered at the state level. Numbers are rounded to two decimal places. Significance codes: '***' p < 0.001, '**' p < 0.01, '*' p < 0.05, '.' p < 0.1

Figure A2: Effect of higher cash assistance eligibility on households' perceived financial hardship (Black and/or Hispanic)



Notes: Author's calculation based on data from United States Census Bureau's Household Pulse Survey weeks 13 to 48. Sample (N=135,511) consists of respondents from households with less than \$50,000 pre-tax annual income. All models include these variables: state fixed effects, period fixed effects, state and period interaction effects, pre-tax annual household income category, marital status, household size, employment status in the last 7 days, homeownership status, educational attainment, gender assigned at birth, and age. Household-level weights are used in the analysis and standard errors are clustered at the state level. Numbers are rounded to two decimal places. Significance codes: '***' p< 0.001, '**' p< 0.01, '*' p< 0.05, '.' p< 0.1

Figure A3: Effect of higher cash assistance eligibility on households' perceived financial hardship (pre-tax annual household income below \$25,000)



Notes: Author's calculation based on data from United States Census Bureau's Household Pulse Survey weeks 13 to 48. Sample (N=211,116) consists of respondents from households with less than \$50,000 pre-tax annual income. All models include these variables: state fixed effects, period fixed effects, state and period interaction effects, marital status, household size, employment status in the last 7 days, homeownership status, educational attainment, race, Hispanic origin, gender assigned at birth, and age. Household-level weights are used in the analysis and standard errors are clustered at the state level. Numbers are rounded to two decimal places. Significance codes: '***' p< 0.001, '**' p< 0.01, '*' p< 0.05, '.' p< 0.1

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