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THE 2021 CHILD TAX CREDIT, THE LIVING ARRANGEMENTS AND HOUSING
AFFORDABILITY OF FAMILIES WITH LOW INCOMES

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ABSTRACT

Access to safe and stable housing is important for child and adult wellbeing. Yet many low-income households face severe challenges in maintaining stable housing. In this paper we examine the impact of the 2021 temporary expansion to the Child Tax Credit (CTC) on the living arrangements and housing affordability of families with low incomes. We employ a parameterized difference-in-differences method and use national data from a sample of parents who are receiving, or recently received, Supplemental Nutrition Assistance Program benefits (N~20,500). We find that the monthly CTC is associated with a higher likelihood that parents reported a change in their living arrangements as well as reduced household size, an effect largely driven by fewer mothers living with a partner (and not a reduction in doubling up). We also find that the credit reduced parents' likelihood of reporting potential moves due to difficulties affording rent/mortgages as well as the amount and incidence of back-owed rent/mortgages. We find some differences in effects by race and ethnicity and income. Our findings illustrate how the monthly credit allowed parents to gain residential independence from partners, reduce the number of people residing in their household, and reduce their past-due rent/mortgage.

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Access to safe and stable housing is important for child and adult wellbeing (e.g., Desmond and Gershenson 2016; Jelleyman and Spencer 2008; Perkins 2017). Yet many low-income households face severe challenges in maintaining stable housing (Desmond 2012). As housing affordability has declined, housing instability has increased, especially for lower income households (Joint Center for Housing Studies [JCHS] 2022). Although housing instability does not have a universally accepted definition, it typically refers to difficulty with paying for housing, serious housing hardships like homelessness or eviction, household crowding, doubling up (moving in with friends/family), or frequent or involuntary moves (e.g., Cox et al. 2019; Kang 2021; Kleit et al. 2016). Housing instability also often co-occurs with *household* instability, or changes in the composition of the household (Desmond and Perkins 2016), which, like housing instability is generally linked with poorer outcomes for children (Perkins 2019; Ziol-Guest and McKenna 2014).

Concerns about housing instability have been exacerbated by the COVID-19 pandemic. The ensuing lockdowns and extensive closures of businesses (Wheelock 2020) meant that many households were hit with extreme economic hardships (Cooney and Shaefer 2021). Although the federal government implemented a number of policies to stem the negative impacts of the pandemic (e.g., stimulus checks, extended unemployment insurance, larger Supplemental Nutrition Assistance Program payments), including housing specific policies (eviction moratoria, emergency rental assistance, forbearances for mortgages, suspended foreclosures), many families, and in particular low-income families, still faced high rates of housing insecurity. Estimates from early 2021 suggest that nearly a quarter of those with earnings below $25,000 were behind on rent, with Black, Hispanic, and Asian renters being far more likely to report back-owed rent than White renters (JCHS 2021).

In March of 2021, Congress passed a temporary expansion of the Child Tax Credit (CTC) to further address the negative impacts of the COVID-19 pandemic on families with children. The existing CTC benefit of $2,000 per child was increased to $3,600 per child under age 6 and $3,000 per child ages 6-17, and eligibility was extended to families with no (or very low) earnings (with the removal of the minimum earnings requirement). Additionally, rather than providing the transfer at tax time, the temporary expansion also delivered half the benefit in monthly installments from July 2021 to December 2021. These reforms resulted in about 26 million children gaining CTC eligibility or seeing higher benefits and disproportionately benefited households in poverty and families of color (Collyer et al. 2019; Goldin and Michelmore 2021).

An emerging body of evidence finds that the monthly CTC payments improved some aspects of material well-being, like food insecurity (Collyer et al. 2022; Parolin et al. 2023; Pilkauskas et al. 2022; Shafer et al. 2022) but had little to no effect on families' abilities to pay their rent/mortgages (Collyer et al. 2022; Hamilton et al. 2022; Parolin et al. 2023) or on more extreme housing hardships (eviction, homelessness, shelter use, Pilkauskas et al. 2022; although Hamilton et al. 2022 found a marginal reduction in evictions). Our study builds on these prior studies of the 2021 CTC by considering a wider array of housing and household measures in a very economically disadvantaged population that was disproportionately impacted by the expansion. We consider whether the CTC affected household composition (changes in families' living situations, coresidential partnerships, doubling up[1], and household size) and housing instability (moves driven by difficulties affording rent/mortgages as well as the incidence and amount of back-owed rent/mortgages [arrears]). We consider these measures of housing and

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[1] Doubling up refers to households with additional adults who are not the parent(s), or the partner of the parent. This can include both adult relatives and non-relatives.

household instability because they have been previously linked with family and child wellbeing (e.g., Desmond and Gershenson 2016; Desmond and Kimbro 2015; Perkins 2019; Raley et al. 2019; Ziol-Guest and McKenna 2014).

We use a large (N~20,500), national, repeated cross-sectional sample of families who were receiving, or had recently received, Supplemental Nutrition Assistance Program (SNAP or food stamps) benefits. Families in our study had incomes below 130% of poverty, with an average annual income of about $10,000. Using a parameterized difference-in-differences approach, we exploit variation in the size of the credit over time (by number and age composition of children in households) to estimate the causal effects of the monthly 2021 CTC on housing and household instability. Because there are important racial inequalities in the tax system (Brown 2021), and because Black and Hispanic families were more likely to gain access to the CTC under the 2021 reforms (Collyer et al 2019; Goldin and Michelmore 2022) and to experience housing instability (JCHS 2021), we consider heterogeneity in CTC effects by race/ ethnicity. Similarly, because families with very low or no earnings (who are typically excluded from the CTC) gained access to the credit in 2021, we also examine differences in CTC effects by household income (above/below median income in our sample).

We find that the monthly CTC increased the likelihood that families reported a change in their living arrangements and a reduction in overall household size, largely driven by fewer mothers living with a partner (and not a reduction in doubling up). We also find some evidence that the credit reduced back-owed rent/mortgages (both incidence and amount) and the share of families reporting potential moves due to difficulties affording their current rent/mortgages. Additionally, we observe some differences in these effects by race/ethnicity and income. We also find evidence that reductions in back-owed rent/mortgages were concentrated in lower-cost

states, where the monthly credit may have gone further to meet housing costs. Our results are robust to a number of different model specifications and re-weighting approaches, providing more confidence in our estimates.

Our findings suggest that for low-income families, the monthly CTC provided parents with the ability to gain residential independence from partners – in keeping with a literature on cohabitation among low-income households, where romantic partners move in for financial reasons or where former partners cannot move out because of financial constraints (Cross-Barnet et al. 2011; Rault and Régnier-Loilier 2020). The credit also reduced the number of people in the household, indicating a likely reduction in household crowding,[2] which is associated with poorer child outcomes (Johnson et al. 2008). Finally, the credit helped families reduce their back-owed rent/mortgage, likely contributing to housing stability for these families. These findings also contribute to a growing literature on the effects of unconditional cash transfers in the U.S. context and suggest that monthly, unconditional, cash transfers improve housing outcomes for families with low incomes.

Background

The Child Tax Credit

The Child Tax Credit (CTC) was implemented in 1997 to help parents defray the costs of raising children (see Crandall-Hollick 2018 for a more extensive history). Originally, the credit was worth $400 for each child under 17 and primarily went to middle-income tax filers, due to a minimum earnings requirement of $10,000. The credit was also non-refundable, which means that households with no tax liability (the vast majority of low-income filers) were ineligible for

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[2] We cannot observe household crowing, which is typically measured as the number of people in a household relative to the number of rooms in the home, because we do not have measures of the number of rooms.

the credit. Over the years, the size of the credit was increased (to $2,000 beginning in 2017), the minimum earnings threshold was lowered, and the credit was made partially refundable, allowing lower-income households to claim a partial benefit. However, until the temporary reform in 2021, families still had to earn at least $2,500 to claim any benefit, with the value of the credit phasing in at a rate of 15 percent for each dollar above $2,500. These restrictions meant that the poorest one-third of U.S. children were not eligible for the full credit.

In March 2021, Congress passed the American Rescue Plan Act, temporarily expanding the CTC. The size of the credit was increased from $2,000 per child to $3,000 per child ages 6 to 17 (under the usual CTC, 17-year olds are excluded) and $3,600 per child under the age of 6. Importantly, for the families in our study, the earnings minimum was removed, such that those earning less than $2,500 became eligible for the credit. Additionally, the credit was made fully refundable, eliminating the phase-in structure. Lastly, and key to our study, half of the credit was distributed by the IRS in monthly payments. These payments began on July 15, 2021, with the final payment distributed on December 15, 2021. Families received the other half of the credit in a single payment at tax time (February-April 2022). While there was interest in extending the 2021 CTC, Congress did not pass any permanent reforms, and the credit returned to is pre-2021 version in January 2022. Our study focuses on the impact of the monthly payments distributed over the final 6 months of 2021.

Figure 1 illustrates how the 2021 reform transformed the CTC benefit structure. The figure compares the 2021 benefit structure with the pre-reform (and current law) benefit structure for a head of household filer with one child. As Figure 1 illustrates, prior to the 2021 reform (and under current law), the size of the credit phased in with earnings, so very low-income filers did not qualify for any credit, and households with income below roughly $25,000 were not eligible

for the full credit (households with multiple children required even higher earnings to receive the full benefit). During the 2021 reform, the minimum earnings requirement and the phase-in were removed, such that all single-parent households with incomes below $112,500 ($150,000 for married couples) were eligible for the full benefit of $3,000 for a child aged 6-17 and $3,600 for a child under age 6. The grey shading in Figure 1 illustrates how the 2021 reform impacted the size of the credit for families in our study. Overall, the per-child benefit gain between 2020 and the 2021 reform ranged from about $1,000 to $3,600. Given the low incomes of families in our sample (average annual income of about $10,000), the benefit gain from the 2021 reform represents a substantial share of their household incomes, suggesting significant potential to impact housing instability.

Theory and Prior Research

Doubling up, or living with adults beyond the child's parent(s) or parents' partner, is a common experience for children, especially for children in lower income and minority households (Harvey et al. 2021). Doubling up is often a response to poverty or severe housing needs (Clampet-Lunquist 2003; Skobba and Goetz 2013). Many families double up to lower housing costs (Harvey and Dunifon 2023; Pilkauskas et al. 2014), but this can also lead to household crowding, which is linked with poorer outcomes for children (Johnson et al. 2008; Seefeldt and Sandstrom 2015). Qualitative accounts from mothers who double up suggest they do so because of economic or caregiving needs, but they would generally prefer to live independently (Harvey 2022). Thus, additional income through the CTC may have reduced the need for families to double up.

Research examining the effects of cash transfers on doubling up generally supports the idea that greater economic resources lead to less doubling up. Studies have found that expansions

to Social Security increased independent living among older adults (Carlson et al. 2012; Engelhardt et al. 2005). Additionally, expansions to the Earned Income Tax Credit (EITC), a refundable tax credit, reduced the incidence of doubling up and household crowding among families with children (Pilkauskas and Michelmore 2019). However, one study of basic cash assistance (Temporary Assistance for Needy Families) found mixed evidence of its impacts on living arrangements (Bitler et al. 2006). Although we expect that receipt of the CTC reduced doubling up, there are also reasons why it might have *increased* doubling up. Because low-income families are embedded in networks of other low-income families (Smith et al. 2014), economic support from the CTC might have led parents to invite other friends or relatives into their homes.

Although we anticipate that the CTC reduced doubling up, the effect of the CTC on coresidential partnership is less clear. On the one hand, more income likely improved household stability, which might have stabilized partnerships and led to an increase in the likelihood of living with a partner. On the other hand, additional income might have enabled parents to leave partnerships that they were otherwise unable to leave due to financial constraints. Additionally, the effect of income might have varied between married and cohabiting relationships, which we cannot differentiate in our data.

Previous research on the EITC has found small, negative effects of the benefit on marriage (Dickert-Conlin and Houser 2002; Herbst 2011; Michelmore 2018), but these effects are likely driven by the marriage penalty embedded in the credit's structure. In the case of the EITC, many cohabiting couples lose benefits upon marriage due to how spouses' earnings are counted toward eligibility. However, it is difficult to extrapolate these findings to our setting given no substantial marriage penalty embedded in the CTC benefit structure.

No research has examined the effects of the EITC on coresidence with a partner or cohabitation. More generally, economic wellbeing is positively associated with marriage, but socioeconomic indicators are far less robust predictors of cohabitation (Schneider et al. 2019). Rather, for lower-income individuals, cohabitation may be a way to make ends meet (Sassler et al. 2018; Sassler and Lichter 2020), driven by convenience, finances, or housing needs (Sassler 2004). Other research has shown that in low-income households, partners (who may no longer be romantically involved) remain coresident so long as they contribute financially (Edin 2000), or may remain "living together apart" (or remaining in the same home after separation or the end of a romantic relationship) because of shared parenting, housing, or economic needs (Cross-Barnett et al. 2011). Thus, the increased income from the CTC might have led to fewer partnered respondents if the low-income individuals in our study were cohabiting due to economic or housing needs.

If either doubling up or partner coresidence changed, we would also expect to observe changes in living arrangements and household sizes. Even if household composition remained the same, we might also observe changes in living situations, possibly through moves. Some parents might have used the additional income from the CTC to move to a new home or neighborhood. However, it is also possible that rather than inducing moves, CTC payments reduced the need to move (because parents could afford rent or avoid evictions), resulting in a null effect, or even fewer changes in living arrangements.

Given the well-documented links between income and housing affordability and instability (e.g., Chun et al. 2022; Cohen and Wardrip 2011; Desmond 2012; Heflin 2017; Kang 2019; Pilkauskas et al. 2014), we anticipate that the CTC improved housing affordability and reduced back-owed debts. Because research has shown that the during the study period low-

income, Black, and Hispanic families were more likely to report owing back owed rent (JCHS 2022) and housing hardships (Chun et al. 2022), we anticipate that the effects of the CTC were larger for these groups than for those with slightly higher (but still low) incomes and White families.

What evidence do we have so far on how the 2021 CTC impacted families? A quickly expanding literature on the effects of the 2021 CTC suggests that the monthly credit had a number of positive effects on the wellbeing of families (see Curran 2021 for a review of the early evidence), dramatically reducing child poverty (Burns et al. 2022; Parolin et al. 2021) and food insecurity (Collyer et al. 2022; Hamilton et al. 2022; Karpman et al, 2022; Parolin et al. 2023; Perez-Lopez 2021; Pilkauskas et al. 2022; Rapid-EC 2021; Shafer et al. 2022). Studies of the CTC have also found overall reductions in material hardships (Collyer et al. 2022; Pilkauskas et al. 2022), mixed evidence on mental wellbeing (Batra et al. 2023; Collyer et al. 2022; Glasner et al. 2022; Kovski et al. 2023), and some reductions in child maltreatment (Bullinger and Boy 2023). To date, there is less evidence on how the 2021 CTC impacted housing-related outcomes, but existing research suggests few significant effects, despite parents reporting that they spent their credit on rent or housing (Hamilton et al., 2022; Pilkauskas and Michelmore 2022). Three studies found no effects of the CTC on families' abilities to pay their rent or mortgage (being behind on rent [Parolin et al. 2023], skipping payment [Hamilton et al. 2022], not paying full rent/mortgage [Collyer et al. 2022]), although one study found a marginally significant reduction in evictions (Hamilton et al. 2022). Another study, focused specifically on low-income families, found no effect of the CTC on severe housing hardships (evictions, homelessness, shelter use; Pilkauskas et al. 2022). This finding is consistent with other research on cash transfers that

suggests that preventing extreme housing hardships like eviction may require more targeted interventions (Evans et al. 2016; Pilkauskas and Michelmore 2019).

Although the limited evidence to date suggests few effects of the CTC on families' abilities to pay their full rent, it may be the case that the credit allowed families to pay off some back-owed rent/mortgage debt, reducing but not eliminating their overall debt (Pilkauskas et al. 2023). Taken together, we expect that the 2021 expansion of the credit led to reductions in doubling up and household size. We also expect that the credit reduced the need to move due to concerns about affordability and decreased the incidence and amount of past-due rent. Given conflicting evidence on how income is related to relationship stability, we are unsure how the CTC might have impacted coresidential partnership rates.

Method

Data

The main source of data comes from a monthly survey of individuals who are currently receiving or recently received Supplemental Nutritional Assistance Program (SNAP) benefits (a repeated cross-section). These data were collected in partnership with Propel, the makers of the Providers application (app), a private service that assists people in tracking and managing their monthly SNAP benefits. Following passage of the expanded CTC, we partnered with Propel to add questions about the CTC to their survey, which is administered each month to a random sample of their app users, about a range of topics related to families' economic wellbeing, including housing and living arrangements. The Providers app is used by around 5 million SNAP participants (a figure that represents approximately 25% of all SNAP beneficiaries in the U.S.) across all 50 states. These data have been used in several recent studies and policy briefs on the 2021 CTC (Kovski et al. 2023; Michelmore and Pilkauskas 2023; Pilkauskas et al. 2022;

Pilkauskas and Cooney 2021; Pilkauskas and Michelmore 2022). Because the respondents are all current or recent SNAP users, the sample is comprised of families with low incomes, those who saw the largest relative increase in the CTC, and who are often under-represented in national surveys.

We use data from eight monthly surveys, spanning from June 2021 to January 2022. This period captures housing and living arrangements for two months before the first CTC payments were issued to families and for all six of the months of the recurring monthly CTC payments.[3] We restrict the sample to parents with co-residential children under the age of 18 (n = 20,545). In Table 1, we assess the representativeness of the Providers sample by comparing some of our sample characteristics to those in two nationally representative surveys – the 2019 Current Population Survey (CPS) and the 2019 American Community Survey (ACS). Because SNAP receipt is often under-reported in national surveys (Meyer et al. 2009), we also compare our sample to a sample of SNAP users from administrative data files obtained from the 2019 SNAP Quality Control Database (SNAP QC). We find that the Providers data are generally similar to the ACS respondents (both for those living in poverty and those who receive SNAP) and the CPS respondents, with a few differences. The Providers data have larger shares of Black and female respondents than the ACS or the CPS, although the Providers sample looks more similar to the SNAP QC data on both of those characteristics.[4] Appendix Table 1 presents descriptive statistics for the Propel sample, before and after the CTC implementation, demonstrating similar demographic characteristics are similar across both time periods.

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[3] Each monthly survey is fielded from the 1st to the 14th of the month. Monthly CTC payments were issued on the 15th of the month from July 2021 through December 2021. Thus, respondents to the July wave of the Propel survey had not yet received their CTC payment for that month. For example, respondents are asked about the July payment in August.

[4] In an extension, described later, we test the robustness of our findings to reweighting our sample to reflect the demographic distributions of the ACS, CPS and SNAP QC data (see Appendix Tables 5 and 6).

Measures

Living Arrangements/Household Composition

Our analyses focus on four measures of household composition or living arrangements. The first measure is an indicator of whether the respondent experienced a change in their living arrangement in the last 30 days. This measure broadly captures changes in living arrangements, including permanent or temporary moves, or household members moving in or out. The second measure is an indicator for whether the respondent lives with a partner (husband/boyfriend or wife/girlfriend). Our third measure in an indicator for whether the respondent lives in a doubled-up household, which includes individuals living with anyone beyond their child or romantic partner. This could include their parents, siblings, other family, friends, roommates, and/or any "other" nonrelated individual (following prior work in this area; Harvey et al. 2021; Pilkauskas et al. 2014).[5] Lastly, we examine a measure of the number of people in the household (top coded at 7 or more).

Housing Instability

The analyses of housing instability focus on one measure of housing affordability and two measures of back-owed rent/mortgages. To ascertain whether respondents were at risk of moving because of affordability issues, we create an indicator for those who said they would not (or probably would not) be able to remain in their current living situation because they could no longer afford their rent or mortgage. We then use a question that asked respondents how much they owe in past-due rent/mortgages to create (i) an indicator for owing any past-due

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[5] In an extension we examined differences between multigenerational (three-generation) households, doubling up with relatives, and doubling up with non-relatives, and found no differences in results. We show the overall doubled-up estimates for parsimony but results broken out by type of doubled-up household are available upon request.

rent/mortgage (if they reported a value greater than zero), and (ii) a continuous measure of past-due rent/mortgage dollar amounts (logged to reduce skewness in the distribution).

CTC benefits

Our primary measure of CTC exposure is a simulated measure of policy generosity, following prior policy-impact studies (e.g., Currie and Gruber 1996; Michelmore and Pilkauskas 2021). We calculate CTC exposure (or the payment size that a household is potentially eligible for) as the sum of two products: (i) the monthly benefit amount for children under age 6 ($300) x the number of children under age 6 and (ii) the monthly benefit amount for children aged 6 to 17 ($250) x the number of children aged 6 to 17. Amounts of $0 are assigned to all respondents in months before the expanded CTC was rolled out (i.e., before the first advanced CTC payments were issued to families with children). Our measure of CTC exposure leverages variation from two sources – the first due to differences between respondents in the number and ages of their co-residential children (under 6 years/6-17 years), and the second is due to the onset of the monthly CTC payments (before/after payments were issued to families). Respondents also reported their own receipt of the CTC, and amount they received, which we use in some analyses.

Moderating Variables: Race/ethnicity and monthly earnings

We consider heterogeneity in the effects of the CTC by race/ethnicity and monthly earnings. We separately examine Hispanic, non-Hispanic Black, and non-Hispanic White groups. When race/ethnicity is included as a control variable, we also have a category that encompasses all other racial/ethnic groups; however, the size of this group is too small to examine separately. Additionally, we examine differences by level of household earnings in the last month, which serves as a recent proxy for income given high levels of income volatility in very low-income

samples.[6] We divide the sample into those with monthly earnings below the median of $500 and at or above $500.

Demographic and Contextual Factors

Covariates include respondent age, race/ethnicity, gender, education (less than high school, high school, some college, or associate's degree or higher), and place of residence (urban, rural, or suburban). We also control for state-month specific policy variables including: the presence of SNAP emergency allotments (i.e., waivers to provide eligible households with maximum SNAP benefits), the presence of Pandemic Electronic Benefit Transfers (i.e., additional food assistance for school aged-children), and the presence of extended federal Unemployment Insurance.

Empirical strategy

To estimate the effects of the 2021 CTC on living arrangements and housing outcomes, we use a parameterized difference-in-differences methodological approach. The source of exogenous variation that we use to identify effects of the 2021 CTC is the differential generosity of CTC benefits by the number and ages of children in respondents' households before and after the expanded CTC was rolled out.

Our model specification takes the following form:

$$(1)\ Y_{it} = \ \beta_o + \beta_1 CTC_{itc} + \beta_2 X_{it} + \alpha_t + \delta_s + \gamma_{st} + \theta_c + \varepsilon_{it}$$

with the subscripts *i, t, s,* and *c* referring to the individual, month, state, and number of children, respectively. The housing/living arrangement outcome of interest is represented by Y_{it}. CTC_{itc} is the simulated measure of CTC exposure, with the associated coefficient (β_1) scaled to represent

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[6] Prior work has found little employment response to the expanded CTC (e.g., Ananat et al. 2022; Enriquez et al. 2023; Pilkauskas et al. 2022). We therefore do not expect that the 2021 reform impacted household earnings, reducing concerns that this subgroup analysis splits the data on an endogenous variable.

the effect of an additional \$100 in CTC payments. Our models control for respondent

characteristics (X_{it}) and state- and month- specific policies (γ_{st}). We also include fixed effects

for (i) state of residence (δ_s) and (ii) survey month (α_t). Last, because the number of children in

families likely affects living arrangements and housing outcomes, and is a determinant of the

size of the CTC, we also include fixed effects for the number of children under 18 years of age

(θ_c).

We estimate both Intent-to-Treat (ITT) and Local Average Treatment Effects (LATE) of

the monthly CTC payments on outcomes of interest. ITT estimates, which we produce using the

reduced-form Equation 1, tell us about the average effects of the CTC policy change over all

parents living with children. As we show in Table 2, 66% of parents in our sample reported

receiving the monthly CTC payments, and the characteristics of the parents who did receive the

monthly CTC payments differ from those of parents who did not (Pilkauskas and Michelmore

2022). Thus, to estimate the LATE effects (or treatment-on-the-treated) we use our simulated

CTC measure as an instrument for self-reported CTC payments. We produce the LATE estimates

using two-stage least squares regression where the first stage regresses self-reported CTC

benefits (the endogenous variable) on the simulated measure of CTC benefits (the exogenous

variable).

Although some studies of the effects of the CTC use childless households as a control

group (e.g., Batra et al. 2023; Shafer et al. 2022), we employ a parameterized approach rather than

a traditional difference-in-differences because we felt that the childless households were not a good

counterfactual for families with children in our data. Although we did find parallel trends between

households with and those without children before the policy change for some outcomes (like

partnership and household size), we found more divergent patterns for other measures (like

doubling up and changes in living arrangements). The other key assumption in our analysis is that no policy changes or events occurred at the same time as the implementation of the CTC that might have affected treatment and control groups differentially. Here, we felt that assumption was particularly unlikely given the timing of the CTC payments and the overlap with the return to schools for families with children in the fall of 2021. We account for some of the potential policy changes with different controls; however, in conjunction with the lack of clear parallel trends, we opted to rely only on households with children and compare those who received larger versus smaller payments for our analysis. However, we provide estimates from a traditional difference-in-differences model in Appendix Table 2.

Finally, in addition to estimating CTC effects for the full population of low-income parents, our analysis also considers whether there is heterogeneity in effects by monthly household income (above and below $500, which close to the median in our sample), and race/ethnicity (Hispanic, non-Hispanic Black, or non-Hispanic White).

In Table 2, we show the means of the key study variables. The average individual in our sample reported receiving $325 per month in CTC benefits (nearly $500 per month conditional on the two-thirds of respondents who received the benefit). About one in ten respondents (11%) reported a change in their living situation since the prior month, about one-third (30%) lived with a partner or spouse, and 14% were doubled up. White and Hispanic respondents were much more likely than Black respondents to report living with a partner or being doubled up. While our entire sample is economically-disadvantaged, we also find some differences by income: higher-income individuals were more likely to live with a partner than lower-income individuals (35% vs 21%), though rates of doubling up were quite similar across the earnings distribution (ranging from 13% to 15%). The average household size was just over 4 people (4.30 people). Higher-

income individuals reported slightly larger household sizes, as did Hispanic respondents. In terms of housing affordability, only a small share of the sample (6%) reported potential moves because of difficulties affording their rent/mortgage, with higher rates among Black respondents and those earning less than $500 per month. Over half of our sample (57%) reported owing past-due rent/mortgages, also with higher rates among Black and lower-income respondents.

Results

Effects of the CTC on living arrangements and household composition

We begin by considering whether families reported a change in their living arrangements and household composition in Table 3. We find that the CTC increased the likelihood that families reported a change in their living situations. Specifically, an additional $100 in monthly CTC payments led to a significant increase of 0.2 percentage points for the ITT estimate, or 1.4 percentage points for the LATE estimate (representing an 11% change). Recall that this measure captures both changes in household composition and moves to new households. Although we do not have specific information on household moves, we do have more information on household composition. When examining household composition outcomes, we find that an additional $100 in monthly CTC payments decreased the likelihood that parents reported living with a partner by 0.2 percentage points for the ITT, or 1.4 percentage points for the LATE. This effect size is similar in magnitude (but in opposite directions) to that of changes in living arrangements. Taken together, these results suggest that the income from the CTC may have reduced coresidential relationships by providing parents with the means to move out of shared living arrangements.

Based on prior research (e.g., Pilkauskas and Michelmore 2019), we expected that the credit reduced doubling up. Counter to our expectations, we observe no significant effects of the CTC on doubling up, and the point estimates are actually positive. Although we are unsure why

this is the case, one hypothesis is that the monthly CTC payments provided parents with enough

financial stability to host other friends or family in their homes. Finally, we find a significant

reduction in household size following expansion of the CTC. LATE estimates show a significant

decrease of 0.14 people in the household (0.024 people in the ITT), corresponding to a 3%

decline in household size. These effects are likely driven by fewer partners (and associated kin)

living in the household.

Effects of the CTC on housing affordability

Although we find that the CTC led parents to experience changes in living arrangements,

we do not know if it impacted their abilities to afford their homes. If the CTC afforded parents

sufficient economic stability to either move to a new home or live without a partner, the

additional costs of a new home or loss of income/rental assistance from the partner might

produce a null result for housing affordability. In Table 4, we examine the effects of an

additional $100 in monthly CTC payments on two measures of housing affordability. We find

that the CTC payments marginally reduced the likelihood that parents reported needing to move

because of difficulties affording rent/mortgages by about 1 percentage point in the LATE (or 0.1

percentage points in the ITT), reflecting a 13% decline. We also find that the CTC benefits

reduced the likelihood of owing past due rent/mortgages by 1.7 percentage points in the LATE

(0.3 percentage points in the ITT), a roughly 3% decrease. Last, we find that the amounts owed

in back-owed rent also decreased by about 13% (LATE) following an additional $100 in monthly

CTC benefits. In sum, although the estimates are only marginally significant, it appears that the

CTC improved housing affordability, despite also leading to more independent living

arrangements.

Heterogeneity by race or ethnicity and income

We examine heterogeneity by race/ethnicity given differences in housing hardships and

disproportionate benefit gains due to 2021 CTC reforms. Here, we focus our discussion of these

results (reported in Table 5) on the LATE estimates, but the ITT estimates are also provided.

Starting with living arrangements, we find that changes in living situations were largely driven

by White and Hispanic parents, whereas no such effects were observed for Black parents. These

differences likely reflect, in part, baseline differences in living arrangements between these

racial/ethnic groups. In our sample, White and Hispanic parents were much more likely to live

with a partner or doubled up compared to Black parents. We find that, with an additional $100 in

CTC benefits, Hispanic parents were around 5 percentage points more likely to experience

changes in their living situations, 5.5 percentage points less likely to live with partners, and had

0.58 fewer people in their households. For White parents, the pattern was similar but estimates

were smaller: a 1.6 percentage point increase in the likelihood of changed living arrangements, a

2.5 percentage point decline in the likelihood of living with partners, and a decrease of 0.046 in

household size. Interestingly, when examining racial/ethnic differences in housing affordability,

we find just the opposite pattern: null effects for both Hispanic and White families, but

significant effects for Black parents. With an additional $100 in CTC benefits, Black families

were 2.4 percentage points less likely to have reported potential moves due to difficulties

affording rent/mortgages, 3.7 percentage points less likely to have owed any past-due

rent/mortgages, and experienced a 30% decrease in rent/mortgage amounts owed. These

heterogeneous effects may reflect different baseline living arrangements; in our sample, Black

respondents were about two times more likely than White respondents to report potential moves

because of difficulties affording rent/mortgages (9% vs. 5%) and about 1.2 times more likely to

owe past due rent/mortgages (63% vs. 52%). Although the pattern of results by race/ethnicity suggests differences in the impact of the CTC, most of the confidence intervals overlap.

In Table 6, we consider heterogeneity by monthly household earnings, to assess whether those at the lower end of the distribution, who received a proportionately larger income influx and who are typically ineligible for the CTC, were disproportionately impacted. The results show similar point estimates for changes regarding living situations and coresidential partnerships across the two income ranges, although estimates for the higher income group achieved a higher level of statistical significance (likely driven by a larger sample size). We only observe significant declines in household size for the lower income group (less than $500 in monthly earnings), with no such declines observed for the higher income group. This pattern of effects appears to be driven by differences in doubling up rates during the 2021 CTC expansion. Although the point estimates are only marginally significant, the over $500 group shows an *increase* in doubling up for households with more generous CTC benefits, whereas the opposite is true for the under $500 group. This pattern aligns with our hypothesis that the monthly CTC benefits allowed some parents to help support other family and friends. If this hypothesis were correct, we would anticipate observing larger effects among the higher-earning parents in our sample, as they have more resources than the lower-earning parents. This is exactly the pattern we observe (note, however, that most confidence intervals overlap between the two income groups). For housing affordability (moves due to rental difficulties and past due rent/mortgages), we find the effects are primarily driven by the under $500 income group, whereas there are no significant associations for the higher income group, and point estimates are close to zero.

Robustness checks and extensions

Traditional Difference-in-Differences

As noted earlier, we opted to focus our analyses on a parameterized difference-in-differences approach comparing families with children (with different age and household size compositions) before and after the expansion. However, in Appendix Table 2, we ran traditional difference-in-differences models where we included (i) an indicator for pre/post CTC interacted with the presence of children in the household or (ii) a version of the simulated CTC measure (a continuous measure) with $0 assigned to all childless households. We find that the estimates based on pre-post indicator differ somewhat from those based on the continuous measure. In fact, the signs of many of estimates flip across these two approaches. We are unsure why this is the case, but the pre-post indicator is a blunter measure of the CTC than the continuous indicator, which varies by the number and ages of children – variation that might matter for living arrangements and housing affordability. For the continuous measure, we observe similar findings on living arrangements to those in our preferred specification (more changes in living arrangements, less living with partners, and smaller household sizes), although we find fewer significant effects on housing affordability.

Alternate Specifications

We test the robustness of our main specification to the inclusion of a number of additional controls in Appendix Table 3 (LATE estimates are presented but ITT estimates are available upon request). First, we show that including the state-year contextual variables as well as controlling for state-level COVID rates does little to change our results. Second, we test several alternate specifications that in various ways account for children in the household: (i) separate controls for the numbers of children under 6 and ages 6-17, (ii) an indicator for the

presence of any children under 6, and (iii) interaction terms between the number of children

fixed effects and demographic controls. These different controls do not change the substantive

findings. Last, we add a control for the timing of the survey response relative to the disbursement

of the CTC. We do this because the response to the CTC might differ depending on the time

elapsed between the date that the respondent received the credit and when they took the survey.

The findings are unchanged when we add this control. Overall, the results are generally robust to

the model specification, with slight changes in point estimates and/or statistical significance

across models.

In another analysis (available upon request), we consider whether effects of the CTC on

living arrangements and housing affordability varied by month of the credit. Specifically, we

include in our models interactions between the CTC and the post-CTC month in which the

respondent was surveyed to test for (i) a dose-response relationship and (ii) a critical level of

treatment. A dose-response would indicate that each additional month of credit receipt led to a

greater response. A critical level of treatment may suggest that a certain number of monthly

payments were needed (e.g., at least 3 months of receipt) before outcomes began to change. We

find no clear evidence of a dose-response or a critical threshold for any of the outcomes

considered.

Sample Specification

In Appendix Table 4, we test several alternative sample specifications. First, we exclude

the first month of CTC payment (our August survey), as the IRS had some difficulties rolling out

the first payments, which may have dampened effects. The results are robust to this exclusion.

Second, we exclude the last month of the CTC payment (our January survey, which asked about

the December payment), as Congress failed to reauthorize the CTC and some respondents knew

it was ending, potentially impacting their response. Again, the results are robust. Finally, we exclude male respondents as they represent only 5% of our sample. We find stronger effects on both living arrangements and housing affordability after this exclusion, suggesting that our findings are largely driven by mothers.

Reweighting the data

In Appendix Table 5, we show the results after reweighting the Providers sample to reflect the demographic distributions of the ACS, CPS, and SNAP QC samples. We follow the reweighting procedure detailed in Schneider and Harknett (2022) and construct weights that align the Providers sample more closely with each of these national samples in terms of age, race/ethnicity, highest level of education, and sex. After reweighting, the results (shown in Appendix Table 6) remain generally consistent with our main models.

Heterogeneity by housing cost burdens

The effect of the CTC might have varied with housing costs in an area. However, we are uncertain whether the effects would have been larger in higher- or lower-cost areas. In lower-cost areas, the additional income may have gone further to improve housing affordability or the ability to live independently. Alternatively, impacts may have been greater in higher-cost areas due to the higher prevalence of housing affordability challenges. Housing costs are generally geographically localized and unfortunately, our only geographical indicator is state, a relatively poor proxy for local housing area costs. Nonetheless, we examine whether state-level housing cost burdens moderated the effects in this study.

To construct state-level measures of housing cost burdens, we use data on housing costs and pre-tax earnings collected in the ACS. We calculate the share of households in each state who are cost burdened or extremely cost burdened (defined as paying 30% or more or 50% or

more of pre-tax earnings on housing). We then rank the states (from least to most burdened) and split the states into cost burdened quartiles. In Appendix Table 7 we run our models separately for each quartile. We find no consistent pattern of effects on living arrangements by state-level housing cost burden quartile. For housing affordability, we find some suggestive evidence that effects were larger in the least cost-burdened states (based on either the 30% or 50% thresholds).

As a second individual-level measure of housing costs, we use the ACS to predict, for each family in our study, the share of family earnings spent on housing (a continuous variable).[7] We then stratify and run our analyses by whether families are predicted to be housing cost burdened (again using the 30% and 50% thresholds). Similar to the results based on the state-level measure, with respect to living arrangements, we find few differences in effects by (predicted) cost-burden status, but we do find evidence of greater reductions in housing affordability issues (potential moves because of difficulties paying rent/mortgages and owing past-due rent/mortgages) among those predicted to be cost burdened (when using the 30% threshold; Appendix Table 8).

Discussion

As housing costs continue to rise, housing instability is a growing concern in the United States, particularly for low-income families. As such, it is important to understand how public policy can impact housing instability and affordability. In this paper, we investigated how the temporary reforms to the CTC in 2021, which essentially created a monthly universal child benefit, impacted housing instability and living arrangements among low-income families. We

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[7] The share of earnings that families spent on rent/mortgages are predicted in two stages. In a first stage, we use data from the ACS to estimate a linear regression for the share of earnings spent on housing as a function of state of residence, race/ethnicity, education, and age. In a second stage, we use estimates from the first-stage regression to predict, for each individual in the Providers sample (according to state, race/ethnicity, education, and age), their share of family earnings spent on housing, which we then use to assign cost-burden status.

rely on a parameterized difference-in-differences design, comparing families who received larger versus smaller monthly payments before and after the 2021 reform, to assess the effects of the CTC on a number of different housing stability and affordability outcomes: changes in living arrangements, residing with partners, doubling up, household size, potential moves due to difficulties affording rent/mortgages, and back owed-rent/mortgages (incidence and amount).

Our results suggest that the monthly CTC benefits improved housing-related outcomes for low-income families. In particular, parents that received larger CTC payments owed less in past-due rent/mortgages, had a lower likelihood of reporting potential moves due to affordability concerns, were less likely to live with partners, and had fewer people residing in their households. Reductions in both past-due rent/mortgages and potential moves (due to affordability constraints) strongly suggest that the 2021 CTC improved housing affordability among low income families. Because the results show reductions in living with partners (and not in doubled up households), the findings for overall household size are likely driven by this effect. Although we cannot directly examine household crowding (because we do not have information on the number of rooms in housing units), decreases in household size suggest the important possibility of declines in household crowding, which is associated with negative outcomes for children (e.g., Johnson et al. 2008).

Our findings of a reduction in coresident partners is in keeping with a literature on economic determinants of cohabitation among low-income families. Research finds that partners often expedite shared living to help make ends meet (Sassler et al. 2018; Edin 2000); thus, the CTC likely made it more feasible to live without a partner (through either reduced moves into the household, increased moves out, or both). Because we cannot observe marital status, we cannot distinguish between cohabitation dissolution or separation (or even divorce). Future research

should distinguish between these household types and investigate the underlying reasons for coresidence to better understand the implications of these changes for children's wellbeing.

The null effect of the CTC on doubling up was counter to our expectations given prior research (e.g., Pilkauskas and Michelmore 2019). Furthermore, this null finding is unexpected given that we found that parents were less likely to report living with partners. Thus, it appears that parents chose to end (or avoid) cohabitation with partners but not move out of (or avoid) living with other relatives or friends. This pattern of results suggests, perhaps that the cash transfer was enough to move out of, or avoid, some living arrangements but not all shared living arrangements. Additionally, it may demonstrate how CTC payments had downstream effects on some but not all housing challenges, as doubling up can be a precursor to homelessness (Wright et al. 1998), and parents typically prefer to live independently (Harvey 2022).

Analyses by race/ethnicity showed that changes in living arrangements were largely driven by White and Hispanic households, whereas changes in housing affordability were largely driven by Black households. Although we do not have definitive evidence on why we find these differential patterns by race, we do observe stark differences in the prevalence of these outcomes by race and ethnicity. For instance, while nearly half (43%) of White respondents were residing with a partner, the same was true for only 14% of Black respondents. Additionally, housing affordability issues were more common among Black respondents than White respondents: Black respondents were twice as likely as White respondents to report potential moves because of difficulties affording rent/mortgages (9% vs 4.8%) and considerably more likely to owe past-due rent/mortgage (63% vs. 52%).

Although our entire sample is economically-disadvantaged, we still observe some differences in CTC effects for the top versus the bottom of the earnings distribution. Declines in

the likelihood of living with a partner were larger for the higher-earning respondents, while increases in housing affordability were larger for the lower-earning respondents. We also found some evidence that among those with higher-earnings, CTC payments *increased* doubling up. Again, these findings may reflect differences in the prevalence of these outcomes by income. Compared to lower-earning respondents, those with higher-earnings were much more likely to live with a partner (35% vs. 21%), less likely to report needing to move because of difficulties affording rent/mortgages (5.5% vs. 9%), and less likely to owe past-due rent/mortgage (56% vs. 62%). That we find evidence of an *increase* in doubling up among the higher-earning individuals in our sample may reflect that the financial stability provided by the CTC prompted parents to share these benefits with their friends and family. Prior research suggests that families are embedded in homophilous networks (Smith et al., 2014), and because the families in our study all have low incomes, it is likely that many also have extended family and friends in need of economic support.

Housing affordability varies greatly by location, and the impacts of the CTC likely varied by housing market characteristics. Although we do not have geographic information beyond state of residence, in an extension, we find larger effects on household composition (household size and living with a partner) in higher-cost burdened states, but larger improvements in housing affordability-related outcomes for individuals living in lower-cost burdened states. This latter finding might reflect the fact that the monthly CTC benefits, which do not vary by state, go further in helping families pay off their past-due rent/mortgages in states where costs are lower. Research is needed regarding the housing implications of the 2021 CTC that uses better data on housing costs across space.

Together, our analyses indicate that the 2021 monthly CTC improved the housing and living arrangements of low-income families, but several factors limit our ability to draw larger conclusions about the role of monthly cash transfers, more broadly, on housing instability. First, although the 2021 CTC reforms essentially (but temporarily) turned the credit into a universal child benefit, implementation issues affected the distribution of benefits. Survey evidence suggests that some seemingly eligible families did not receive the benefits (Parolin et al. 2021; Pilkauskas and Cooney 2021) and some payments were delayed (IRS 2021). Still, evidence indicates that most families with low incomes (nearly 80%) received at least one payment (Michelmore and Pilkauskas 2023).

In addition to not reaching all eligible families, the monthly CTC was only provided for six months. Thus, it is likely that the impacts of the expanded credit on housing and household instability would have been more pronounced if the credit had been in place for a longer period of time. In the U.S., changes in living arrangements, and housing in particular, can be cost prohibitive, often requiring significant sums of money for rental deposits or down payments on home purchases. Additionally, the 2021 CTC was distributed during a time of high inflation, a continuing global pandemic, and shortly after the federal government had implemented many other policy responses (like expanded SNAP benefits, eviction moratoria, and stimulus payments). For these reasons, the findings for the 2021 CTC are only suggestive of the potential impacts of a full-scale, longer-lasting child allowance or benefit on housing insecurity.

Nonetheless, our results suggest that the 2021 reforms to the CTC improved the housing stability of families with low incomes. Our findings illustrate how the monthly credit allowed parents to gain residential independence from partners, reduce the number of people residing in households, and reduced past-due rent/mortgages. These results illustrate how a monthly cash

transfer can reduce housing instability; future work should focus on the implications of these

changes in housing stability for other aspects of well-being for both children and their parents.

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Table 1: Comparing Providers Survey data to the American Community Survey, SNAP Quality Control Data and the Current Population Survey March ASEC

	Providers	ACS 2019		SNAP Quality Control Data 2019	CPS ASEC 2019
		Households below 100% of poverty	SNAP recipients	SNAP recipients	SNAP recipients
Age					
18-24	7	7	6	9	8
25-34	40	37	38	41	38
35-44	35	37	38	32	35
45-54	12	15	15	12	15
55+	5	3	3	5	5
Household structure					
Household size	4.30	4.04	4.19	3.56	4.11
Number of kids	2.53	2.3	2.31	2.03	2.18
Partner/spouse	30	46	47	-	50
Race/Ethnicity					
Black	35	24	27	31	27
White	35	37	37	41	37
Hispanic	21	31	29	22	27
Other	9	8	7	7	9
Education					
<High school	23	21	18	25	23
High school	39	44	45	55	37
Some college	27	25	27	15	31
College or more	10	10	9	5	10
Female	94	74	72	89	73
Receive food stamps	85	56	100	-	100
N	20,545	34,648	38,322	15,735	2,816

Notes: SNAP recipients are those who reported receiving Supplemental Nutrition Assistance Program in the last 12 months (SNAP Quality Control Data also include those who are pending SNAP receipt). Poverty is calculated using the Census Bureau's official poverty thresholds. All samples are restricted to households with at least one coresident child under the age of 18. The ACS and CPS-ASEC samples are further restricted to the reference person and estimates are weighted (sample sizes are unweighted). SNAP Quality Data are also further restricted to the reference person and estimates are weighted (sample sizes are unweighted). SNAP Quality Control Data have high levels of missingness in race/ethnicity and education. Therefore, these estimates should be interpretted with caution. For more information see https://snapqcdata.net/sites/default/files/2022-12/FY%202020%20SNAP%20QC%20Technical%20Documentation.pdf.

Sources: American Community Survey (ACS), 2019; Current Population Survey-Annual Social and Economic Supplement (CPS-ASEC), 2019; Supplemental Nutrition Assistance Program (SNAP) Quality Control Data, 2019; Providers Survey Data, June 2021-January 2022.

Table 2: Descriptive statistics for the Child Tax Credit and outcome measures

	Overall	Race/Ethnicity			Earnings	
		Black	Hispanic	White	<$500	$500+
Child Tax Credit						
Self-reported CTC receipt (%)	65.9	68.9	61.2	67.5	58.0	72.9
Self-reported monthly CTC payment ($)	325	338	303	334	271	373
(SD)	(314)	(305)	(314)	(319)	(298)	(319)
Self-reported monthly CTC payment among receivers ($)	494	490	495	495	467	512
(SD)	(257)	(246)	(257)	(266)	(248)	(262)
Predicted monthly CTC payment ($)	712	743	744	644	702	717
(SD)	(425)	(436)	(440)	(373)	(433)	(412)
Living arrangements						
Living situation changed	0.11	0.11	0.12	0.10	0.12	0.10
Living with a partner	0.30	0.14	0.35	0.43	0.21	0.35
Doubled up	0.14	0.10	0.15	0.17	0.15	0.13
Number of people in the household	4.30	4.14	4.57	4.25	4.11	4.42
(SD)	(1.64)	(1.63)	(1.62)	(1.62)	(1.63)	(1.64)
Housing affordability						
May move because of difficulty affording rent/mortgage	0.06	0.09	0.06	0.05	0.09	0.06
Owe past-due rent/mortgage [a]	0.57	0.63	0.57	0.52	0.62	0.56
Log amount owed in past-due rent [a]	3.89	4.25	3.98	3.54	4.25	3.81
(SD)	(3.47)	(3.37)	(3.50)	(3.47)	(3.43)	(3.46)
N	20,545	6,430	3,985	6,146	7,040	10,390

Notes : Sample restricted to households with at least 1 child under 18.

[a] N=16,989 for overall; N= 5,765 for Black respondents, N=3,576 for Hispanic respondents, N=5,324 for White respondents; N= 5,906 for <$500; N=9,543 for $500+

Source : Providers Survey Data, June 2021-January 2022.

Table 3: Effects of the 2021 monthly Child Tax Credit on living arrangements

	ITT	LATE
Living situation changed	0.002 *	0.014 *
	(0.001)	(0.006)
Living with a partner	-0.002 +	-0.014 +
	(0.001)	(0.009)
Doubled up	0.001	0.004
	(0.001)	(0.007)
Number of people in the household	-0.024 **	-0.139 **
	(0.004)	(0.023)
F-statistic		420.41
First stage coefficient		17.26
N	20,545	

Notes: Coefficients represent the response of an additional $100 in monthly 2021 CTC benefits. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18. Models include demographic controls (age, gender, education, race/ethnicity, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits.

Source: Providers Survey Data, June 2021-January 2022.
+ $p < 0.10$; $p < 0.05$; ** $p < 0.01$

Table 4: Effects of the 2021 monthly Child Tax Credit on housing affordability

	ITT	LATE
May move because of difficulty affording rent	-0.001 +	-0.008 +
	(0.001)	(0.005)
Owe past-due rent/mortgage [a]	-0.003 +	-0.017 +
	(0.002)	(0.010)
Log amount owed in past-due rent [a]	-0.023 +	-0.127 +
	(0.013)	(0.071)
F-statistic		420.41
First stage coefficient		17.26
N	20,545	

Notes: Coefficients represent the response of an additional $100 in monthly 2021 CTC benefits. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18. Models include demographic controls (age, gender, education, race/ethnicity, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits.

[a] N=16,989

Source: Providers Survey Data, June 2021-January 2022.

+ $p < 0.10$; $p < 0.05$; ** $p < 0.01$

Table 5: Effects of the 2021 Child Tax Credit on living arrangements and housing affordability, by race/ethnicity

	Black		Hispanic		White	
	ITT	LATE	ITT	LATE	ITT	LATE
Living arrangements						
Living situation changed	0.000	-0.003	0.004 +	0.051 +	0.005 *	0.016 *
	(0.002)	(0.011)	(0.002)	(0.032)	(0.002)	(0.007)
Living with a partner	0.001	0.004	-0.004	-0.055	-0.007 *	-0.025 *
	(0.002)	(0.013)	(0.003)	(0.044)	(0.003)	(0.012)
Doubled up	-0.003	-0.017	0.001	0.011	0.003	0.010
	(0.002)	(0.011)	(0.003)	(0.032)	(0.003)	(0.009)
Number of people in the household	-0.009	-0.056	-0.046 **	-0.578 **	-0.014 +	-0.046 +
	(0.006)	(0.034)	(0.009)	(0.174)	(0.008)	(0.026)
Housing affordability						
May move because of difficulty affording rent	-0.004 *	-0.024 *	0.000	-0.002	0.000	-0.001
	(0.002)	(0.011)	(0.002)	(0.022)	(0.002)	(0.005)
Owe past-due rent/mortgage [a]	-0.006 +	-0.037 +	-0.004	-0.049	-0.002	-0.005
	(0.003)	(0.019)	(0.004)	(0.044)	(0.004)	(0.012)
Log amount owed in past-due rent [a]	-0.049 *	-0.302 *	-0.025	-0.277	-0.014	-0.044
	(0.021)	(0.136)	(0.027)	(0.304)	(0.027)	(0.086)
F-statistic		119.35		19.13		299.64
First stage coefficient		16.63		7.97		30.17
N		6,430		3,985		6,146

Notes : Coefficients represent the response of an additional $100 in monthly 2021 CTC benefits. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18. Models include demographic controls (age, gender, education, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits.

[a] N= 5,765 for Black respondents, N=3,576 for Hispanic respondents, N=5,324 for White respondents
Source : Providers Survey Data, June 2021-January 2022.
+ p < 0.10; p < 0.05; ** p < 0.01

Table 6: Effects of the 2021 Child Tax Credit on living arrangements and housing affordability, by monthly household earnings

	<$500		$500 +	
	ITT	LATE	ITT	LATE
Living arrangements				
Living situation changed	0.001	0.011	0.003 +	0.012 +
	(0.002)	(0.014)	(0.001)	(0.006)
Living with a partner	-0.002	-0.015	-0.005 *	-0.020 *
	(0.002)	(0.017)	(0.002)	(0.007)
Doubled up	-0.002	-0.013	0.003 +	0.013 +
	(0.002)	(0.015)	(0.002)	(0.007)
Number of people in the household	-0.034 **	-0.257 **	-0.003	-0.015
	(0.006)	(0.057)	(0.005)	(0.023)
Housing affordability				
May move because of difficulty affording rent	-0.002	-0.018	-0.001	-0.004
	(0.002)	'(0.013)	(0.001)	(0.005)
Owe past-due rent/mortgage [a]	-0.008 *	-0.060 *	0.000	0.000
	(0.003)	(0.025)	(0.003)	(0.011)
Log amount owed in past-due rent [a]	-0.054 *	-0.423 *	-0.003	-0.012
	(0.021)	(0.172)	(-0.018)	(0.076)
F-statistic		88.76		365.06
First stage coefficient		13.22		23.40
N		7,040		10,390

Notes : Coefficients represent the response of an additional $100 in monthly 2021 CTC benefits. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18. Models include demographic controls (age, gender, education, race/ethnicity, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits.

[a] N= 5,906 for <$500; N=9,543 for $500+
Source : Providers Survey Data, June 2021-January 2022.
+ p < 0.10; p < 0.05; ** p < 0.01

Fig. 1. Child Tax Credit schedule, prior/current law and 2021 reform, for one child with a single parent
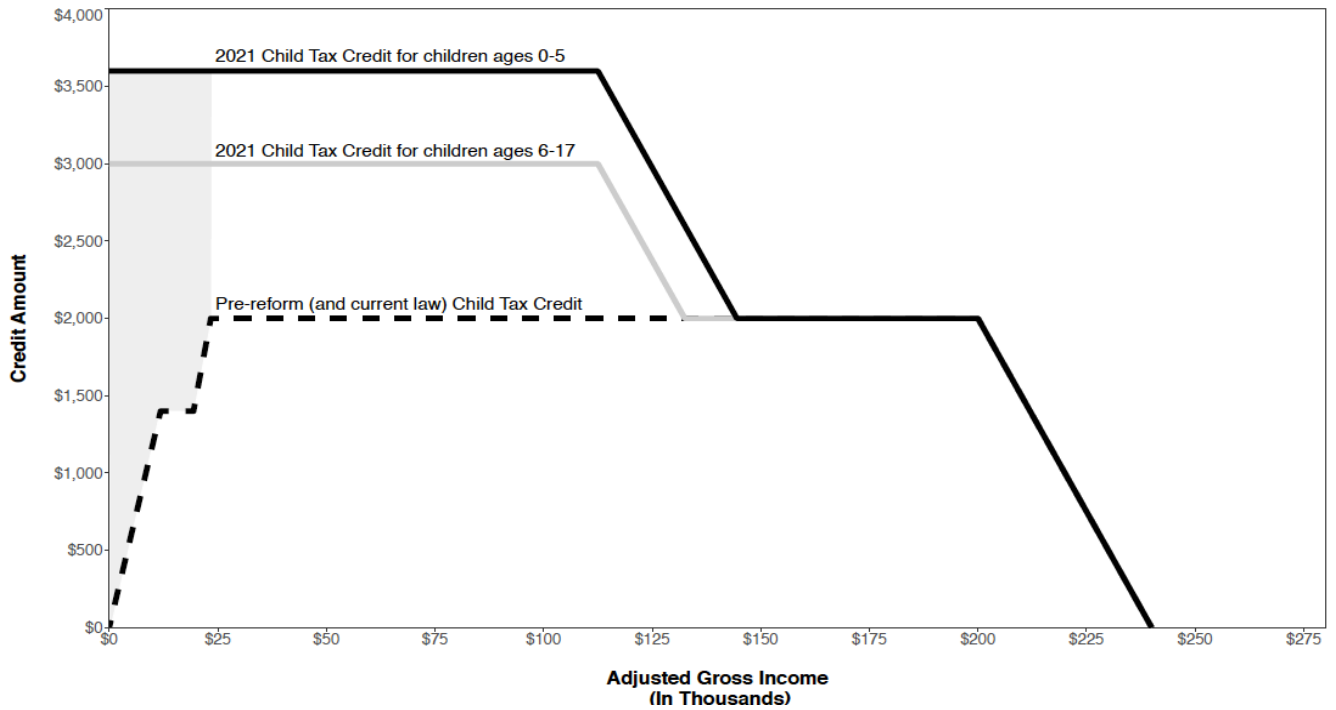
Note: Shaded area indicates the gain in CTC credit during the 2021 reform among families with incomes below $25,000, those represented in the Propel study sample.

Appendix Table 1: Sample characteristics and outcome variables, overall and by pre-Child Tax Credit and post-Child Tax Credit periods

	Overall	Pre-CTC	Post-CTC
Demographics			
Age (%)			
18-24	7	7	7
25-34	40	38	41
35-44	35	36	35
45-54	12	13	11
55+	5	7	5
Race/Ethnicity (%)			
Black non-Hispanic	35	31	37
White non-Hispanic	35	38	34
Hispanic	21	22	21
Other non-Hispanic	9	10	9
Education (%)			
Less than High School	23	22	24
High School	39	37	40
Some College	27	28	26
Associates Degree +	10	12	10
Gender (%)			
Female	94	94	94
Urbanicity (%)			
Urban	46	44	47
Rural	32	32	32
Suburban	22	24	21
Household earnings (%)			
$0	22	23	21
$0-$500	17	15	18
$500-$999	19	18	19
$1000-$1999	25	26	25
$2000+	13	14	13
Outcome variables			
Living arrangements			
Living situation changed	0.11	0.10	0.11
Living with a partner	0.30	0.33	0.29
Doubled up	0.14	0.15	0.14
Number of people in the household	4.30	4.26	4.32
SD	(1.64)	(1.65)	(1.64)
Housing affordability			
May move because of difficulty affording rent/mortgage	0.06	0.06	0.07
Owe past-due rent/mortgage	0.57	0.54	0.58
Log amount owed in past-due rent	3.89	3.71	3.96
(SD)	(3.47)	(3.49)	(3.46)
N	20,545	5,265	15,280

Notes : Sample restricted to households with at least 1 child under 18.
Source : Providers Survey Data, June 2021-January 2022.

Appendix Table 2: Effects on of the 2021 Child Tax Credit on living arrangements and housing affordability: Difference-in-differences with households without children as the comparison group

	Pre-post (0/1 indicator)		Continuous	
	ITT	LATE	ITT	LATE
Living arrangements				
Living situation changed	-0.001	-0.001	0.002 +	0.007 +
	(0.013)	(0.020)	(0.001)	(0.004)
Living with a partner	-0.007	-0.010	-0.002 +	-0.008 +
	(0.018)	(0.027)	(0.001)	(0.005)
Doubled up	-0.023	-0.035	-0.001	-0.003
	(0.016)	(0.025)	(0.001)	(0.005)
Number of people in the household	-0.252 **	-0.378 **	-0.028 **	-0.114 **
	(0.057)	(0.085)	(0.004)	(0.017)
Housing affordability				
May move because of difficulty affording rent	0.009	0.013	-0.001	-0.003
	(0.009)	(0.014)	(0.001)	(0.003)
Owe past-due rent/mortgage [a]	0.046 *	0.067 *	-0.001	-0.003
	(0.022)	(0.033)	(0.002)	(0.006)
Log amount owed in past-due rent [a]	0.312 *	0.456 *	-0.006	-0.025
	(0.154)	(0.226)	(0.011)	(0.044)
F-statistic	-	2593.81	-	1734.13
First stage coefficient	-	66.72	-	24.42
N			32,615	

Notes: Coefficients for the pre-post difference-in-differences model represent the response of the introduction of the monthly 2021 CTC payments. Coefficients for the continuous/parameterized difference-in-differences represent the response of an additional $100 in monthly 2021 CTC payments. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample includes households with and without children. Models include demographic controls (age, gender, education, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits.

[a] N= 25,824
Source: Providers Survey Data, June 2021-January 2022.
+ $p < 0.10$; $p < 0.05$; ** $p < 0.01$

Appendix Table 3: Effects on of the 2021 Child Tax Credit on living arrangements and housing affordability: Testing the addition of controls

	LATE							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Living arrangements								
Living situation changed	0.009 **	0.009 **	0.009 **	0.014 **	0.009 +	0.010 +	0.013 *	0.014 *
	(0.002)	(0.002)	(0.002)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)
Living with a partner	0.017 **	0.016 **	0.016 **	-0.014 +	-0.013 *	-0.020 *	-0.011	-0.014 +
	(0.003)	(0.003)	(0.003)	(0.009)	(0.007)	(0.008)	(0.008)	(0.009)
Doubled up	-0.004	-0.004	-0.004	0.004	0.003	0.001	0.004	0.004
	(0.003)	(0.003)	(0.003)	(0.007)	(0.005)	(0.007)	(0.007)	(0.007)
Number of people in the household	1.026 **	1.027 **	1.026 **	-0.139 **	-0.064 **	-0.127 **	-0.123 **	-0.140 **
	(0.022)	(0.022)	(0.022)	(0.023)	(0.018)	(0.022)	(0.022)	(0.023)
Housing affordability								
May move because of difficulty affording rent	0.002	0.002	0.002	-0.008 +	-0.008 *	-0.007	-0.009 +	-0.008 +
	(0.002)	(0.002)	(0.002)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)
Owe past-due rent/mortgage [a]	0.011 *	0.011 *	0.011 *	-0.017 +	-0.012	-0.015	-0.017 +	-0.018 +
	(0.004)	(0.004)	(0.004)	(0.010)	(0.008)	(0.010)	(0.010)	(0.010)
Log amount owed in past-due rent [a]	0.103 **	0.103 **	0.103 **	-0.127 +	-0.099 +	-0.110	-0.126 +	-0.132 +
	(0.030)	(0.030)	(0.030)	(0.071)	(0.057)	(0.068)	(0.069)	(0.071)
F-statistic	2467.68	2467.21	2467.74	420.41	691.42	452.37	454.19	418.63
First stage coefficient	24.38	24.37	24.38	17.26	25.77	18.13	18.03	17.23
N					20,545			
Demographic controls (age, gender, race/ethnicity, education, urbanicity), month fixed effects + state fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Contextual controls (SNAP/PEBT/UI)	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Controlling for COVID-19 rates	No	No	Yes	No	No	No	No	No
Number of children fixed effects	No	No	No	Yes	No	Yes	Yes	Yes
Number of children under 6 years fixed effects + number of 6-17 years fixed effects	No	No	No	No	Yes	No	No	No
Indicator for any children under 6 years	No	No	No	No	No	Yes	No	No
Number of children fixed effects x demographic controls	No	No	No	No	No	No	Yes	No
Controlling for number of days since the credit was disbursed	No	No	No	No	No	No	No	Yes

Notes: Coefficients represent the response of an additional $100 in monthly 2021 CTC benefits. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18.

[a] N=16,989
Source: Providers Survey Data, June 2021-January 2022.
+ $p < 0.10$; $p < 0.05$; ** $p < 0.01$

Appendix Table 4: Effects on of the 2021 Child Tax Credit on living arrangements and housing affordability: Testing robustness to alternative sample restrictions

	Excluding August		Excluding January		Female respondents only	
	ITT	LATE	ITT	LATE	ITT	LATE
Living arrangements						
Living situation changed	0.002 +	0.010 +	0.003 *	0.015 *	0.002 +	0.011 +
	(0.001)	(0.006)	(0.001)	(0.006)	(0.001)	(0.006)
Living with a partner	-0.003 +	-0.016 +	-0.002	-0.014	-0.004 **	-0.022 **
	(0.002)	(0.008)	(0.002)	(0.009)	(0.002)	(0.009)
Doubled up	0.001	0.003	0.001	0.006	0.001	0.005
	(0.001)	(0.007)	(0.001)	(0.007)	(0.001)	(0.007)
Number of people in the household	-0.023 **	-0.128 **	-0.023 **	-0.129 **	-0.018 **	-0.090 **
	(0.004)	(0.023)	(0.004)	(0.024)	(0.004)	(0.022)
Housing affordability						
May move because of difficulty affording rent	-0.001	-0.006	-0.001	-0.008	-0.001	-0.005
	(0.001)	(0.005)	(0.001)	(0.005)	(0.001)	(0.005)
Owe past-due rent/mortgage [a]	-0.003 +	-0.018 +	-0.003 +	-0.018 +	-0.003 +	-0.017 +
	(0.002)	(0.010)	(0.002)	(0.010)	(0.002)	(0.010)
Log amount owed in past-due rent [a]	-0.024 +	-0.129 +	-0.025 +	-0.137 +	-0.026 +	-0.131 +
	(0.013)	(0.070)	(0.013)	(0.072)	(0.014)	(0.071)
F-statistic		452.97		418.67		420.13
First stage coefficient		18.06		17.50		17.26
N		18,709		18,674		17,297

Notes: Coefficients represent the response of an additional $100 in monthly 2021 CTC benefits. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18. Models include demographic controls (age, gender, education, race/ethnicity, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits.

[a] N= 15,494 for excluding August; N = 15,447 for excluding January; N = 16,989 for female respondents only
Source: Providers Survey Data, June 2021-January 2022.
+ p < 0.10; p < 0.05; ** p < 0.01

Appendix Table 5: Propel sample characteristics after reweighting to reflect the ACS, CPS and SNAP QC samples

		Providers data					
	Original	Weighted to the 2019 ACS	Weighted to the 2019 CPS	Weighted to the 2019 SNAP QC	ACS 2019	CPS ASEC 2019	SNAP QC 2019
Age							
18-24	7	6	8	9	6	8	9
25-34	40	37	37	40	38	38	41
35-44	35	37	34	30	38	35	32
45-54	12	15	15	13	15	15	12
55+	5	5	6	6	3	5	5
Race/Ethnicity							
Black	35	27	28	33	27	27	31
White	35	37	38	43	37	37	41
Hispanic	21	28	26	16	29	27	22
Other	9	8	9	7	7	9	7
Education							
<High school	23	18	22	21	18	23	25
High school	39	45	37	59	45	37	55
Some college	27	27	31	15	27	31	15
College or more	10	9	10	6	9	10	5
Female	94	74	75	89	72	73	89

Notes: All samples are restricted to households with at least one coresident child under the age of 18. The ACS and CPS-ASEC samples are further restricted to indvidiuals who reported having received SNAP benefits in the last 12 months and who are designated the household reference person. To reweight the Providers sample, we follow the reweighting procedure detailed in Schneider & Harknett (2022) and construct weights that align the Providers sample more closely with the ACS, CPS, and SNAP QC samples in terms of the following charactersitics: age, race/ethnicity, highest level of education, and sex.

Sources: American Community Survey (ACS), 2019; Current Population Survey-Annual Social and Economic Supplement (CPS-ASEC), 2019; Supplemental Nutrition Assistance Program (SNAP) Quality Control Data, 2019; Providers Survey Data, June 2021-January 2022.

Appendix Table 6: Effects of the 2021 Child Tax Credit on living arrangements and housing affordability; Results after reweighting Providers data to reflect the ACS, CPS and SNAP QC samples

	ITT			LATE		
	ACS	CPS	SNAP QC	ACS	CPS	SNAP QC
Living arrangements						
Living situation changed	0.004 *	0.005 *	0.003 *	0.032 *	0.033 *	0.016 *
	(0.002)	(0.002)	(0.001)	(0.015)	(0.015)	(0.008)
Living with a partner	0.000	-0.001	0.000	0.002	-0.004	-0.002
	(0.003)	(0.002)	(0.002)	(0.020)	(0.047)	(0.013)
Doubled up	0.000	0.000	-0.001	0.001	0.002	-0.004
	(0.002)	(0.002)	(0.001)	(0.013)	(0.014)	(0.008)
Number of people in the household	-0.039 **	-0.034 **	-0.034 **	-0.291 **	-0.253 **	-0.201 **
	(0.011)	(0.009)	(0.010)	(0.106)	(0.081)	(0.069)
Housing affordability						
May move because of difficulty affording rent	-0.004 *	-0.003 *	-0.002 *	-0.029 *	-0.022 *	-0.013 *
	(0.001)	(0.001)	(0.001)	(0.012)	(0.009)	(0.006)
Owe past-due rent/mortgage [a]	-0.005 +	-0.003	-0.004	-0.035	-0.019	-0.019
	(0.003)	(0.003)	(0.002)	(0.021)	(0.020)	(0.012)
Log amount owed in past-due rent [a]	-0.033	-0.013	-0.025	-0.223	-0.088	-0.136
	(0.020)	(0.019)	(0.016)	(0.151)	(0.144)	(0.087)
F-statistic				60.00	67.55	145.39
First stage coefficient				13.63	13.66	16.80
N			20,545			

Note: Coefficients represent the response of an additional $100 in monthly CTC benefits. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18. Models include demographic controls (age, gender, education, race/ethnicity, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits. Models are weighted to the demographic characteritics of the ACS, CPS, or SNAP QC samples.

[a] N= 16,989

Sources: American Community Survey (ACS), 2019; Current Population Survey-Annual Social and Economic Supplement (CPS-ASEC), 2019; Supplemental Nutrition Assistance Program (SNAP) Quality Control Data, 2019; Providers Survey Data, June 2021-January 2022.

+ $p < 0.10$; $p < 0.05$; ** $p < 0.01$

Appendix Table 7: Effects of the 2021 Child Tax Credit on living arrangements and housing affordability, by state-level housing cost burden quartile

	Quartile 1 (lowest cost burden)		Quartile 2		Quartile 3		Quartile 4 (highest cost burden)	
	ITT	LATE	ITT	LATE	ITT	LATE	ITT	LATE
A. Housing cost burden defined as paying 30% or more of pre-tax earnings on housing								
Living arrangements								
Living situation changed	0.008 *	0.028 *	0.005 **	0.025 **	0.000	0.000	0.000	-0.004
	(0.003)	(0.012)	(0.002)	(0.009)	(0.002)	(0.011)	(0.002)	(0.021)
Living with a partner	-0.003	-0.010	-0.002 +	-0.009 +	-0.003	-0.013	-0.006 +	-0.058 +
	(0.005)	(0.017)	(0.002)	(0.012)	(0.003)	(0.015)	(0.003)	(0.032)
Doubled up	0.006	0.021	-0.001	-0.003	0.000	0.001	0.002	0.022
	(0.004)	(0.014)	(0.002)	(0.010)	(0.003)	(0.012)	(0.003)	(0.025)
Number of people in the household	-0.009	-0.030	-0.015 **	-0.083 **	-0.021 *	-0.095 *	-0.031 **	-0.283 **
	(0.012)	(0.042)	(0.006)	(0.032)	(0.008)	(0.040)	(0.009)	(0.094)
Housing affordability								
May move because of difficulty affording rent	0.000	0.003	-0.001	-0.005	-0.005 *	-0.024 *	0.000	-0.005
	(0.002)	(0.008)	(0.001)	(0.007)	(0.002)	(0.010)	(0.002)	(0.016)
Owe past-due rent/mortgage [a]	-0.017 **	-0.060 **	-0.004	-0.025	-0.006	-0.030	0.005	0.039
	(0.006)	(0.022)	(0.003)	(0.016)	(0.004)	(0.019)	(0.004)	(0.033)
Log amount owed in past-due rent [a]	-0.108 **	-0.391 **	-0.037 +	-0.205 +	-0.047 +	-0.222 +	0.033	0.284
	(0.040)	(0.149)	(0.019)	(0.107)	(0.028)	(0.133)	(0.028)	(0.242)
F-statistic		108.98		192.38		136.13		35.98
First stage coefficient		28.66		18.61		21.78		10.95
N		2,272		8,406		4,070		3,817
B. Housing cost burden defined as paying 50% or more of pre-tax earnings on housing								
Living arrangements								
Living situation changed	0.007 +	0.024 +	0.004 *	0.020 *	0.001	0.007	0.001	0.012
	(0.004)	(0.013)	(0.002)	(0.009)	(0.002)	(0.011)	(0.002)	(0.025)
Living with a partner	-0.009	-0.029	0.001	0.004	-0.006 *	-0.031 *	-0.004	-0.041
	(0.005)	(0.019)	(0.002)	(0.011)	(0.003)	(0.016)	(0.003)	(0.035)
Doubled up	0.004	0.013	0.001	0.004	-0.003	-0.014	0.004	0.041
	(0.004)	(0.015)	(0.002)	(0.009)	(0.002)	(0.012)	(0.003)	(0.030)
Number of people in the household	-0.007	-0.025	-0.009	-0.047	-0.032 **	-0.155 **	-0.028 **	-0.274 *
	(0.013)	(0.045)	(0.006)	(0.030)	(0.008)	(0.040)	(0.009)	(0.108)

Appendix Table 7: Effects of the 2021 Child Tax Credit on living arrangements and housing affordability, by state-level housing cost burden quartile

	Quartile 1 (lowest cost burden)		Quartile 2		Quartile 3		Quartile 4 (highest cost burden)	
	ITT	LATE	ITT	LATE	ITT	LATE	ITT	LATE
Housing affordiability								
May move because of difficulty affording rent	0.001	0.003	-0.002	-0.008	-0.002	-0.009	-0.002	-0.020
	(0.003)	(0.008)	(0.001)	(0.007)	(0.002)	(0.008)	(0.002)	(0.019)
Owe past-due rent/mortgage [b]	-0.020 **	-0.067 **	-0.005 +	-0.022 +	-0.001	-0.006	0.001	0.007
	(0.007)	(0.024)	(0.003)	(0.012)	(0.004)	(0.020)	(0.004)	(0.035)
Log amount owed in past-due rent [b]	-0.136 **	-0.461 **	-0.037 +	-0.192 +	-0.015	-0.079	0.006	0.052
	(0.045)	(0.160)	(0.019)	(0.098)	(0.026)	(0.138)	(0.029)	(0.257)
F-statistic		92.49		226.46		134.39		27.06
First stage coefficient		29.81		19.58		20.56		10.06
N		1,945		8,351		4,963		3,306

Notes : Each panel (A, B) is based on a different threshold for being considered housing cost burdened. Because we do not have data on Propel respondent's housing costs, we use data on housing costs and pre-tax earnings collected in the American Community Survey (ACS) to derive a state-level measure of housing cost burdens. Quartiles are at the state level and ranked according to the share of households in each state that report being housing cost burdened (defined as paying 30% or more or 50% or more of pre-tax earnings on rent/mortgage). Coefficients represent the response of an additional $100 in monthly 2021 CTC benefits. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18. We further exlude respondents who did not report state of residence (needed match the cost burden quartiles). Models include demographic controls (age, gender, education, race/ethnicity, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits.

[a] Panel A: Quartile 1 N= 1,884; Quartile 2 N=7,362; Quartile 3 N=3,579; Quartile 4 N=3,455
[b] Panel B: Quartile 1 N= 1,596; Quartile 2 N=7,374; Quartile 3 N=4,345; Quartile 4 N=2,965
Source : Providers Survey Data, June 2021-January 2022.
+ p < 0.10; p < 0.05; ** p < 0.01

Appendix Table 8: Effects of the 2021 Child Tax Credit on living arrangements and housing affordability, by individual-level predicted housing cost burden

	Not cost burdened		Cost burdened	
	ITT	LATE	ITT	LATE
A. Housing cost burden defined as paying 30% or more of pre-tax earnings on housing				
Living arrangements				
Living situation changed	0.005 +	0.025 +	0.002 +	0.013 +
	(0.003)	(0.013)	(0.001)	(0.007)
Living with a partner	-0.002	-0.012	-0.003 +	-0.019 +
	(0.004)	(0.020)	(0.002)	(0.010)
Doubled up	0.005 +	0.026 +	0.000	-0.001
	(0.003)	(0.016)	(0.001)	(0.008)
Number of people in the household	-0.032 **	-0.164 **	-0.017 **	-0.095 **
	(0.011)	(0.057)	(0.004)	(0.026)
Housing affordability				
May move because of difficulty affording rent	0.001	0.003	-0.002 +	-0.011 +
	(0.002)	(0.011)	(0.001)	(0.001)
Owe past-due rent/mortgage [a]	0.005	0.022	-0.005 *	-0.028 *
	(0.005)	(0.023)	(0.002)	(0.012)
Log amount owed in past-due rent [a]	0.030	0.144	-0.036 *	-0.203 *
	(0.034)	(0.163)	(0.015)	(0.084)
F-statistic		83.80		300.93
First stage coefficient		19.68		17.77
N		3,666		14,517
B. Housing cost burden defined as paying 50% or more of pre-tax earnings on housing				
Living arrangements				
Living situation changed	0.003 +	0.013 +	0.003 +	0.022 +
	(0.001)	(0.007)	(0.002)	(0.013)
Living with a partner	-0.005 *	-0.022 *	-0.002	-0.015
	(0.002)	(0.010)	(0.003)	(0.017)
Doubled up	0.002	0.009	0.000	-0.002
	(0.002)	(0.008)	(0.002)	(0.013)
Number of people in the household	-0.021 **	-0.100 **	-0.015 *	-0.100 *
	(0.005)	(0.026)	(0.006)	(0.044)
Housing affordability				
May move because of difficulty affording rent	0.000	-0.002	-0.003 *	-0.021 *
	(0.001)	(0.006)	(0.001)	(0.010)
Owe past-due rent/mortgage [b]	-0.004	-0.019	-0.003	-0.021
	(0.002)	(0.012)	(0.003)	(0.020)
Log amount owed in past-due rent [b]	-0.032 +	-0.156 +	-0.020	-0.132
	(0.017)	(0.085)	(0.021)	(0.138)
F-statistic		311.09		106.60
First stage coefficient		20.68		15.29
N		11,206		6,977

Notes : Each panel (A, B) is based on a different threshold for being considered housing cost burdened. Because we do not have data on Propel respondent's housing costs, we use data on housing costs and pre-tax earnings collected in the American Community Survey (ACS) to derive a predicted individual-level measure of housing cost burdens. Coefficients represent the response of an additional $100 in monthly 2021 CTC benefits. ITT = Intent-to-Treat. Local average treatment effects (LATE) obtained by instrumenting CTC receipt as reported by the respondent. Standard errors in parentheses. Sample restricted to households with at least 1 child under 18. We further exlude respondents who did not report state of residence or other demographic variables needed to predict cost-burden status. Models include demographic controls (age, gender, education, race/ethnicity, and urbanicity), state fixed effects, month fixed effects, number of child fixed effects, and state-level controls for SNAP, PEBT, and UI benefits.

[a] Panel A: Cost burdened N= 3,278; Not cost burdened N= 12,787
[b] Panel B: Cost burdened N= 6,061; Not cost burdened N= 10,004
Source : Providers Survey Data, June 2021-January 2022.
+ $p < 0.10$; $p < 0.05$; ** $p < 0.01$